Program Book

2018 Applied Superconductivity Conference

Washington State Convention Center

October 28 – November 2

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Dear Colleagues,

Welcome to Seattle! On behalf of the entire organizing team, I'm glad you've joined us here at the Washington State Convention Center for the 2018 Applied Superconductivity Conference.

For more than five decades, ASC has been an important gathering point for the electronics, large scale, and materials fields within the applied superconductivity community, and we're proud to continue that tradition this year in Seattle, a vibrant urban city set in what is truly one of the most beautiful parts of North America. We hope you will be able to enjoy much of what the city and the region has to offer this week.

I am personally very proud of the technical program that our program committee has put together this year. From a set of plenary speakers that includes not one, but *two* recent Nobel laureates, to an array of special technical sessions that represents a wide cross-section of the field, to a new roundtable discussion session, the program committee has put together a program that will challenge us to consider how superconductivity can continue to be an enabling technology for significant breakthroughs in medicine, energy, quantum information, cosmology, physics, transportation, and many other technological areas for years to come. We are also working hard to highlight the up-and-coming leaders in our field with a dedicated plenary session that contains short, 5-minute talks from young scientists who are doing exceptional work at their institutions.

I also hope you will take time this week to connect with the industrial representatives who have joined us as exhibitors and who are critical to enabling us, as scientists and engineers, to do our work. The field of applied superconductivity has always been at its most dynamic and successful when the science and industrial communities work closely together, and ASC is a key place to enable these connections. Further, I hope you will take time to thank and interact with the conference sponsors (listed below on this page) who are investing in our community and helping to make the conference possible this year.

We are further happy to continue partnering with the IEEE Council on Superconductivity to allow submission of conference manuscripts to a special issue of the IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY (TASC), a peer-reviewed and fully indexed and searchable publication available through IEEE Xplore. ASC's long-standing partnership with the Council and TASC ensures that the papers presented this week will continue to influence our collective work for years to come, and indeed it is difficult to find a significant paper in applied superconductivity that was not either presented at ASC or cites work from the Transactions.

On behalf of the many, many volunteers making this conference possible as members of the ASC Board of Directors, Program Committee, Editorial staff, or as chairs of conference initiatives, thanks for joining us, and enjoy your week in Seattle!

Matthew Jewell
Chair, ASC 2018

Dear Colleagues,

When we started brainstorming about the main topics for the 2018 Applied Superconductivity Conference (ASC) program, we identified three central themes. The first theme, quantum information and quantum computing, is a rapidly growing field, with many possibilities that connect with superconductivity. It also comprises a community that the Program Committee felt might receive ASC as a premier meeting venue. The second theme, energy efficiency and development of renewable energy sources, explores some of the most challenging problems facing human society, as well as solutions that could arise from game-changing technologies based on superconductivity. Third, exploration of the universe, is among the most fascinating and open fields of human knowledge, where both particle accelerators and astrophysics experiments define technological challenges that pull the development of superconductors and superconducting applications. The core of the program, its special sessions, and the program flow have been shaped by these themes.

After the announcement of the 2017 Nobel prize in Physics, awarded "*for decisive contributions to the LIGO detector and the observation of gravitational waves*", we were excited by the prospect of offering the ASC stage to Nobel laureates with strong connections to applied superconductivity, and in subjects in line with the main program themes we had identified. We are now proud and honored to announce that the Nobel Laureates Prof. Rainer Weiss (MIT), and Prof. Barry Barish (Caltech), accepted our invitation to be plenary speakers at ASC2018.

Prof. Barish opens the conference with a discussion that will stimulate our thoughts about large projects, such as particle accelerators, which rely upon superconductivity. Besides being a founder of the Laser Interferometer Gravitational-wave Observatory (LIGO), Prof. Barish was the Director of the Global Design Effort for the International Linear Collider (ILC) project, and co-chair of the High Energy Physics Advisory Panel subpanel that developed a long-range plan for U.S. high energy physics back in 2001. Prof. Barish will share his view on linear-collider projects that require superconducting radio-frequency cavities and other large physics and astrophysics projects. The theme of particle accelerators continues on the conference Tuesday, with a special historical session to celebrate the 50th anniversary of the 1968 BNL Summer Study on Superconducting Devices and Accelerators. Speakers will describe how those original themes, which include superconducting magnets, cryogenics, radio-frequency cavities, and detectors, continue to be relevant for present-day accelerators and envisioned accelerators 50 years into the future.

Prof. Weiss will present the closing conference plenary lecture, which will discuss the history of gravitational waves, the exquisite devices that lead to their detection, and on what we can learn about the universe through them. Leading up to the closing lecture, and continuing the astrophysics theme, a second plenary lecture on the conference Friday will discuss on the search for dark matter axions and their relevance for the formation of the universe. Prof. Yannis Semertzidis, Director of the Center for Axion and Precision Physics Research at the Korea Advanced Institute of Science and Technology will give the lecture, and will describe development of very high field superconducting magnets integrated with quantum detectors. In conjunction with these themes, a special session titled Cosmological Applications of Superconductors takes place Friday morning. The organizers describe it as “a journey in space and time, as well as in temperature, that will show us how ambitious scientific targets in cosmology are shaping developments in superconducting technologies.”

The conference energy theme will be represented by the Tuesday plenary talk, by Tabea Arndt (Siemens), who will examine HTS materials as possible enabling technologies for sustainable mobility and energy efficiency in power technology. The theme will be continued by a special session that same day, organized by the International Energy Agency’s Technology Collaboration Program on HTS, which will explore the potential of HTS-based devices to facilitate a transformation towards reliable, resilient, secure, affordable, flexible and efficient energy systems.

The quantum information and quantum computing theme receives focus on the conference Thursday. Prof. Robert J. Schoelkopf, Director of the Yale Quantum Institute, will open with a plenary lecture about *The Prospects for Scalable Quantum Computing with Superconducting Circuits*, which will focus on the development of superconducting devices for quantum information processing. The discussion will explore revolutionary advances in computing. This keynote plenary presentation will be complemented by a special session during the afternoon, titled *Quantum Computing, Information, and Engineering*, which will feature invited leaders across geographical and technical disciplines. The session will provide the ASC attendees a comprehensive view of efforts and prospects worldwide.

The conference program on superconducting electronics will additionally have a focus on the 9th Transition-Edge-Sensor (TES) Workshop, successfully held as part of ASC since 2008. The focus track will include a special session dedicated to a *Superconductor Electronics Technology Roadmap* being developed in the frame of the International Roadmap for Devices and Systems (IRDS), including focus themes on Cryogenic Electronics and Quantum Information Processing.

The list of plenary lecturers includes two additional outstanding representatives of the applied superconductivity community, providing insight on more specific themes. Dr. Peter Lee, from the Applied Superconductivity Center at the National High Magnetic Field Laboratory, will deliver a lecture on *Microstructure-property correlations in superconducting wires*, illustrating his pioneering works on the microscopy of superconductors that lead to key developments in wire performance. In these systems, the understanding and characterization of structural and chemical inhomogeneities at the microscopic scale are essential to extend the material limits for the next generation of superconductor applications. Dr. Hideaki Maeda (Japan Science and Technology Agency/RIKEN), will report on the recently started 10-years MIRAI Program in Japan, focused on the development of joining technologies between HTS, a necessary milestone toward the development of super-high field NMR systems. Also focused on the Materials aspects of applied superconductivity, the special session *Beyond the Artificial Pinning Centers,* dedicated to the great physicist and Nobel Laureate Alexei A. Abrikosov, will present an opportunity to review and stimulate new ideas to improve pinning, and thus application capabilities, of both low- and high-temperature superconductors.

We are pleased to announce that the conference program will add a roundtable discussion, held within the conference Wednesday morning plenary session, on the future of very high field HTS magnets for fusion, accelerators, and science, identified as present and future drivers of superconducting technology advancement. *HTS Magnets at the Frontier of Science and Technology* will be an informal conversation, moderated by Joe Minervini (MIT), with Prof. Seungyong Hahn (Seoul National University), Dr. Tengming Shen (Lawrence Berkeley National Laboratory), and Dr. Zach Hartwig (MIT), where the involvement and contribution of the audience to the discussion will be of paramount importance to stimulate new ideas and include all perspectives.

Last for this program overview, but certainly not least, the traditional ASC plenary setting will give some space to young and promising scientists in the superconductivity field. Candidates nominated by the ASC Program Committee and selected by a committee of specialists will have 5 minutes to present a new idea, physics breakthrough, or eye-opening perspective that they are working on.

All this was made possible only by the constant support and strong effort by all Program Committee and Board of Directors members, particularly by the outstanding group of sub-chairs; by the IEEE Council on Superconductivity; and by Centennial Conferences. But we emphasize that the success and the beauty of this conference cannot but be the fruit of the almost 1650 contributions that scientists and engineers from every part of the world have chosen to provide, with all stimulating discussion and new ideas that will span from these.

Best wishes,

Luigi Muzzi
ASC 2018 Program Co-Chair

Lance Cooley
ASC 2018 Program Co-Chair

Young Scientist Plenary Session Inaugural ASC Event

sponsored by The Pennsylvania State University, College of Engineering

Wednesday, October 31, 9:30 a.m.
Ballroom 6ABC

It is with immense pleasure that we introduce the first Young Scientist Plenary session at the Applied Superconductivity Conference. This event originated at the Magnet Technology conference held in Amsterdam in 2017 (MT25) and its introduction into ASC was strongly supported by the community. It is the intent to continue with this event at future ASC programs. We hope to see this become one of the most prestigious opportunities offered to younger scientists and an event that is highly anticipated by all attending who are interested in the future generations' direction in applied superconductivity.

The young scientists, who are selected among recommendations made by the Program Committee, have demonstrated outstanding, significant potential in the field of superconductivity and have gained the recognition and interest of other scientists in the community.

The organizing committee chairs, Luisa Chiesa and Sasha Ishmael, believe that this addition to the plenary sessions gives the entire applied superconductivity community exposure to the novel thoughts, approaches and unexplored paths that these young scientists deliver. We would also like to highlight and thank the Penn State University, College of Engineering for sponsoring this event. With pride and pleasure we present ASC18's selection of Young Scientist Plenaries.

Young Scientist Plenary Speaker Name	**Title of Talk**	**Bio**
Laura Garcia Fajardo, Lawrence Berkeley National Laboratory (LBNL), USA (Large Scale) 	Prospects of Canted-Cosine-Theta Magnets based on HTS Technology for High Field Accelerator Dipoles	Laura Garcia Fajardo earned her Ph.D. in Engineering and industrial production at the Polytechnic University of Valencia in 2012. Her research focused on the design of accelerator driven systems (ADS) for nuclear waste transmutation, focusing on the neutronic and thermohydraulic studies of the subcritical nuclear core. This work was part of a project that won the Award of the Academy of Sciences of Cuba in 2015. In 2013 she started a fellowship at CERN where she worked on the design and small prototype fabrication of superconducting (Nb_3Sn) wiggler magnets for the Compact Linear Collider (CLIC) collaboration. In 2016 she accepted a postdoc position at LBNL to work on the design and manufacturing of Canted Cosine Theta (CCT) magnet prototypes that use Rutherford cables made of Bi-2212. In 2018 she became a Research Scientist in the Engineering Division at LBNL and she is involved in several projects including the ALS upgrade, CCT and the LCLS-II.
Yingzhen Liu, Karlsruhe Institute of Technology (KIT), Germany (Large Scale) 	Technology Development towards a DC Wind generator with No-insulation Superconducting Coil	Yingzhen Liu was born in Hebei, China. She received the B.E.E. degree from the Harbin Institute of Technology, Harbin, China, in 2011, and the M.S.E.E. degree from the Huazhong University of Science and Technology, Wuhan, China, in 2014. She received her Dr.-Ing. degree with distinction from the Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, in 2018. She is currently working as a post-doctoral researcher in the Institute for Technical Physics, KIT. Her research interest is machine design, especially the design of superconducting wind generators, and superconducting magnets.

Daniel Cunnane, California Institute of Technology/Jet Propulsion Laboratory, USA (Electronics) 	High Temperature Superconductors for Space Science Applications	Daniel Cunnane has considerable research experience working with MgB_2 devices including both Josephson technologies and heterodyne detectors. He earned his B.S. in Physics and Mathematics at the University of Pittsburgh, and his Ph.D. at Temple University the advisement of Professor Xiaoxing Xi, working on MgB_2 Josephson junctions for SFQ circuits. He followed his Ph.D. work with a NASA Postdoctoral Fellowship at the Jet Propulsion Laboratory (JPL) working on MgB_2 Hot Electron Bolometers. He also developed an MgB_2 Josephson Mixer which showed good mixing performance up to 2 THz. In 2015, he joined the staff at JPL and was awarded the Nancy Grace Roman Technology Fellowship in Astrophysics, a NASA award for early career researchers.
Qiuyun "Olivia" Xu, Institute of Advanced Sciences, Yokohama National University, Japan (Electronics) 	Extremely Energy-efficient Deep Learning Hardware using Adiabatic-flux-quantum Technology	Qiuyun Xu, also known as Olivia Chen, is an assistant professor at Institute of Advanced Sciences, Yokohama National University, Japan. She received the B.E. degree from Southeast University in 2008 and the M.E. and Ph.D. degrees from Yokohama National University, in 2014 and 2017. Her research interests include superconducting electronics, extremely energy-efficient computing, deep learning hardware accelerator and design automation for superconductive electronics.
David Fischer, Atominstitut, Technology University Wien, Austria (Materials) 	HTS for Fusion - Fusion for HTS?	David Fischer is a Ph.D. student at TU Wien (Vienna University of Technology) where he is studying superconducting materials to be used in fusion applications. His research focuses on studying the impact of neutron irradiation on the ability of high temperature superconductors for loss-free current transport. For that purpose, he irradiates samples in the nuclear research reactor at the Atominstitut and after several months of decay time, he investigates how the transport properties of the samples has changed as a function of irradiation level, temperature and magnetic field.
Rudra Pratap, University of Houston, USA (Materials) 	Challenges and Advances in Thick Film REBCO Tapes	Rudra Pratap is a Ph.D. candidate in the department of Materials Science and Engineering at University of Houston, Texas. His research interests include thick and thin film growth process optimization, film characterization and analysis. His current research focuses on using Advanced Metal Organic Chemical Vapor Deposition to develop doped and un-doped thick REBCO films, that are capable to carry very high critical current at wide range of temperature (such as 77 K to 4.2 K) and magnetic field (such as 0 T to 31 T). He received his B.Tech. (in 2013) from Gitam University, India in Mechanical Engineering.

INFORMATION FOR ORAL PRESENTERS

- Presentations will be given using the computers provided by the Conference. Presenters' personal computers **cannot** be used.
- Presenters are **required to submit an electronic version** of their talk at least one day prior to their presentation to the **Speaker Preparation Room (Room 618)** at the Washington State Convention Center. Files are reviewed, scanned for viruses and loaded onto the appropriate computers in the session rooms. Changes to submitted files will not be allowed.
- Using removable media (USB drives) is prohibited on the computers in oral session rooms. Saving data to and from them is not possible.
- Files transferred to the session computers cannot be copied by anyone and will be deleted after the session. Anyone wishing to receive a copy of the slides should contact the presenter, not ASC.
- Presentations must be submitted in Microsoft Power Point 2016 or PDF format. Acceptable media include CD and USB flash drive. Macintosh computers will **not** be available in any of the session rooms. Authors using a Macintosh must ensure their presentations operate correctly using Microsoft Office 2016 or Adobe Acrobat in the Windows environment.
- All session rooms are equipped with a LCD projector, computer, microphones, laser pointer, timer and screen. The laptops in the oral session rooms are **not** equipped to accommodate audio sound.
- Contributed presentations are 15 minutes; arrange your talk so that your presentation lasts 12 – 13 minutes with 2 – 3 minutes available for questions.
- Invited presentations are 30 minutes; arrange your talk so that your presentation lasts 25 minutes with 5 minutes available for questions.
- Arrive a few minutes before the session and introduce yourself to the session moderators before the start of the session.
- There will be **no rearrangement of papers within an oral session to accommodate absences or cancellations**. The time assigned to an oral presentation within the oral session is fixed.
- A paper written from its presentation **will not be considered for publication** in the special conference issue of the IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY **if the presentation was not given during its scheduled time** at the Conference.
- If you need to withdraw your presentation from the program, please advise the staff in the **Publications Office (Room 619)** at the Washington State Convention Center. Please be sure to provide your presentation/program ID number (e.g. 1EOr1A-01, 4MOr2A-02, 5LOr1C-04, etc.) in any correspondence.

The **Speaker Preparation Room** is located in **Room 618**. The hours of operation are as follows:

Sunday	October 28, 2018	4:00 p.m. – 7:00 p.m.
Monday	October 29, 2018	7:00 a.m. – 6:30 p.m.
Tuesday	October 30, 2018	7:00 a.m. – 7:00 p.m.
Wednesday	October 31, 2018	7:00 a.m. – 6:00 p.m.
Thursday	November 1, 2018	7:00 a.m. – 5:30 p.m.
Friday	November 2, 2018	7:00 a.m. – 10:30 a.m.

If your presentation appears in a poster session, you will want to take note of the following:

- Each horizontal poster board measures 4 ft (height, top to bottom) x 8 ft (width, right to left), (121 cm x 243 cm) and has two sides (front and back).
- Poster boards will be numbered as follows: E1 – E56 for Electronics, L1 – L112 for Large Scale, and M1 – M52 for Materials.
- Poster board numbers are part of the presentation ID and are shown in brackets, for example: 2EPo1A-01 [E1]; 3MPo1B-09 [M19]; 4LPo1K-05 [L91].
- Each presentation is assigned to one side of the board, except for invited posters.
- Poster presenters are expected to arrange their material on poster boards before the session starts. Presenters may bring pre-prints or handouts and make them available on the poster board.
- There are no parallel oral sessions during the poster sessions.
- Only papers that are presented at ASC 2018 may be considered for publication. For posters, the word "presented" means that **an author must be present during the entire session and available for discussion.** Attendance will be taken by the session chairs; if an author cannot be located, the paper written from this poster will **not** be considered for publication in the special conference issue of the IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY.
- Authors will be permitted to view other posters in the nearby area where posters of similar topic are clustered. Please keep in mind that authors are expected to be available for attendees.
- If you have more than one poster and they are not side by side, then you need to spread your time over all poster presentations. Please note on the poster board your other location(s) and the time you expect to be present. Please also inform the session chair(s).
- It is **NOT acceptable** to merely post a copy of your paper. Such papers will be marked as a "no-show" presentation.

Please note that ASC 2018 accepts no responsibility for material that may be left behind, lost, stolen, or damaged.

If you need to **withdraw your presentation** from the program, please advise the staff in the **Publications Office (Room 619)**. Please be sure to provide your presentation ID number (e.g. 2EPo1A-01, 3LPo1D-02, 4MPo1D-04, etc.) on any correspondence.

Poster presenters must setup or tear down their poster presentations as follows:

Day	Setup	Session Time	Tear Down
Monday, October 29, 2018	1:00 p.m. – 2:00 p.m.	2:00 p.m. – 4:00 p.m.	6:30 p.m. – 8:30 p.m.
Tuesday, October 30, 2018	7:00 a.m. – 8:45 a.m. 12:30 p.m. – 1:30 p.m.	8:45 a.m. – 10:45 a.m. 1:30 p.m. – 3:30 p.m.	10:45 a.m. – 12:30 p.m. 3:30 p.m. – 4:00 p.m.
Wednesday, October 31, 2018	7:00 a.m. – 10:00 a.m. 12:30 p.m. – 1:30 p.m.	10:00 a.m. – 12:00 p.m. 1:30 p.m. – 3:30 p.m.	12:00 p.m. – 12:30 p.m. 3:30 p.m. – 4:00 p.m.
Thursday, November 1, 2018	7:00 a.m. – 9:45 a.m.	9:45 a.m. – 11:45 a.m.	11:45 a.m. – 12:30 p.m.

INFORMATION FOR SESSION MODERATORS

- Session Moderators for **ORAL SESSIONS** have several responsibilities.

  - If a scheduled presentation has no-show presenters and the presentation has to be canceled (e.g. was not given), the corresponding manuscript, if submitted, will not be considered for peer review and published in the ASC 2018 special edition of the IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY (TAS). The authors will be referred to make a submission to the regular issue of the TAS.
  - Session Moderators are not required to submit reviewer nominations for manuscript submissions/peer review, however, you are welcome to make suggestions of reviewers if you are inclined to be of help to the Technical Editors.

  Prior to the session start:
  - Please go to the **Speaker Preparation Room (Room 618)** prior to the session to check whether all presentations have been submitted.
  - Take a roll-call of all speakers.
  - Familiarize yourself with lighting controls, computer, laser pointer, slide controls, microphones, and the general layout of the room (viewing angles, doors, noise, etc.). If there are any issues, please advise the conference staff.
  - Talks should be pre-loaded. Verify that talks are there.
  - PowerPoint tip: F5 will start the presentation, ESC exits.
  - Acrobat tip: Ctrl – L will enter full-screen mode, ESC exits.

  Sessions:
  - Announce the title of the session. If the session is sponsored, please also acknowledge the sponsor.
  - Introduce yourselves.
    Explain the ground rules:
  - Invited oral = 25 min (warn at 23) + 5 min for questions. Contributed oral = 12 min (warn at 10) + 3 min for questions.
  - You should introduce the presenting author and the title of each presentation.
  - Be polite but firm when enforcing these guidelines: Stand, ask the speaker to conclude. Keep control of the session time!
  - At your discretion, talks may encroach into question time, but then you should defer questions to private discussion.
  - Monitor noise, audience, etc.
  - Complete and return the **Session Moderator Report**. Check off presentations as they are given. Also estimate the audience size. This information must be returned to the ***Publications Office (Room 619)***.
  - The two chairs can alternate this task.
  - **Do not let anyone walk away with the laser pointer!**

- **POSTER SESIONS** do not require introduction of the authors or of the presentations.

  - Please go to the **Publication Office (Room 619)** to pick up your Session Moderator Report that you are asked to complete and return to the Publication Office.
  - Session Moderators are asked to record any posters that were not presented. One of the authors must be present at most, if not all, times with the poster presentation.
  - Walk the session multiple times. Note that in some cases, an author may need to attend to more than one poster, and thus might not be present during your first survey, so you may have to return later. Poster presenters will be instructed to leave a note on their posters to say when they will return.
  - Posters that have been mounted but do not have an attendant, or posters that are missing entirely, must be recorded on the Session Moderator Report.
  - Poster papers turned in but that are not presented will not be considered for peer review or published in the ASC 2016 special edition of the IEEE TRANSACTIONS OF APPLIED SUPERCONDUCTIVITY.

REMEMBER! Session Moderator Reports are due following your session or no later than Friday, November 2, 12:30 p.m. in the Publications Office (Room 619).

Only papers **presented** at their scheduled day/time at ASC 2018 will be considered for peer review and publication of the special issue of the IEEE TRANSACTIONS ON APPLIED SUPERCONDUCTIVITY.

Conference Staff will be available in the Publications Office for your manuscript uploads and payments for additional pages and papers.

The deadline for electronic manuscript submission is 11:59 p.m., PDT, Tuesday, October 30, 2018.

The ASC 2018 Publication Room will be located in **Room 619** of the Washington State Convention Center and is open during the following hours of operation:

Sunday	October 28, 2018	4:00 p.m. – 7:00 p.m.
Monday	October 29, 2018	7:00 a.m. – 6:30 p.m.
Tuesday	October 30, 2018	7:00 a.m. – 7:00 p.m.
Wednesday	October 31, 2018	7:00 a.m. – 6:00 p.m.
Thursday	November 1, 2018	7:00 a.m. – 5:30 p.m.
Friday	November 2, 2018	7:00 a.m. – 12:30 p.m.

Additional Pages and Papers

The page limit is **4 pages for contributed** papers (5 if needed for proper referencing), **6 pages for invited** oral and poster papers (7 if needed for proper referencing) and **12 pages for plenary** papers.

The additional page fee is $110 per page.

The additional paper fee is $440 per manuscript *(one manuscript submission is included in the Full Conference, Student and Retiree Participant registration fees)*.

Additional page/paper fees must be paid for by **Tuesday, October 30, 2018** in order to meet the manuscript submission deadline.

Editorial Support Contact

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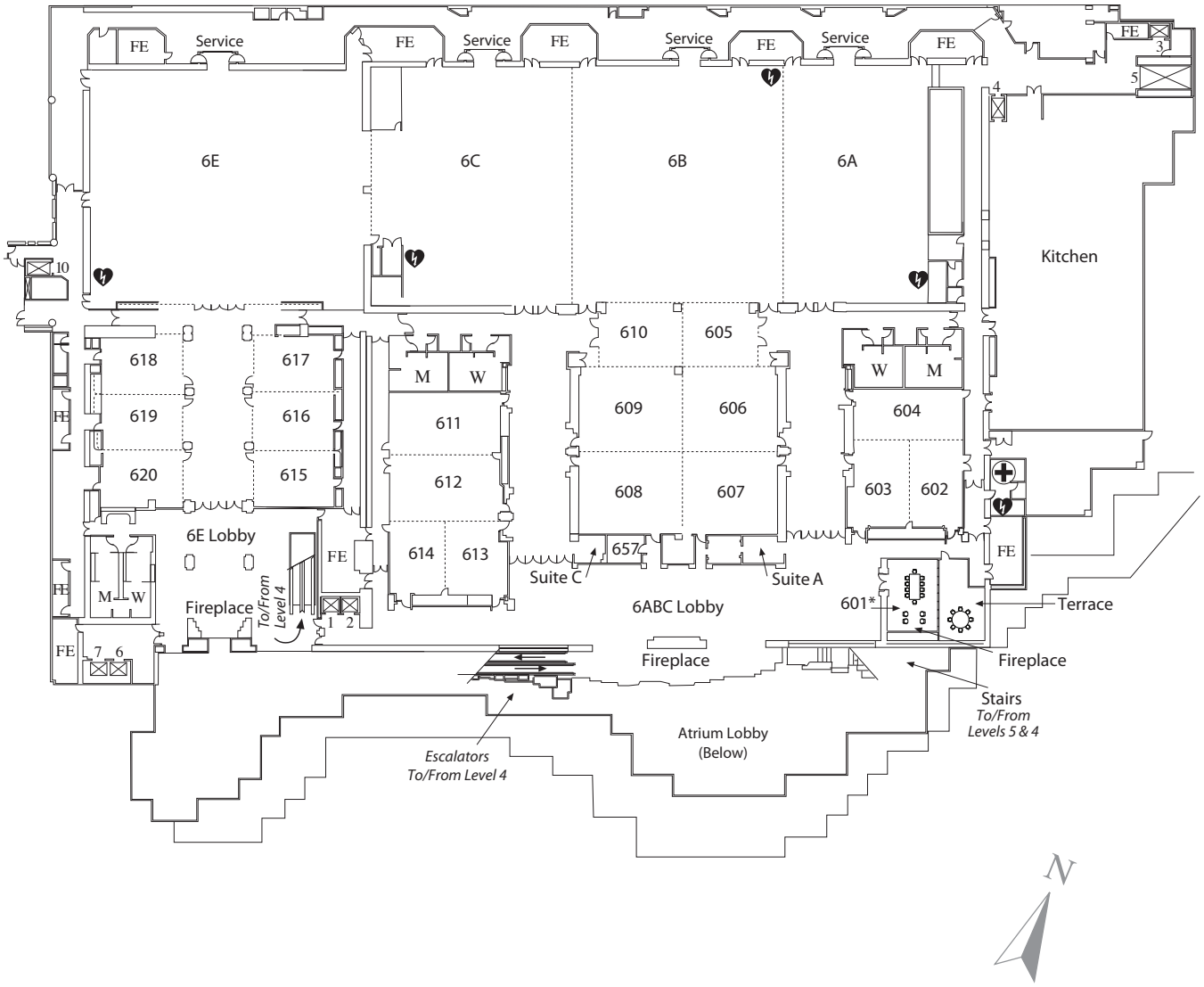
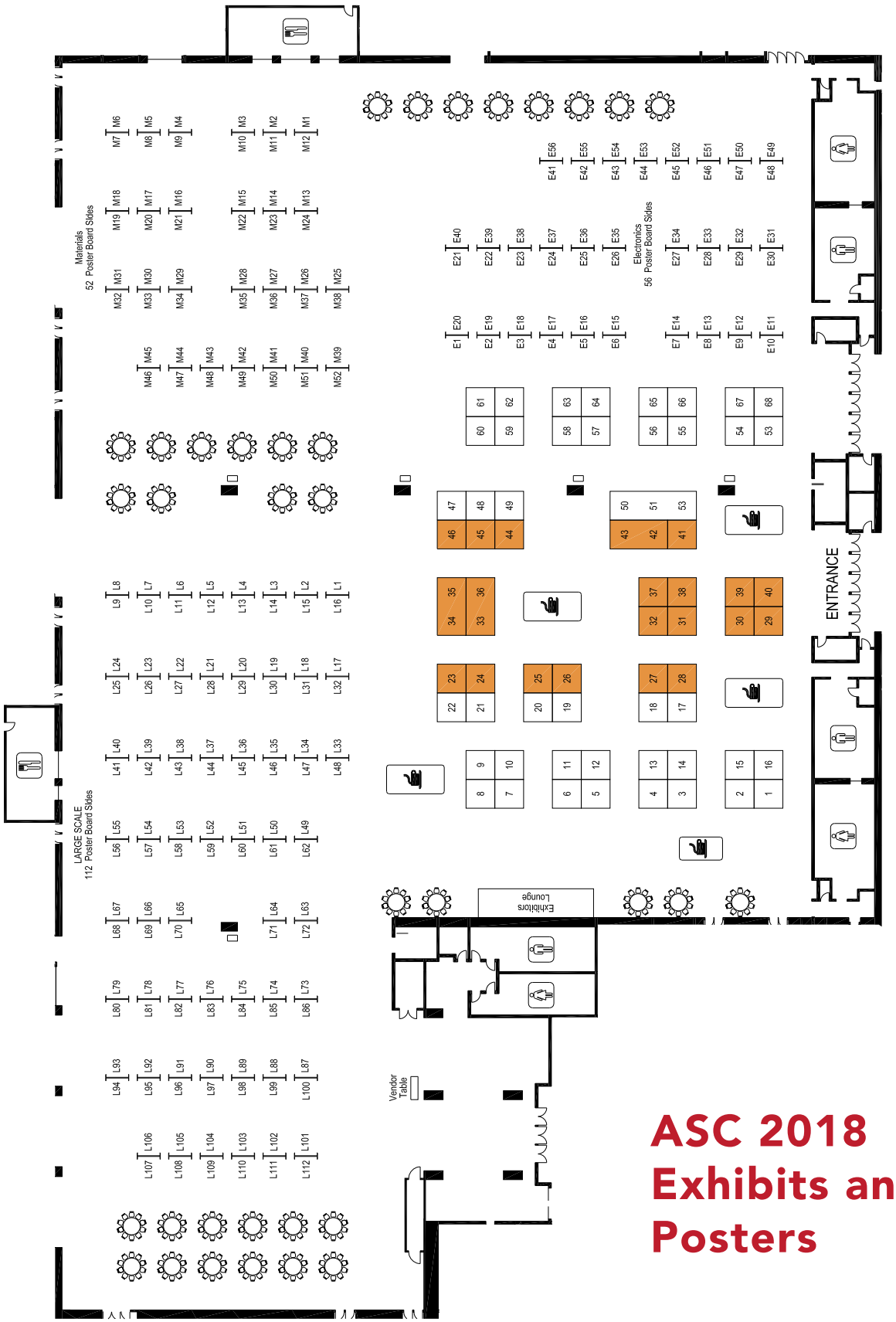
LEVEL 6 – BALLROOMS & MEETING ROOMS





*Floor plan as of September 25, 2018. Changes may have been made to the floor plan after printing.

ASC 2018 TECHNICAL PROGRAM INTRODUCTION

The first character of the program ID number represents the day of the Conference (Monday [1] thru Friday [5]). The second character (E, L, M, SP, PL) denotes the conference area (Electronics, Large Scale, Materials, Plenary). Or or Po refer to an Oral or Poster session. 1, 2 or 3 represent the morning or afternoon time slots. A, B, C, etc., differentiate the oral sessions on a given day in the morning or afternoon time slot. The final digits denote the order within the session. Examples for a morning, afternoon and late afternoon sessions are 1EOr1A-01, 1EOr2A-01, and 1EOr3A-01; examples for a morning and afternoon poster sessions are 2LPo1A-01 and 2LPo2A-01; 4MPo1A and 4MPo2A.

Poster Boards Numbering: E1 – E56 for Electronics, L1 – L112 for Large Scale and M1 – M52 for Materials. Each poster presentation has been assigned to a poster board number which has been added to the presentation ID, see the additional number in brackets. Examples are: 1EPo2A-02 [E1], 1LPo2B-04 [L14], 1MPo2C-09 [M31].

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Monday, October 29, 2018

Opening Remarks
Ballroom 6ABC; 8:00 a.m. - 8:15 a.m.

IEEE & CSA Awards Presentations
Ballroom 6ABC; 8:15 a.m. - 8:45 a.m.

1PL1A - Plenary Session – *sponsored by Luvata Superconductors*
Ballroom 6ABC; 8:45 a.m. - 9:30 a.m.
Moderators: Lance Cooley, Applied Superconductivity Center, NHMFL & Al Zeller, FRIB / MSU (retired)

1PL1A-01: Superconducting RF Cavities and Future Particle Accelerators
Professor Barry Barish[1]
[1]California Institute of Technology/Ligo, Pasadena, California, US

Coffee Break
4th Floor Atrium; 9:30 a.m. - 10:00 a.m.

1EOr1A - SQIFs and SQUID Arrays
611-612; 10:00 a.m. - 12:15 p.m.
Moderators: Susan Berggren, SPAWAR Systems Center Pacific & Russell Lake, National Institute of Standards and Technology

10:00 a.m. - 10:30 a.m. 1EOr1A-01: **[Invited] Effect of array geometry on HTS SQIF sensitivity**
Emma Mitchell[1], Karl Muller[1], Wendy Purches[1], Colin Pegrum[2], Chris Lewis[1], Alex Grancea[1], Shane Keenan[1], Philip Fairman[1], Jeina Lazar[1] and Cathy Foley[1]
[1]CSIRO, Sydney, New South Wales, Australia, [2]University of Strathclyde, Glasgow, Scotland, United Kingdom

10:30 a.m. - 10:45 a.m. 1EOr1A-02: **Josephson vortex ratchets based on YBCO SQUID technology**
Boris Chesca[1], Daniel John[1], Marat Gaifullin[1], Jonathan Cox[1], Christopher Mellor[2] and Sergey Savel'ev[1]
[1]Loughborough University, Loughborough, Leicestershire, United Kingdom, [2]University of Nottingham, Nottingham, Nottinghamshire, United Kingdom

10:45 a.m. - 11:00 a.m. 1EOr1A-03: **Optimization of Superconducting Quantum Interference Filters made by ion irradiation**
Eliana Recoba Pawlowski[1], Julien Kermorvant[2], Denis Crété[1], Yves Lemaître[1], Bruno Marcilhac[1], Christian Ulysse[3], François Couëdo[4], Cheryl Feuillet-Palma[4], Nicolas Bergeal[4] and Jérôme Lesueur[4]
[1]Unité Mixte de Physique CNRS, Thales, Université Paris-Sud, Université Paris-Saclay, Palaiseau, France, [2]Thales Communication and Security, Gennevilliers, France, [3]Centre de Nanosciences et de Nanotechnologie, CNRS, Université Paris-Saclay, Marcoussis, France, [4]Laboratoire de Physique et d'Etude des Matériaux, CNRS, ESPCI Paris, PSL Research University, UPMC, Paris, France

11:00 a.m. - 11:15 a.m. 1EOr1A-04: **Quantum Diffraction Gratings with Two-Dimensional Arrays of Y-Ba-Cu-O Josephson Junctions**
Ethan Cho[1], Yuchao Zhou[1] and Shane Cybart[1]
[1]University of California Riverside, Riverside, California, US

11:15 a.m. - 11:30 a.m. 1EOr1A-05: **Series SQUID array amplifiers with low input inductance**
Stephen Boyd[1], John Hall[2] and Robin Cantor[2]
[1]University of New Mexico, Albuquerque, New Mexico, US, [2]STAR Cryoelectronics, Santa Fe, New Mexico, US

11:30 a.m. - 11:45 a.m. 1EOr1A-06: **Large V-Φ Modulation at Low Temperatures in Resistively and Inductively Shunted μ-SQUIDs**
Sourav Biswas[1], Clemens Winkelmann[2], Hervé Courtois[2] and Anjan Gupta[1]
[1]Indian Institute of Technology Kanpur, Kanpur, India, [2]Université Grenoble Alpes, CNRS, Institut Néel, Grenoble, France

11:45 a.m. - 12:00 p.m. 1EOr1A-07: **Bi-SQUID design requirements**

Victor Kornev[1], Nikolay Kolotinskiy[1], Daniil Bazulin[1] and Oleg Mukhanov[2]

[1]Lomonosov Moscow State University, Moscow, Russian Federation, [2]HYPRES Inc., Elmsford, New York, US

12:00 p.m. - 12:15 p.m. 1EOr1A-08: **Numerical approach for inductance determination of SQUID washers**

Pascal Febvre[1], Kyle Jackman[2,1] and Coenrad Fourie[2]

[1]University of Savoie, Le Bourget du Lac, France, [2]Stellenbosch University, Stellenbosch, South Africa

1EOr1B - TES Workshop: Readout Techniques

606-607; 10:00 a.m. - 12:00 p.m.

Moderators: W. Bertrand Doriese, NIST & Jan van der Kuur, SRON Netherlands institute for space research

10:00 a.m. - 10:15 a.m. 1EOr1B-01: **Crosstalk Mechanisms and Mitigation in the Microwave SQUID Multiplexer**

John Mates[1], Daniel Becker[1], Douglas Bennett[2], Bradley Dober[2], Johnathon Gard[1], Joseph Fowler[2], Gene Hilton[2], Kelsey Morgan[1], Carl Reintsema[2], Daniel Swetz[2], Paul Szypryt[2], Leila Vale[2], Abigail Wessels[1] and Joel Ullom[1,2]

[1]University of Colorado, Boulder, Boulder, Colorado, US, [2]National Institute of Standards and Technology, Boulder, Colorado, US

10:15 a.m. - 10:30 a.m. 1EOr1B-02: **Microwave SQUID multiplexer for readout of optical TES array**

Naoki Nakada[1,2], Kaori Hattori[1], Fuminori Hirayama[1], Hirotake Yamamori[1], Yuki Nakashima[1], Akira Sato[1], Satoshi Kohjiro[1], Hiroyuki Takahashi[2] and Daiji Fukuda[1]

[1]National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan, [2]The University of Tokyo, Bunkyo Ward, Japan

10:30 a.m. - 10:45 a.m. 1EOr1B-03: **Improvement of the packing density of superconducting LC filters for Athena/X-IFU**

Marcel Bruijn[1], A. van der Linden[1], Marcel Ridder[1], Kevin Ravensberg[1], Luciano Gottardi[1], Jan van der Kuur[1], R. den Hartog[1] and Brian Jackson[1]

[1]SRON Space Research Organization Netherlands, Utrecht, Netherlands

10:45 a.m. - 11:00 a.m. 1EOr1B-04: **Highly-multiplexed superconducting resonator readout using the SLAC Microresonator Radio Frequency (SMuRF) Electronics**

Shawn Henderson[1], Zeeshan Ahmed[1], Jason Austermann[2], Daniel Becker[5], Douglas Bennett[2], David Brown[1], Saptarshi Chaudhuri[3], Hsiao-Mei Cho[1], John D'Ewart[1], Bradley Dober[2], Shannon Duff[2], John Dusatko[1], Sofia Fatigoni[4], Josef Frisch[1], Johnathon Gard[2], Mark Halpern[4], Gene Hilton[2], Johannes Hubmayr[2], Kent Irwin[3,1], Ethan Karpel[3], Sarah Kernasovskiy[3], Stephen Kuenstner[3], Chao-Lin Kuo[3,1], Dale Li[1], John Mates[5], Carl Reintsema[2], Stephen Smith[1], Joel Ullom[2,5], Leila Vale[2], Daniel Van Winkle[1], Michael Vissers[2] and Cyndia Yu[3]

[1]SLAC National Accelerator Laboratory, Menlo Park, California, US, [2]National Institute of Standards and Technology, Boulder, Colorado, US, [3]Stanford University, Stanford, California, US, [4]The University of British Columbia, Vancouver, British Columbia, Canada, [5]University of Colorado Boulder, Boulder, Colorado, US

11:00 a.m. - 11:15 a.m. 1EOr1B-05: **Advances in time-division and code-division SQUID multiplexing for X-ray TES arrays**

Malcolm Durkin[1], Ed Denison[2], W. Bertrand Doriese[2], Joseph Fowler[2], Johnathon Gard[1,2], Arpi Grigorian[1], Gene Hilton[2], Kent Irwin[3], Young Il Joe[2], Kelsey Morgan[2], Galen O'Neil[2], Carl Reintsema[2], Robert Stevens[1], Daniel Swetz[2], Paul Szypryt[2], Joel Ullom[2,1] and Leila Vale[2]

[1]University of Colorado, Boulder, Colorado, US, [2]National Institute of Standards and Technology, Boulder, Boulder, Colorado, US, [3]Stanford University, Stanford, California, US

11:15 a.m. - 11:30 a.m. 1EOr1B-06: **Towards cryogenic microcalorimeters with sub-eV energy resolution: Metallic magnetic calorimeters with direct sensor readout**

Matthäus Krantz[1], Andreas Fleischmann[1], Christian Enss[1] and Sebastian Kempf[1]

[1]Kirchhoff-Institute for Physics, Heidelberg, Germany

11:30 a.m. - 11:45 a.m. 1EOr1B-07: **Advancing the Thin-Film Cryotron Switch for Superconducting Circuits**

Joel Weber[1], Malcolm Durkin[1], John Mates[1], Douglas Bennett[1], Daniel Schmidt[1], Daniel Swetz[1], Gene Hilton[1] and Joel Ullom[1]

[1]NIST, Boulder, Colorado, US

11:45 a.m. - 12:00 p.m. 1EOr1B-08: TBD

1EOr1C - Special Session: Digital Processors – *Dedicated to Doc Bedard*

602-604; 10:00 a.m. - 12:15 p.m.

Moderators: D. Scott Holmes, Booz Allen Hamilton & Nobuyuki Yoshikawa, Yokohama National University

10:00 a.m. - 10:15 a.m. 1EOr1C-01: **In Memory of Doc Bedard**

10:15 a.m. - 10:45 a.m. 1EOr1C-02: **[Invited] A Pipelined Superconducting 16-bit CPU Design**

Michael Vesely[1], Paul Tschirhart[1], Brian Konigsburg[1], Patrick Farrell[1], Sm Rahman[1] and Emile Massaad[1]

[1]Northrop Grumman, Linthicum, Maryland, US

10:45 a.m. - 11:00 a.m. 1EOr1C-03: **A Superconducting 8-bit CPU Design**

Patrick Farrell[1], Ryan Clarke[1], Michael Vesely[1], Steven Shauck[1], Brian Konigsburg[1], Paul Tschirhart[1] and Sm Rahman[1]

[1]Northrop Grumman, Linthicum, Maryland, US

11:00 a.m. - 11:30 a.m. 1EOr1C-04: **[Invited] 30-GHz Operation of Datapath for Bit-Parallel, Gate-Level-Pipelined Rapid Single-Flux-Quantum Microprocessors**

Masamitsu Tanaka[1], Yuki Hatanaka[1], Yuichi Matsui[1], Ikki Nagaoka[1], Koki Ishida[2], Kyosuke Sano[1], Taro Yamashita[1,3], Ono Takatsugu[2], Koji Inoue[2] and Akira Fujimaki[1]

[1]Nagoya University, Nagoya, Japan, [2]Kyushu University, Fukuoka, Japan, [3]JST-PRESTO, Kawaguchi, Japan

11:30 a.m. - 11:45 a.m. 1EOr1C-05: **Execution units for a RISC-based adiabatic quantum-flux-parametron microprocessor datapath**

Christopher Ayala[1], Qiuyun Xu[1], Ro Saito[2], Tomoyuki Tanaka[3], Naoki Takeuchi[1,4], Yuki Yamanashi[1,3] and Nobuyuki Yoshikawa[1,3]

[1]Yokohama National University, Yokohama, Kanagawa, Japan, [2]Yokohama National University, Yokohama, Japan, [3]Yokohama National University, Yokohama, Japan, [4]Japan Science and Technology Agency, Kawaguchi, Japan

11:45 a.m. - 12:00 p.m. 1EOr1C-06: **ERSFQ 8-bit Parallel Arithmetic Logic Unit**

Alex Kirichenko[1], Michael Kamkar[1], Jason Walter[1], Igor Vernik[1], Maximilian Miller[1], Oleg Mukhanov[1] and Lucian Albu[2]

[1]HYPRES, Inc., Elmsford, New York, US, [2]IBM, Yorktown Heights, New York, US

12:00 p.m. - 12:15 p.m. 1EOr1C-07: **ERSFQ 8-bit parallel bit-shifter for energy-efficient superconductor CPU**

Alex Kirichenko[1], Michael Kamkar[1], Jason Walter[1] and Igor Vernik[1]

[1]HYPRES, Inc., Elmsford, New York, US

1LOr1A - Superconducting RF
613-614; 10:00 a.m. - 12:00 p.m.
Moderators: Pashupati Dhakal, Jefferson Lab & Al Zeller, FRIB / MSU (retired)

10:00 a.m. - 10:15 a.m. 1LOr1A-01: **Microwave losses in a dc magnetic field in superconducting cavities for axion studies**

Daniele Di Gioacchino[1], Claudio Gatti[1], David Alesini[2], Carlo Ligi[2], Simone Tocci[1], Giovanni Carugno[3,4], Nicolò Crescini[4,5], Giuseppe Ruoso[5], Caterina Braggio[4], Paolo Falferli[6], Carmelo/Sebastiano Gallo[3,4], Umberto Gambardella[7,8], Gerardo Iannone[7,8], Gianluca Lamanna[9], Augusto Lombardi[5], Renato Mezzena[10,6], Antonello Ortolan[5], Ruggero Pengo[5], Enrico Silva[11] and Nicola Pompeo[11]

[1]National Institute of Nuclear Physics -National Laboratory of Frascati (LNF-INFN), Frascati (Rome), Italy, [2]National Institute of Nuclear Physics-Nationa laboratory of Frascati (INFN-LNF), Frascati, Italy, [3]INFN-Padova, Padova, Italy, [4]University of Padova, Padova, Italy, [5]INFN, National Laboratory of Legnaro, Legnaro, Italy, [6]Institute for Photonics and Nanotechnologies (CNR-IFN), Trento, Italy, [7]INFN, Sez. di Napoli, Napoli, Italy, [8]University of Salerno, Salerno, Italy, [9]University of Pisa, Pisa, Italy, [10]Trento Institute for Fundamental Physics and Applications (TIFPA), Trento, Italy, [11]University of Roma Tre, Rome, Italy

10:15 a.m. - 10:30 a.m. 1LOr1A-02: **A cw, low energy, high power superconducting linac for environmental applications**

Gianluigi Ciovati[1], Robert Rimmer[1], Frank Marhauser[1], Jiquan Guo[1], Fay Hannon[1], Vashek Vylet[1], Tom Schultheiss[2], John Rathke[2], Leo Hollland[3], Bruno Coriton[3], Michael LeSher[3] and James Anderson[3]

[1]Jefferson Lab, Newport News, Virginia, US, [2]AES, Medford, New York, US, [3]General Atomics, San Diego, California, US

10:30 a.m. - 10:45 a.m. 1LOr1A-03: **Superconducting radio frequency cavity residual losses at mK temperatures**

Bakhrom Oripov[1], Gianluigi Ciovati[2] and Steven Anlage[1]

[1]University of Maryland, College Park, Maryland, US, [2]Jefferson Lab, Newport News, Virginia, US

10:45 a.m. - 11:00 a.m. 1LOr1A-04: **Penetration dynamics of magnetic vortex in state-of-the-art SRF Nb cavity surface**

Zuhawn Sung[1], Alexander Romanenko[1], Yulia Trenikhina[1] and Anna Grassellino[1]

[1]Fermi National Accelerator Laboratory, Batavia, Illinois, US

11:00 a.m. - 11:15 a.m. 1LOr1A-05: **Microscopic Investigation of Materials Limitations of Superconducting RF Cavities**

Bakhrom Oripov[1] and Steven Anlage[1]

[1]University of Maryland, College Park, Maryland, US

11:15 a.m. - 11:30 a.m. 1LOr1A-06: **Location based cross-sectional microstructure of half cells made from an LCLS-II sheet**

Shreyas Balachandran[1], Pashupati Dhakal[2], Santosh Chetri[1], Lance Cooley[1], David Larbalestier[1] and Peter Lee[1]

[1]ASC/ NHMFL/FSU, Tallahassee, Florida, US, [2]Jefferson Lab, Newport News, Virginia, US

11:30 a.m. - 11:45 a.m. 1LOr1A-07: **Purification of selective laser melting additive manufactured niobium for superconducting RF-applications**

Fritz Motschmann[1], Romain Gerard[1] and Gilles Favre[1]

[1]CERN, Geneva 23, Switzerland

11:45 a.m. - 12:00 p.m. 1LOr1A-08: **Effect of impurity, grain size and treatment on the flux expulsion during the cooldown of superconducting radio frequency cavities**

Pashupati Dhakal[1] and Gianluigi Ciovati[1]

[1]Jefferson Lab, Newport News, Virginia, US

1LOr1B - Motors, Generators, and Rotating Machines I: HTS Wires and Tapes
6A; 10:00 a.m. - 12:00 p.m.
Moderators: Timing Qu, Tsinghua University & Dong Zhang, Institute of Electrical Engineering, Chinese Academy of Sciences

10:00 a.m. - 10:30 a.m. 1LOr1B-01: **[Invited] Test environment for study of HTS electric machine performance under dynamic electromagnetic conditions**
Peter O'Brien[1] and Richard Taylor[1]
[1]Queensland University of Technology, Brisbane, Queensland, Australia

10:30 a.m. - 10:45 a.m. 1LOr1B-02: **Load Test and Variable Speed Control of a 50 kW Class Fully Superconducting Induction/Synchronous Motor for Transportation Equipment**
Taketsune Nakamura[1], Masaaki Yoshikawa[2], Yoshitaka Itoh[2], Toshihisa Terazawa[2], Mitsuho Furuse[3] and Satoshi Fukui[4]
[1]Kyoto University, Kyoto, Kyoto, Japan, [2]IMRA MATERIAL R&D Co., Ltd, Kariya, Japan, [3]National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan, [4]Niigata University, Niigata, Japan

10:45 a.m. - 11:00 a.m. 1LOr1B-03: **Test characterization of a Flux Modulation Superconducting Machine**
Alexandre Colle[1,2], Thierry Lubin[2], Sabrina Ayat[1], Olivier Gosselin[3] and Jean Leveque[2]
[1]SAFRAN TECH, Magny-les-Hameaux, France, [2]Université de Lorraine, Vandoeuvre-les-Nancy, France, [3]SAFRAN, Paris, France

11:00 a.m. - 11:15 a.m. 1LOr1B-04: **A Design Study on MW-Class Synchronous Motors with No-Insulation HTS Field Winding**
Uijong Bong[1], Soo Bin An[1], Jaemin Kim[1], Mincheol Cho[1], Jung Tae Lee[1], Young-Gyun Kim[2], Kijin Han[3], Haigun Lee[2] and Seungyong Hahn[1]
[1]Seoul National University, Seoul, Seoul, Korea (the Republic of), [2]Korea University, Seoul, Seoul, Korea (the Republic of), [3]Dongguk University, Seoul, Seoul, Korea (the Republic of)

11:15 a.m. - 11:30 a.m. 1LOr1B-05: **Lightweight Design of Fully Superconducting Motors for Electrical Aircraft Propulsion Systems**
Yutaka Terao[1], Akihisa Seta[3], Hiroyuki Ohsaki[1], Hitoshi Oyori[2] and Noriko Morioka[2]
[1]The University of Tokyo, Kashiwa, Chiba, Japan, [2]IHI corporation, Nishitama-gun, Tokyo, Japan, [3]The University of Tokyo, Bunkyo-ku, Tokyo, Japan

11:30 a.m. - 11:45 a.m. 1LOr1B-06: **Progress for the development of a 10 kW fully-superconducting synchronous generator**
Timing Qu[1], Peng Song[1], Yufan Li[1], Changhong Hao[1], Qihong Wu[1], Jiamin Zhu[2] and Zhiyong Hong[2]
[1]Tsinghua University, Beijing, China, [2]Shanghai Superconductor Technilogy Co., Ltd, Shanghai, China

11:45 a.m. - 12:00 p.m. 1LOr1B-07: **AC loss in stator windings of superconducting motors**
Enric Pardo[1], Shuo Li[1], Jan Kovac[1], Michal Vojenčiak[1], Francesco Grilli[2] and Thomas Reis[3]
[1]Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava, Slovakia, [2]Karlsruhe Institute of Technology, Karlsruhe, Germany, [3]Oswald Elektromotoren GmbH, Miltenberg, Germany

1LOr1C - Joints
6C; 10:00 a.m. - 12:00 p.m.
Moderators: Jun-ichi Shimoyama, Aoyama Gakuin University & Frederic Sirois, Polytechnique Montreal

10:00 a.m. - 10:15 a.m. 1LOr1C-01: **Chemical strategies for development of superconducting joints between HTS tapes with intermediate polycrystalline HTS layers**
Jun-ichi Shimoyama[1], Yasuaki Takeda[2] and Takanori Motoki[1]
[1]Aoyama Gakuin University, Sagamihara, Japan, [2]University of Tokyo, Tokyo, Japan

10:15 a.m. - 10:30 a.m. 1LOr1C-02: **Strong Bi2212 superconductor wire and joints for persistent mode HTS coil operation**

Alex Otto[1], Gerry Pothier III[1], Julio Colque[1] and Linda Saraco[1]

[1]Solid Material Solutions, LLC, N. Chelmsford, Massachusetts, US

10:30 a.m. - 10:45 a.m. 1LOr1C-03: **An Intermediate Grown Superconducting (iGS) Joint between REBCO Coated Conductors: Fabrication, Microstructure with Insights of Growth Mechanism and Superconducting Properties**

Kotaro Ohki[1], Takashi Yamaguchi[1], Tatsuoki Nagaishi[1], Yoshinori Yanagisawa[3], Renzhong Piao[3], Hideaki Maeda[4,3], Takeharu Kato[2], Daisaku Yokoe[2], Tsukasa Hirayama[2], Yuichi Ikuhara[5], Hitoshi Kitaguchi[6], Kazama Yamagishi[7,3] and Tomoaki Takao[7]

[1]Sumitomo Electric Industries, Ltd., Osaka, Osaka, Japan, [2]Japan Fine Ceramics Center, Nagoya, Japan, [3]RIKEN, Yokohama, Japan, [4]Japan Science and Technology Agency, Tokyo, Japan, [5]University of Tokyo, Tokyo, Japan, [6]National Institute for Materials Science, Tsukuba, Japan, [7]Sophia University, Tokyo, Japan

10:45 a.m. - 11:00 a.m. 1LOr1C-04: **Superconducting joint of $REBa_2Cu_3O_y$ coated conductors by crystallization of additionally deposited precursor films**

Ryo Teranishi[1], Tomohiro Miyajima[1], Shotaro Yasuyama[1], Yukio Sato[1], Kenji Kaneko[1], Valery Petrykin[2], Sergey Lee[2], Satoshi Awaji[3] and Akiyoshi Matsumoto[4]

[1]Kyushu University, Fukuoka , Fukuoka, Japan, [2]SuperOx Japan, Sagamihara, Japan, [3]Tohoku university, Sendai, Japan, [4]National institute for materials science, Tsukuba, Japan

11:00 a.m. - 11:15 a.m. 1LOr1C-05: **Superconducting Joints between BSCCO and NbTi using BiPbSn Solders**

Yoshihiko Takano[1,2], Ryo Matsumoto[1,2] and Gen Nishijima[1]

[1]National Institute for Materials Science (NIMS), Tsukuba, Japan, [2]University of Tsukuba, Tsukuba, Japan

11:15 a.m. - 11:30 a.m. 1LOr1C-06: **MgB_2 Joints for a Persistent-Mode Liquid-Helium-Free, Persistent-Mode 1.5-T "Finger" MRI Magnet**

Yi Li[2], Yoon Hyuck Choi[2], Dongkeun Park[2], Jiho Lee[2], Philip Michael[2], Juan Bascunan[2], John Voccio[1], Yukikazu Iwasa[2] and Hideki Tanaka[3]

[1]Wentworth Institute of Technology, Boston, Massachusetts, US, [2]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [3]Hitachi, Ltd., Tokyo, Japan

11:30 a.m. - 11:45 a.m. 1LOr1C-07: **Transport property of REBCO superconducting joint in magnetic fields at various temperatures**

Gen Nishijima[1], Shinji Matsumoto[1], Akinobu Nakai[2], Hisaki Sakamoto[2], Shinichi Mukoyama[2], Yasuyuki Miyoshi[3], Kazuyoshi Saito[3] and Mamoru Hamada[3]

[1]National Institute for Materials Science, Tsukuba, Japan, [2]Furukawa Electric Co., Ltd., Ichihara, Japan, [3]Japan Superconductor Technology, Inc. , Kobe, Japan

11:45 a.m. - 12:00 p.m. 1LOr1C-08: **Persistent-Current-Mode Operation of a Small Cryogen-Free HTS Magnet**

Wei Wu[2,1], Yunhao Pan[2], Jie Sheng[2], Jingbo Lin[2], Zhiwei Zhang[2,1], Zhen Huang[2], Fangliang Dong[2], Minhui Chen[1], Tongxu Chang[1], Zhiyong Hong[2,1] and Zhijian Jin[2]

[1]Shanghai Superconductor Technology Co., Ltd., Shanghai, China, [2]Shanghai Jiao Tong University, Shanghai, China

1LOr1D - Nb_3Sn Magnets for Next Generation Accelerators
6B; 10:00 a.m. - 12:00 p.m.
Moderators: Paolo Ferracin, CERN & Clément Lorin, CEA

10:00 a.m. - 10:30 a.m. 1LOr1D-01: **[Invited] Performance Update of the FRESCA2 100mm Bore Nb_3Sn Block Coil Magnet**

Gerard Willering[1], Marta Bajko[1], Hugues Bajas[1], Bernardo Bordini[1], Luca Bottura[1], Nicolas Bourcey[1], Michal Duda[1], Paolo Ferracin[1], Jerome Feuvrier[1], Michael Guinchard[1], Franco Mangiarotti[1], Juan Carlos Perez[1], Gijs de Rijk[1], Maria Durante[2], Pierre Manil[2], Etienne Rochepault[2], Francoise Rondeaux[2] and Jean-Michel Rifflet[2]

[1]CERN, Genève 23, Switzerland, [2]CEA Saclay, Saclay, France

10:30 a.m. - 10:45 a.m. 1LOr1D-02: **Development of a 15 T Nb_3Sn Dipole Demonstrator by MDP**

Alexander Zlobin[1], Emanuela Barzi[1], Justin Carmichael[1], Vadim Kashikhin[1], Steven Krave[1], Igor Novitski[1], Stoyan Stoynev[1], Daniele Turrioni[1], Gueorgui Velev[1], Shlomo Caspi[2], Maxim Marchevsky[2], Soren Prestemon[2], Daniel Schoerling[3] and Davide Tommasini[3]

[1]Fermilab, Batavia, Illinois, US, [2]LBNL, Berkeley, California, US, [3]CERN, Geneva, Switzerland

10:45 a.m. - 11:00 a.m. 1LOr1D-03: **The 16 T Dipole Development Program for FCC and HE-LHC**

Daniel Schoerling[1], Diego Arbelaez[2], Bernhard Auchmann[11], Marta Bajko[1], Amalia Ballarino[1], Emanuela Barzi[3], Giovanni Bellomo[5], Michael Benedikt[1], Susana Izquierdo Bermudez[1], Bernardo Bordini[1], Luca Bottura[1], Lucas Brouwer[2], Marco Buzio[1], Barbara Caiffi[12], Shlomo Caspi[2], Ananda Chakraborti[6], Eric Coatanea[6], Marc M. J. Dhalle[4], Maria Durante[7], Gijs de Rijk[1], Pasquale Fabbricatore[12], Stefania Farinon[12], Helene Felice[7], Alejandro Fernandez Navarro[10], Peng Gao[4], Stephen Gourlay[2], Mariusz Juchno[1], Vadim Kashikhin[3], Kari Koskinen[6], Friedrich Lackner[1], Clément Lorin[7], Alexandre Louzguiti[1], Kari Lyytikainen[6], Maxim Marchevsky[2], Samuele Mariotto[5], Javier Munilla[10], Igor Novitski[3], Toru Ogitsu[9], Alessandra Pampaloni[12], Chhon Pes[7], Juan Carlos Perez[1], Carlo Petrone[1], Soren Prestemon[2], Marco Prioli[1], Alessandro Maria Ricci[12], Jean-Michel Rifflet[7], Etienne Rochepault[1], Stephan Russenschuck[1], Tiina Salmi[6], Frederic Savary[1], Michel Segreti[7], Carmine Senatore[8], Massimo Sorbi[5], Marco Statera[5], Antti Stenvall[6], Davide Tommasini[1], Fernando Toral[10], Arjan Verweij[1], Sander Wessel[4], Felix Wolf[1] and Alexander Zlobin[3]

[1]CERN, Geneva, Switzerland, [2]LBNL, Berkeley, California, US, [3]FNAL, Batavia, Illinois, US, [4]University of Twente, Enschede, Netherlands, [5]INFN Milano, Milano, Italy, [6]Tampere University of Technology, Tampere, Finland, [7]IRFU, CEA, Université Paris-Saclay, Gif sur Yvette, France, [8]University of Geneva, Geneva, Switzerland, [9]KEK, Tsukuba, Ibaraki, Japan, [10]CIEMAT, Madrid, Spain, [11]PSI, Villigen, Switzerland, [12]INFN Genova, Genova, Italy

11:00 a.m. - 11:15 a.m. 1LOr1D-04: **NB_3Sn Rutherford cable splices for graded high field accelerator magnets**

Mithlesh Kumar[1], Vincenzo D'Auria[1], Davide Uglietti[1] and Pierluigi Bruzzone[1]

[1]Ecole Polytechnique Federale de Lausanne, Villigen PSI, Aargau, Switzerland

11:15 a.m. - 11:30 a.m. 1LOr1D-05: **Field quality of HD3 – a Nb_3Sn dipole magnet based on block design**

Xiaorong Wang[1], Daniel Cheng[1], Daniel Dietderich[1], Joseph DiMarco[2], Helene Felice[3], Paolo Ferracin[4], Maxim Marchevsky[1], Soren Prestemon[1] and GianLuca Sabbi[1]

[1]LBNL, Berkeley, California, US, [2]Fermi National Accelerator Laboratory, Batavia, Illinois, US, [3]CEA, Gif-sur-Yvette, France, [4]CERN, Geneve, Switzerland

11:30 a.m. - 11:45 a.m. 1LOr1D-06: **Power test of the second-generation Compact Linear Collider (CLIC) Nb3Sn Damping Wiggler Short Model**

Franco Mangiarotti[1], Marta Bajko[1], Axel Bernhard[2], Michal Duda[1], Paolo Ferracin[3], Laura Garcia Fajardo[4], Jacky Mazet[3], Juan Carlos Perez[3], Daniel Schoerling[3] and Gerard Willering[1]

[1]European Organization for Nuclear Research, Geneva, Geneva, Switzerland, [2]Karlsruhe Institute of Technology, Karlsruhe, Germany, [3]European Organization for Nuclear Research, Geneva, Switzerland, [4]Lawrence Berkeley National Laboratory, Berkeley, California, US

11:45 a.m. - 12:00 p.m. 1LOr1D-07: **Development of superconducting undulators at the Advanced Photon Source**

Yury Ivanyushenkov[1], Joel Fuerst[1], Quentin Hasse[1], Matthew Kasa[1], Ibrahim Kesgin[1], Yuko Shiroyanagi[1] and Efim Gluskin[1]

[1]Advanced Photon Source, ANL, Argonne, Illinois, US

1MOr1A - AC Losses in Wires and Cables
615-617; 10:00 a.m. - 12:00 p.m.
Moderators: Francesco Grilli, Karlsruhe Institute of Technology & Fedor Gömöry, Institute of Electrical Engineering, Slovak Academy of Sciences

10:00 a.m. - 10:30 a.m. 1MOr1A-01: **[Invited] Ac Loss measurements of CORC wires carrying ac transport currents and / or exposed to ac transverse magnetic fields**
Naoyuki Amemiya[1] and Ryuki Toyomoto[1]
[1]Kyoto University, Kyoto, Japan

10:30 a.m. - 10:45 a.m. 1MOr1A-02: **Magnetization and Loss of Superconducting Cables with Helical (CORC) and Twisted Stacked Geometries**
Mike Sumption[1], Kun Dong[1,2], Milan Majoros[1] and Edward Collings[1]
[1]The Ohio State University, Columbus, Ohio, US, [2]Southeast University, Nanjing, China

10:45 a.m. - 11:00 a.m. 1MOr1A-03: **Experimental and numerical study on the magnetization process of HTS thin stack and Roebel cable**
Yufan Yan[1], Peng Song[1], Shengyi Jiang[1], Yufan Li[1], Yi Li[2], Chen Gu[3], Feng Feng[4] and Timing Qu[1]
[1]Tsinghua University, Beijing, China, [2]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [3]Tsinghua University, Beijing, China, [4]Tsinghua University, Beijing, China

11:00 a.m. - 11:15 a.m. 1MOr1A-04: **Alternating Current Losses for Non-Uniform Windings of 2G High Temperature Superconducting ReBCO Racetrack Coils**
Bright Robert[1], Muhammad Fareed[1] and Harold Ruiz[1]
[1]University of Leicester, Leicester, Leicestershire, United Kingdom

11:15 a.m. - 11:30 a.m. 1MOr1A-05: **Magnetization loss on twisted multi-filamentary superconducting tape wires in a constantly ramped magnetic field**
Yoichi Higashi[1] and Yasunori Mawatari[1]
[1]National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan

11:30 a.m. - 11:45 a.m. 1MOr1A-06: **Effect of Magnetic Sheath on Filament AC Losses and Current Distribution in MgB_2 Superconducting Wires**
Yasha Nikulshin[1], Vladimir Ginodman[1], Alex Friedman[1], Shuki Wolfus[1] and Yosef Yeshurun[1]
[1]Bar Ilan University, Tel Aviv, Israel

11:45 a.m. - 12:00 p.m. 1MOr1A-07: **Low AC Loss MgB2 superconducting strands for Motors and Generators applications in hybrid-electric aircraft**
Mike Sumption[1], Milan Majoros[1], Matthew Rindfleisch[2] and Edward Collings[1]
[1]The Ohio State University, Columbus, Ohio, US, [2]HTR, Columbus, Ohio, US

1MOr1B - Special Session: Critical Current and Flux Pinning I: Beyond the Artificial Pinning Centers - *Dedicated to Alexei Abrikosov*
608-609; 10:00 a.m. - 12:00 p.m.
Moderators: Andrea Augieri, ENEA & Judith MacManus-Driscoll, University of Cambridge

10:00 a.m. - 10:30 a.m. 1MOr1B-01: **[Invited] Materials Design Parameters for Engineering Pinning in Superconductor Coated Conductors**
Judith MacManus-Driscoll[1], John Feighan[1] and Ahmed Kursumovic[1]
[1]University of Cambridge, Cambridge, United Kingdom

10:30 a.m. - 11:00 a.m. 1MOr1B-02: **[Invited] Further exploration of ultimate limits of flux pinning in Nb_3Sn**
Lance Cooley[1]
[1]Applied Superconductivity Center, National High Magnetic Field Laboratory and Department of Mechanical Engineering, Florida State University, Tallahassee, Florida, US

11:00 a.m. - 11:15 a.m. 1MOr1B-03: **Historical Progress of Flux Pinning of (Y,RE)-Ba-Cu-O Coated Conductors, and Impact on Power Device Performance**
Timothy Haugan[2], Mary Ann Sebastian[1,2] and Michael Susner[3,2]
[1]University of Dayton Research Institute, Wright-Patterson AFB, Ohio, US, [2]U.S. Air Force Research Laboratory, Wright-Patterson AFB, Ohio, US, [3]National Research Council, Wright-Patterson AFB, Ohio, US

11:15 a.m. - 11:30 a.m. 1MOr1B-04: **Controlling vortex dynamics in superconducting films and hybrids**

Wilson Ortiz[1]

[1]Universidade Federal de Sao Carlos, São Carlos, Sao Paulo, Brazil

11:30 a.m. - 11:45 a.m. 1MOr1B-05: **Electromagnetic properties of REBCO tapes with different pinning architectures**

Mehdi Kochat[1], Rudra Pratap[1], Eduard Galstyan[1], Goran Majkic[1] and Venkat Selvamanickam[1]

[1]Department of Mechanical Engineering, Advanced Manufacturing Institute and Texas Center for Superconductivity, University of Houston, Houston, Texas, US

11:45 a.m. - 12:00 p.m. 1MOr1B-06: **Uniformly dispersed 10 nm-sized clustered atom-replaced structure (PrBCO, SmBCO, and TmBCO) in common YBCO perovskite**

Takeshi Araki[1], Mariko Hayashi[1], Hirotaka Ishii[1], Daisaku Yokoe[2], Ryuji Yoshida[2], Takeharu Kato[2], Gen Nishijima[3] and Akiyoshi Matsumoto[3]

[1]Toshiba corporation, Kawasaki, Japan, [2]Japan Fine Ceramics Center, Nagoya, Japan, [3]National Institute for Materials Science, Tsukuba, Japan

Lunch: 12:00 p.m. - 2:00 p.m.

Coffee Break
Exhibit Hall; 2:30 p.m. - 3:00 p.m.

1EPo2A - Active Microwave Devices
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Alexandre Karpov, National University of Science and Technology (MISIS) & Kevin Osborn, LPS at the University of Maryland

1EPo2A-02 [E1] **An HTS Tunable Resonator Based on SQUIDs Array**

Ting Zhang[1], Xiang Gao[2], Jia Du[2], Colin Pegrum[3], Liang Sun[4], Jia Wang[4] and Jay Guo[1]

[1]University of Technology Sydney, Ultimo, New South Wales, Australia, [2]CSIRO, Lindfield, New South Wales, Australia, [3]University of Strathclyde, Glasgow, United Kingdom, [4]Beijing National Laboratory for Condensed Matter Physics, Institute of Physics, Chinese Academy of Sciences, Beijing, China

1EPo2A-03 [E2] **Phase locking in systems of inductively coupled long Josephson junctions**

Alexander Grib[2] and Paul Seidel[1]

[1]Friedrich Schiller University Jena, Jena, Germany, [2]Kharkiv V. N. Karazin National University, Kharkiv, Ukraine

1EPo2A-04 [E3] **Microwave Characterization of Superconducting Circuits**

Alirio Boaventura[2], Jerome Cheron[2], Dylan Williams[2], Alexander Rasmusson[2], Richard Chamberlin[2], Anna Fox[1], Paul Dresselhaus[1], Nathan Flowers-Jacobs[1], Manuel Castellanos-Beltran[1], Peter Hopkins[1], Ian Haygood[1], Michael Schneider[1] and Stephen Russek[1]

[1]NIST, Boulder, Colorado, US, [2]NIST, Boulder, Colorado, US

1EPo2B - HTS Fabrication
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Robin Cantor, STAR Cryoelectronics & Emma Mitchell, CSIRO

1EPo2B-01 [E4] **Magnesium Diboride Thin Films for Wafer Scale Fabrication of Superconducting Electronics**

Daniel Cunnane[1] and Frank Greer[1]

[1]NASA Jet Propulsion Laboratory, Pasadena, California, US

1EPo2B-02 [E5] **[Invited] Parameter spreads in arrays of planar MgB_2 Josephson junctions made by focused helium ion beam**

Leila Kasaei[1], Thomas Melbourne[1], V. Manichev[2], Leonard Feldman[2], Torgny Gustafsson[2], Ke Chen[1,3], Xiaoxing Xi[1] and Bruce Davidson[1]

[1]Temple Univeristy, Philadelphia, Pennsylvania, US, [2]Rutgers Univeristy, Piscataway, New Jersey, US, [3]Temple University, Philadelphia, Pennsylvania, US

1EPo2B-03 [E6] **The Fabrication of MgB_2/BN/MgB_2 Josephson Junctions by HPCVD**

Ruirui Niu[1] and Can Yang[1]

[1]Peking University, Beijing, Beijing, China

1EPo2B-04 [E7] **Scalability of YBCO step edge Josephson junction devices**

Wendy Purches[1], Jeina Lazar[1], Kelly Walker[1], Cathy Foley[1] and Emma Mitchell[1]

[1]CSIRO, Lindfield, New South Wales, Australia

1EPo2B-05 [E8] **Planar Josephson junctions in Co–doped $BaFe_2As_2$ thin film locally damaged by a subnanometer helium ion beam**

Leila Kasaei[1], Thomas Melbourne[1], V. Manichev[2], Yesusa Collantes[3], Eric Hellstrom[3], Torgny Gustafsson[2], Leonard Feldman[2], Ke Chen[1,4], Xiaoxing Xi[1] and Bruce Davidson[1]

[1]Temple Univeristy, Philadelphia, Pennsylvania, US, [2]Rutgers Univeristy, Piscataway, New Jersey, US, [3]Florida State University, Tallahassee, Florida, US, [4]Temple University, Philadelphia, Pennsylvania, US

1EPo2B-06 [E9] *student paper contestant* **Fabrication of Localized Superconducting $BaFe_2As_2$ Films using Cobalt-ion Implantation**

Myeong-jun Oh[1], Jongmin Lee[2], Sanghan Lee[2], Woun Kang[3] and Younjung Jo[1]

[1]Kyungpook National University, Daegu, Korea (the Republic of), [2]Gwangju Insititute of Science and Technology, Gwangju, Korea (the Republic of), [3]Ewha Womans University, Seoul, Korea (the Republic of)

1EPo2D - Microwave Cavities and Applications

Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Steven Anlage, University of Maryland & William Brey, Florida State University / NHMFL

1EPo2D-01 [E11] **Analysis of Niobium Lumped Element Inductors Under High RF Power Operation**

Desireh Shojaei-Asanjan[1] and Raafat Mansour[1]

[1]University of Waterloo, Waterloo, Ontario, Canada

1EPo2D-02 [E12] **Level repulsion in coupled SRF quarter-wave stub cavities at 10 GHz**

Alessandro Castelli[1], Luis Martinez[1], Jacob Pate[1], Raymond Chiao[1] and Jay Sharping[1]

[1]University of California, Merced, Merced, California, US

1EPo2D-03 [E13] **Capacitive Tuning of an SRF Cavity Incorporating a Flexible Silicon-Nitride Membrane**

Jacob Pate[1], Raymond Chiao[1] and Jay Sharping[1]

[1]University of California, Merced, Merced, California, US

1EPo2D-04 [E14] **Examination of high-Q NMR pickup coils made by $YBa_2Cu_3O_{7-d}$ thin films**

Shigetoshi Ohshima[1], Haruki Hoshi[1], Naoki Takanashi[1], Hironobu Yamada[1], Atsushi Saito[1], Emi Yoshioka[2], Naoto Sekiya[2], Shigenori Tsuji[3] and Hiroto Suematsu[3]

[1]Yamagata University, Yonezawa, Japan, [2]University of Yamanashi, Kofu, Japan, [3]JEOL RESONANCE, Akishima, Japan

1EPo2D-05 [E15] **Development of Transmitter Filter Using Eight-pole Cascaded Quadruplet Superconducting Bulk Resonator**

Kodama Shun[1], Takafumi Saito[1], Nyui Hiroto[1], Satoshi Ono[2] and Atsushi Saito[1]

[1]Graduate School of Science and Engineering, Yonezawa, Yamagata, Japan, [2]Graduate School of Informatics and Engineering, Chofu, Tokyo, Japan

1EPo2D-06 [E16] **Development of HTS Pickup Coils for 40 MHz NMR**

Haruki Hoshi[1], Kotaro Irie[1], Shigetoshi Ohshima[1], Masato Takahashi[2] and Atsushi Saito[1]

[1]Yamagata University, Yonezawa, Japan, [2]Division of Structural and Synthetic Biology Center for Life Science Technologies RIKEN, Yokohama, Japan

1EPo2D-07 [E17] **Design of 800 MHz NMR RF coil having a pair of double-side coupled resonators**

Naoto Sekiya[1], Emi Yoshioka[1], Haruki Hoshi[2], Atsushi Saito[2] and Shigetoshi Ohshima[2]

[1]University of Yamanashi, Kofu, Japan, [2]Yamagata University, Yonezawa, Japan

1EPo2D-08 [E18] **Time and Frequency Domain Response of HTS Resonators for Use as NMR Transmit Coils**

Ghoncheh Amouzandeh[1,2], William Brey[2], Vijaykumar Ramaswamy[3], Nicolas Freytag[3], Lawrence Hornak[4] and Arthur Edison[5]

[1]Florida state university, Tallahassee, Florida, US, [2]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [3]Bruker Biospin AG, Faellanden, Switzerland, [4]University of Georgia, Athens, Georgia, US, [5]University of Georgia, Athens, Georgia, US

1EPo2D-09 [E19] **Facing Fed Microwave Kinetic Inductance Detectors for Improvement of Microwave Characteristic**

Daisuke Kurashina[1], Kensuke Nakajima[1], Kaito Suzuki[1], Naoki Mikami[1] and Atsushi Saito[1]

[1]Yamagata University, Yonezawa, Yamagata, Japan

1EPo2E - Digital Logic [P I]
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Adam Sirois, NIST & Qiuyun Xu, Yokohama National University

1EPo2E-01 [E20&21] **[Invited] Low-power digital readout circuit for SNSPDs**

Anubhav Sahu[1], Mustafa Çelik[1], Dimitri Kirichenko[1], Timur Filippov[1] and Deepnarayan Gupta[1]

[1]HYPRES INC, Elmsford, New York, US

1EPo2E-02 [E22] **Study of Compression Algorithms for Superconductor Integrated Circuit Implementation**

Alf Lehmann[1] and Deepnarayan Gupta[1]

[1]HYPRES, Inc., Elmsford, New York, US

1EPo2E-03 [E23] **Design and Implementation of an 8-bit ALU on a Superconducting Magnetic Field Programmable Gate Array Fabric**

Naveen Katam[1,2], Oleg Mukhanov[2] and Massoud Pedram[1]

[1]University of Southern California, Los Angeles, California, US, [2]Hypres, Inc., ELMSFORD, New York, US

1EPo2E-04 [E24] **Shared circular bus for large scale single flux quantum systems**

Gleb Krylov[1] and Eby Friedman[1]

[1]University of Rochester, Rochester, New York, US

1EPo2E-05 [E25] *student paper contestant* **Study on Single Flux Quantum Floating-Point Divider Based on Goldschmidt's Algorithm**

Akiyoshi Sanada[1], Yuki Yamanashi[1] and Nobuyuki Yoshikawa[1]

[1]Yokohama National University, Yokohama, Japan

1EPo2E-06 [E26] **A High-Speed Voltage Driver using a 4JL Gate for Adiabatic Quantum Flux Parametron**

Fumihiro China[1], Naoki Takeuchi[2], Thomas Ortlepp[3], Yuki Yamanashi[1,2] and Nobuyuki Yoshikawa[1,2]

[1]Yokohama National University, Yokohama, Kanagawa, Japan, [2]Yokohama National University, Yokohama, Japan, [3]CiS Research Institute, Erfurt, Germany

1EPo2E-07 [E27] **Demonstration of picosecond time resolution of double-oscillator time-to-digital converters using single-flux-quantum circuits**

Yuma Tomitsuka[1], Yutaka Abe[1], Nobuyuki Zen[2], Yuki Yamanashi[1] and Nobuyuki Yoshikawa[1]

[1]Yokohama National University, Yokohama, Kanagawa, Japan, [2]National Institute of Advanced industrial science and technology, Tsukuba, Ibaraki, Japan

1EPo2E-08 [E28] **Design of Digital Filter for Digital SQUID\linebreak with sub-Flux Quantum Feedback Resolution**

Hiroaki Myoren[2], Kousuke Okabe[1], Ryo Matsunawa[1], Masato Naruse[1] and Toru Taino[1]

[1]Saitama University, Saitama, Japan, [2]Saitama University, Saitama, Japan

1EPo2E-09 [E29] **An 8-bit and 16-bit ALU for Superconducting Reciprocal Quantum Logic (RQL) CPUs**

Michael Vesely[1], Paul Tschirhart[1], Brian Konigsburg[1], Patrick Farrell[1], Sm Rahman[1] and Ryan Clarke[1]

[1]Northrop Grumman, Linthicum, Maryland, US

1EPo2E-10 [E30] **A 16-bit Bit-slice 64-bit RSFQ Microprocessor Architecture**

Xin Zhang[1,2], Guang-Ming Tang[1], Xiaochun Ye[1], Dongrui Fan[1] and Ninghui Sun[1]

[1]State Key Laboratory of Computer Architecture Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China, [2]Guizhou University, Guiyang, China

1LPo2A - Magnet Design and Analysis Techniques [P I]
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Jun Ma, University of Cambridge & Alexander Zlobin, Fermilab

1LPo2A-01 [L1] **A Linear Magnetic Gear with HTS Bulks for Wave Energy Conversion**

Chunyuan Liu[1], He Zhu[1] and Lei Huang[2]

[1]JiaXing University, China, Jiaxing, China, [2]Southeast University School of Electrical Engineering, Nanjing, China

1LPo2A-02 [L2] **Measurements and modelling of mechanical and superconducting properties of Nb3Sn strands, cables and coils.**

Emanuela Barzi[1,2], Daniele Turrioni[1], Igor Novitski[1] and Alexander Zlobin[1]

[1]Fermilab, Batavia, Illinois, US, [2]OSU, Columbus, Ohio, US

1LPo2A-03 [L3] **Coupled Simulation Model of CICC Components Integrated into Thermo-hydraulic Domain of Cooling Circuit**

Dong-Keun Oh[1]

[1]National Fusion Resaerch Institute, Daejeon, --, Korea (the Republic of)

1LPo2A-04 [L4] **Study on the 4T Superconducting Magnet with High Homogeneity**

Meng Song[1] and Nan Hu[1]

[1]electric power research institute of guangdong power grid corporation, Guangzhou, China

1LPo2A-05 [L5] **Failure assessments for MQXF support structures**

Heng Pan[1], Eric Anderssen[1], Daniel Cheng[1], Soren Prestemon[1] and Giorgio Ambrosio[2]

[1]Lawrence Berkeley National Laboratory, Berkeley, California, US, [2]FermiLab, Batavia, Illinois, US

1LPo2A-06 [L6] **R&D of a No-insulation HTS Magnet for Small-Scale Bilateral HTS Linear Synchronous Motors**

Fangliang Dong[1], Zhen Huang[1], Luning Hao[1] and Zhijian Jin[1]

[1]Shanghai Jiaotong University, Shanghai, China

1LPo2A-07 [L7] **Design and comparison analysis of a 3 T superconducting magnet using MgB_2 and 2G HTS wires for DC induction heaters**

Quan Dao[1], Chankyeong Lee[2], Jongho Choi[2], Minwon Park[1] and In-Keun Yu[1]

[1]Changwon National University, Changwon-si, Gyeongsangnam-do, Korea (the Republic of), [2]Supercoil Co., Ltd., Changwon-si, Gyeongsangnam-do, Korea (the Republic of)

1LPo2A-08 [L8] **The design and analysis of a superconducting magnet system for magnetic density separation**

Chao Zhou[1], J. J. Kosse[1], G.S. Santostomas[1], Marc M. J. Dhalle[1], Herman ten Kate[2] and P.C. Rem[3]

[1]EMS, Enschede, Enschede, Netherlands, [2]CERN, Geneva, Swaziland, [3]Delft University of Technology, Delft, Netherlands

1LPo2A-09 [L9] **Design optimization of a coreless-typed HTS linear synchronous motor**

Guangtong Ma[1], Tianyong Gong[1], Kang Liu[1] and Zhengwei Zhao[1]

[1]Southwest Jiaotong University, Chengdu, SIchuan, China

1LPo2A-10 [L10] **Effect of applied compressive stress on Nb_3Sn magnet coil segment internal strain and stress state, load transfer, stiffness and creep**

Christian Scheuerlein[1], Felix Wolf[1], Marcus Lorentzon[1], Michael Hofmann[2], Weimin Gan[3], Friedrich Lackner[1], Daniel Schoerling[1], Davide Tommasini[1], Frederic Savary[1] and Luca Bottura[1]

[1]CERN, Geneva, Switzerland, [2]Forschungsneutronenquelle Heinz Maier-Leibnitz (FRM II), München, Germany, [3]German Engineering Materials Science Centre at MLZ, München, Germany

1LPo2B - Magnet Stability, Magnetization Effects, AC Losses and Protection [P I]: Numerical Modeling
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Francesco Grilli, Karlsruhe Institute of Technology & Fedor Gömöry, Institute of Electrical Engineering, Slovak Academy of Sciences

1LPo2B-01 [L11] **A new numerical method of efficiently calculating the electromagnetic properties of the HTS tape stack**

Xiaodong Li[1]

[1]Beihang University, Beijing, China

1LPo2B-02 [L12] **Numerical modelling of demagnetization of bulk superconductors due to crossed-fields**

Fernando Perez Mendez[1], Jan Srpčič[1] and Mark Ainslie[1]

[1]University of Cambridge, Cambridge, United Kingdom

1LPo2B-03 [L13] **AC loss characteristics of superferric magnets using HTS coils for rapid cycling synchrotrons with different magnet geometry**

Yusuke Sogabe[1], Masahiro Yasunaga[1], Yasuhiro Fuwa[1], Yasutoshi Kuriyama[1], Tomonori Uesugi[1], Yoshihiro Ishi[1] and Naoyuki Amemiya[1]

[1]Kyoto University, Kyoto, Japan

1LPo2B-04 [L14] **Three-Dimensional Electromagnetic and Thermal Field Coupled Analysis of REBCO Coils Considering Local Performance Degradation**

Kezhen Qian[1], Yutaka Terao[2] and Hiroyuki Ohsaki[2]

[1]The University of Tokyo, Tokyo, Japan, [2]The University of Tokyo, Kashiwa, Chiba, Japan

1LPo2B-06 [L15] **Electromagnetic and thermal simulation of the ITER CSU2 coil module during 15MA plasma scenario.**

Tommaso Bagni[1], Arnaud Devred[2] and Arend Nijhuis[1]

[1]University of Twente, Enschede, Netherlands, [2]CERN, Geneva, Switzerland

1LPo2B-07 [L16] **Quench Analysis of the HTS CrossConductor for a Toroidal Field Coil**

Reinhard Heller[1], Walter Fietz[1], Michael Wolf[1] and Paul Blanchier[1]

[1]Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany

1LPo2B-08 [L17] **2D Numerical Modeling of a HTS Bulk Magnetization based on H formulation Coupled with an Electrical Circuit**

Jakub Kapek[1], Kévin Berger[1], Jean Leveque[1] and Smail Mezani[1]

[1]Groupe de Recherche en Energie Electrique de Nancy, Nancy, Lorraine, France

1LPo2B-09 [L18] **Numerical Investigation of a Dynamic Protection Method for Meter-Class REBCO No-Insulation Pancake Coils**

Tao Wang[2,1], Kaizhong Ding[3], Shuangsong Du[3] and Xinzhe Jin[4]

[1]Waseda University, Tokyo, Tokyo, Japan, [2]Nanjing University of Science and Technology, Nanjing, Jiangsu, China, [3]Chinese Academy of Sciences, Hefei, China, [4]Muroran Institute of Science and Technology, Muroran, Japan

1LPo2B-10 [L19] **Quench Simulations of a Novel High-Current High-Temperature Superconducting Coil**

Andrey Gavrilin[1] and Thomas Painter[1]

[1]Florida State University, Tallahassee, Florida, US

1LPo2C - HTS Power Cables [P I]
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Andries den Ouden, Radboud University & Steffen Elschner, University of Applied Science Mannheim

1LPo2C-01 [L20] **Superconducting 380 kV cable as an opportunity for partial underground cabling projects**
Dustin Kottonau[1], Wescley Tiago Batista de Sousa[1], Joern Geisbuesch[1], Hanno Stagge[2] and Mathias Noe[1]
[1]Institute for Technical Physics (KIT), Eggenstein-Leopoldshafen, Germany, [2]TenneT TSO GmbH, Bayreuth, Germany

1LPo2C-02 [L21] **Transient Simulation and Recovery Time of a Three-Phase Concentric HTS-Cable**
Wescley Tiago Batista de Sousa[1], Dustin Kottonau[1] and Mathias Noe[1]
[1]Karlsruher Institut für Technologie, Eggenstein-Leopoldshafen, BW, Germany

1LPo2C-03 [L22&23] **[Invited] AC loss in each layer of three-layer twisted HTS cable**
Jun Ogawa[1], Satoshi Fukui[1], Sugai Mamoru[1], Shun Aoyama[1], Naoya Koseki[1] and Toryo Matsubara[1]
[1]Niigata University, Niigata, Niigata, Japan

1LPo2C-04 [L24] **Conceptual design and performance analysis of a multi-layer 3 phase coaxial HTS cable**
Thang Le[1], Seok-Ju Lee[1], Minwon Park[1], In-Keun Yu[1], Du Yean Won[2], Hyung Suk Yang[2] and Seong Yeol Kang[1]
[1]Changwon National University, Changwon, Korea (the Republic of), [2] KEPCO Research Institute, Daejeon, Korea (the Republic of)

1LPo2C-05 [L25] **Design of AC 23kV 60MVA Class 3-Phase Coaxial HTS Cable for Applying Power Grid**
Jin Bae Na[1], Chang Yeol Choi[1], Yang-Hun Kim[2], Seokju Lee[2], Minwon Park[2], Du Yean Won[3] and Hyung Suk Yang[3]
[1]LS Cable&System, Gunpo-si, Korea (the Republic of), [2]Changwon National University, Changwon, Korea (the Republic of), [3]KEPCO Research Institute, Deajeon, Korea (the Republic of)

1LPo2C-06 [L26] **Design of a 10kV/40MVA HTS Power Cable for Underground Distribution Network in Shenzhen City**
Jianping Liao[1], Ziheng Hu[1], Bin Zhang[1], Xuhui Xu[1], Peng Chen[1], Bo Tan[1], Yijun Wang[1], Zhenwei Ma[1], Zhenzi Wang[1], Wei Wang[1] and Bangzhu Wang[1]
[1]Shenzhen Power Supply Bureau Co., Ltd, Shenzhen, Guangdong, China

1LPo2C-07 [L27] **Electromagnetic Characteristics of Concentric Superconducting AC Power Cable Under Three-Phase Unbalanced Conditions**
Bin Zhang[1], Jianping Liao[1], Ziheng Hu[1], Zhenzi Wang[1], Wei Wang[1], Peng Chen[1], Xuhui Xu[1], Yijun Wang[1], Bo Tan[1], Zhenwei Ma[1] and Bangzhu Wang[1]
[1]Shenzhen Power Supply Bureau Co., Ltd, Shenzhen, Guangdong, China

1LPo2C-08 [L28] **Over-Current Test and Modelling of 110 kV/3 kA YBCO Cold Dielectric Superconducting Cable**
Huiming Zhang[1], Hongjie Zhang[1], Jiahui Zhu[1], Ming Qiu[1] and Panpan Chen[1]
[1]China Electric Power Research Institute, Beijing, China

1LPo2D - No Insulation Coils
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Patrick Noyes, Lockheed Martin & Ulf Trociewitz, National High Magnetic Field Laboratory

1LPo2D-01 [L29] **Conceptual Design of a No-Insulation Pancake Coil-System for the Application of Next-Generation Meter-Class Bore High-Field MRIs**
Tao Wang[2,1], Wenlong Li[2], Kaizhong Ding[3] and Shuangsong Du[3]
[1]Waseda University, Tokyo, Tokyo, Japan, [2]Nanjing University of Science and Technology, Nanjing, Jiangsu, China, [3]Chinese Academy of Sciences, Hefei, Anhui, China

1LPo2D-02 [L30] **Feasibility study of a no-insulation REBCO magnet for persistent mode operation**

Yimin Chen[1], Gang Yang[1], Shudong Zhang[1], Shiwei Xu[1], Ziming Fan[1], Ping Jiang[1] and Zhichen Han[1]

[1]Northeastern University, Shenyang, China

1LPo2D-04 [L31] **Contact resistance characteristics of 2G HTS coils with the metal insulation**

Myung-Hwan Sohn[1], Hongsoo Ha[1] and Sung-Kyu Kim[1]

[1]Korea Electrotechnology Research Institute, Changwon-si, Gyeongsangnam-do, Korea (the Republic of)

1LPo2D-05 [L32] **Development of No Insulation REBCO Split Coil for Neutron Scattering**

Thomas Painter[2], Mark Bird[1], William Markiewicz[1] and Barry Winn[3]

[1]Florida State University, Tallahassee, Florida, US, [2]Painter Magnetics, Tallahassee, Florida, US, [3]Oak Ridge National Laboratory, Oak Ridge, Tennessee, US

1LPo2D-06 [L33] **Study on the properties of a normal transition and current bypassing of NI coil wound with 2G wires without stabilizer**

SeokBeom Kim[1], Haruyoshi Okusa[1], Takahiro Tatsuta[1] and Hiroshi Ueda[1]

[1]Okayama University, Okayama, Japan

1LPo2D-07 [L34] **Electrical Characteristics of Smart Insulation 2G HTS coil according to fabrication method**

Young-Sik Jo[1], Hyung-Wook Kim[1], Seog-Whan Kim[1], Doohun Kim[1], DongWoo Ha[1], Rock-Kil Ko[1], Ji Hyung Kim[2], Ho Min Kim[2], SeokBeom Kim[3] and Jung-Pyo Hong[4]

[1]Korea Rlectrotechnology Research Institute, Changwon-si, Gyeongsangnam-do, Korea (the Republic of), [2]Jeju National University, Jeju, Korea (the Republic of), [3]Okayama University, Okayama, Japan, [4]Hanyang University, Seoul, Korea (the Republic of)

1LPo2D-08 [L35] **A Study of Metal-clad Winding Effects on Electromagnetic Characteristics of GdBCO Magnets in Time-varying Magnetic Field**

Jimin Kim[1], Jong Cheol Kim[1], Young-Gyun Kim[1], Seung Jae Hong[1], Ji Hyung Kim[2], Ho Min Kim[2] and Haigun Lee[1]

[1]Korea University, Seoul, Korea (the Republic of), [2]Jeju National University, Jeju, Korea (the Republic of)

1LPo2D-09 [L36] **Turn-to-turn Contact Resistance Measurement of No-Insulation REBCO Pancake Coil**

So Noguchi[1], Ryosuke Miyao[1], SeokBeom Kim[2], Haruyoshi Okusa[2], Takahiro Tatsuta[2] and Hiroshi Ueda[2]

[1]Hokkaido University, Sapporo, Japan, [2]Okayama University, Okayama, Japan

1LPo2D-10 [L37] **Systematic study of the contact resistance between REBCO tapes: pressure dependence in the cases of no-insulation, metal co-winding and metal-insulation.**

Christian Barth[1], Anthony Joudier[1], Alexandre Fête[1], Carmine Senatore[1] and Marco Bonura[1]

[1]University of Geneva, Geneva, Switzerland

1LPo2D-11 [L38] **Investigation on Degradation of REBCO Tapes after High Field Quench Tests of No-Insulation Coils**

Kwang Lok Kim[1], Kwangmin Kim[1], Kabindra Bhattarai[1], Xinbo Hu[1], Kyle Radcliff[1], Mincheol Cho[2], David Larbalestier[1] and Seungyong Hahn[1,2]

[1]National High Magnetic Field laboratory, Tallahassee, Florida, US, [2]Seoul National University, Seoul, Korea (the Republic of)

1LPo2D-12 [L39] **Investigation on Charge-Discharge Characteristics of Partially Insulated MgB_2 Magnet Using Cr-coated MgB_2 Wires**

Young-Gyun Kim[1], Jong Cheol Kim[1], Jiman Kim[1,2], Byeongha Yoo[1], Duck Young Hwang[2] and Haigun Lee[1]

[1]Korea University, Seoul, Korea (the Republic of), [2]Kiswire Advanced Technology Co., Ltd, Daejeon, Korea (the Republic of)

1LPo2E - Numerical Modeling of Superconductors
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Francesco Grilli, Karlsruhe Institute of Technology & Zhenan Jiang, Victoria University of Wellington

1LPo2E-01 [L40] **[Invited] Lessons learned from our endeavour on structuring the field of HTS AC loss modelling**
Antti Stenvall[1] and Valtteri Lahtinen[1]

[1]Tampere University of Technology, Tampere, Finland

1LPo2E-02 [L41] **A Predictive Approach for AC Loss for Superconducting strip Using Modified Particle Swarp Optimization**
Kun Dong[1]

[1]Southeast university, Nanjing, China

1LPo2E-03 [L42] **Study on Calculation Methods of AC Loss in Control Windings of a Novel HTS Controllable Reactor with Orthogonally Configured Core**
Yu Zhang[1], Jingdong Li[1], Zuoshuai Wang[1], Li Ren[1], Sinian Yan[1] and Yuejin Tang[1]

[1]Huazhong University of Science and Technology, Wuhan, Hubei, China

1LPo2E-04 [L43] **Numerical Modelling of Transport AC Loss for HTS Bifilar Coil Carrying Nonsinusoidal Current**
Wenjuan Song[1,2], Jin Fang[1], Zhenan Jiang[2], Mike Staines[2] and Rodney Badcock[2]

[1]Beijing Jiaotong University, Beijing, Beijing, China, [2]Victoria University of Wellington, Wellington, New Zealand

1LPo2E-05 [L44] **Modelling and Experimental Study on the Magnetization Losses of Tri-axial CORC Cable used in All-Electric Aircraft**
Zixuan Zhu[1,2], Yawei Wang[2,1], Min Zhang[1,2] and Weijia Yuan[1,2]

[1]University of Bath, Bath, United Kingdom, [2]University of Strathclyde, BATH, Somerset, United Kingdom

1LPo2E-06 [L45] **Torque and AC Loss Analysis of a Fully Superconducting Synchronous Rotating Machine with Dually Arranged Field Winding**
Sang Ho Park[1], Myeonghee Lee[1], Seyeon Lee[1], Miyeon Yoon[1], Kyeongdal Choi[1], Ji-kwang Lee[2], Gye-Won Hong[1] and Woo-Seok Kim[1]

[1]Korea Polytechnic University, Siheung, Korea (the Republic of), [2]Woosuk University, Junju, Korea (the Republic of)

1LPo2E-07 [L46] **Modelling of HTS bulk submitted to an external magnetic field by stochastic methods**
Jean Leveque[1], Kévin Berger[1], Hocine Menana[1], Bruno Douine[1] and Melika Hinaje[1]

[1]University of Lorraine, Vandeouvre, France

1LPo2E-08 [L47] **3-D Modelling of HTS bulk submitted to an external magnetic field by means of stochastic methods**
Jean Leveque[1], Kévin Berger[1], Hocine Menana[1], Bruno Douine[1] and Melika Hinaje[1]

[1]University of Lorraine, Vandeouvre, France

1LPo2E-09 [L48] **Fast FEM modelling of first generation high temperature superconducting power cables via homogenization**
Alexander Petrov[1], James Pilgrim[1] and Igor Golosnoy[1]

[1]University of Southampton, Southampton, United Kingdom

1LPo2E-10 [L49] **Modeling and Transient Thermoelectric Characteristics research of High Temperature Superconducting Cables**
Rongyu Su[1], Jing Shi[1], Lihui Zhang[1], Sinian Yan[1], Li Ren[1], Yuejin Tang[1] and Jingdong Li[1]

[1]State Key Laboratory of Advanced Electromagnetic Engineering and Technology, Huazhong University of Science and Technology, Wuhan, China

1LPo2F - Wigglers, Undulators and Special Magnets
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Laura Garcia Fajardo, CERN & David Kashy, Jefferson Lab

1LPo2F-01 [L50] **Magnetic Field Shimming for SC200 medical proton cyclotron**
Pengyan Zhou[1], Yuntao Song[2], Kaizhong Ding[2] and Junjun Li[2]
[1]University of Science and Technology of China, Hefei, Anhui, China, [2]Institute of plasma physics, Chinese academy of sciences., Hefei, China

1LPo2F-02 [L51] **High field superbend for low emittance light sources: Development and electro-thermo-mechanical behavior**
Ciro Calzolaio[1], Giuseppe Montenero[1] and Stéphane Sanfilippo[1]
[1]Paul Scherrer Institut, Villigen, Switzerland

1LPo2F-03 [L52] **Development and quench analysis of a REBCO undulator magnet prototype**
Shichang Liu[1], Yi Ding[1] and Jieping Xu[1]
[1]Shanghai Insitute of Applied Physics, Chinese Academy of Sciences, Shanghai, China

1LPo2F-04 [L53] **Magnetic design and thermomechanical study of a variable gap, 14 mm – 10 period NbTi superconducting undulator**
Frederic Trillaud[1], Mona Gehlot[2] and Ganeswar Mishra[2]
[1]Instituto de Ingeniería, UNAM, Mexico, Districto Federal, Mexico, [2]Devi Ahilya Vishwavidyalaya, Indore, Madhya Pradesh, India

1LPo2F-05 [L54] **Test result of the 50-period superconducting undulator prototype at SSRF**
Jieping Xu[1], Yi Ding[1], Ming Li[1], Hongfei Wang[1], Jian Cui[1], Shuhua Wang[1] and Qiaogen Zhou[1]
[1]Shanghai Institute of Applied Physics, Chinese Academy of Sciences, Shanghai, China

1LPo2F-06 [L55] **Quench simulation of a REBCO undulator magnet**
Yi Ding[1], Shichang Liu[1], Jieping Xu[1], Jian Cui[1], Ming Li[1] and Maofei Qian[1]
[1]Shanghai Institute of Applied Physics, Chinese Academy of Sciences, Shanghai, China

1LPo2F-07 [L56] **Development of Short-Period Nb_3Sn Superconducting Planar Undulator**
Ibrahim Kesgin[1], Matthew Kasa[1], Yury Ivanyushenkov[1], Quentin Hasse[1], Yuko Shiroyanagi[1], Joel Fuerst[1], Alexander Zlobin[2], Daniele Turrioni[2], Emanuela Barzi[2] and Efim Gluskin[1]
[1]Argonne National Laboratory, Lemont, Illinois, US, [2]Fermi National Accelerator Laboratory, Batavia, Illinois, US

1LPo2F-08 [L57] **The 12 m long superconducting magnet system for the PERC experiment**
Cristian Boffo[1], Melanie Turenne[1] and Stefan Flassig[1]
[1]Bilfinger Noell GmbH, Würzburg, Bayern, Germany

1LPo2F-09 [L58] **Micro-aligned solenoid for magnetized bunched-beam electron cooling**
Peter McIntyre[1], James Gerity[1], Joshua Kellams[2] and Akhdiyor Sattarov[1]
[1]Texas A&M University, College Station, Texas, US, [2]Accelerator Technology Corp., College Station, Texas, US

1LPo2F-10 [L59] **A Dual 5T Superconducting Magnet System for the Brookhaven National Lab Electron Beam Ion Source.**
Adam Berryhill[1] and John Ritter[2]
[1]Cryomagnetics, Inc., Oak Ridge, Tennessee, US, [2]Brookhaven National Lab, Upton, New York, US

1LPo2F-11 [L60] **Multipole Magnets with High Field Uniformity over Full Length for GANIL Super Separator Spectrometer**
Rainer Meinke[1], Shashikant Manikonda[1], Jerry Nolen[2], Vernon Prince[1] and G. Stelzer[1]
[1]Advanced Magnet Lab, Inc., Palm Bay, Florida, US, [2]Argonne National Lab, Argonne, Illinois, US

1LPo2G - HL-LHC Magnets [P I]
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Damien Simon, CEA Saclay & Alexander Zlobin, Fermilab

1LPo2G-01 [L61] **[Invited] Test Results of the CERN HL-LHC low-beta Quadrupole short Models MQXFS3, MQXFS5 and MQXFS4**

Hugues Bajas[1], Giorgio Ambrosio[2], Marta Bajko[1], Susana Izquierdo Bermudez[1], Nicolas Bourcey[1], Antonella Chuichiolo[1], Arnaud Devred[1], Paolo Ferracin[1], Lucio Fiscarelli[1], Franco Mangiarotti[1], Matthias Mentink[1], Ezio Todesco[1], Juan Carlos Perez[1] and Giorgio Vallone[1]

[1]CERN, Geneva, Switzerland, [2]FNAL, Batavia, Illinois, US

1LPo2G-02 [L63&64] **[Invited] Mechanical performance of the first prototype 4.5 m long Nb_3Sn low-β quadrupole magnets for the Hi-Lumi LHC Upgrade**

Daniel Cheng[1], Giorgio Ambrosio[2], Eric Anderssen[1], Joseph DiMarco[2], Paolo Ferracin[3], Philippe Grosclaude[3], Michael Guinchard[3], Joseph Muratore[4], Heng Pan[1], Soren Prestemon[1], GianLuca Sabbi[1], Giorgio Vallone[3] and Xiaorong Wang[1]

[1]Lawence Berkeley National Lab, Berkeley, California, US, [2]Fermi National Laboratory, Batavia, Illinois, US, [3]CERN, Geneva, Switzerland, [4]Brookhaven National Laboratory, Upton, New York, US

1LPo2G-03 [L62] **Summary of the Mechanical Measurements of the 1.5 Long Models of the Nb3Sn Low-β Quadrupole MQXF**

Giorgio Vallone[1], Giorgio Ambrosio[2], Nicolas Bourcey[1], Daniel Cheng[3], Paolo Ferracin[1], Philippe Grosclaude[1], Michael Guinchard[1], Mariusz Juchno[3], Heng Pan[3], Juan Carlos Perez[1] and Soren Prestemon[3]

[1]CERN, Geneva, Switzerland, [2]FNAL, Batavia, Illinois, US, [3]LBNL, Berkeley, California, US

1LPo2G-04 [L65] **Characterisation of the mechanical properties of impregnated Nb_3Sn coils**

José Luis Rudeiros Fernández[1], Juan Carlos Perez[1], Jose Ferradas Troitino[1], Michael Guinchard[1], Philippe Grosclaude[1], Mickael Crouvizier[1], Stefanie Langeslag[1], Susana Izquierdo Bermudez[1] and Frederic Savary[1]

[1]CERN, Geneva, Switzerland

1LPo2G-05 [L66] **Dimensional Measurements of coils and structure for the MQXFB Quadrupole for the High-Luminosity LHC Upgrade**

Michela Semeraro[1], Paolo Ferracin[1], Frederic Savary[1], Jose Ferradas Troitino[1], Susana Izquierdo Bermudez[1], Friedrich Lackner[1], Juan Carlos Perez[1], Stephane Triquet[1], Giorgio Vallone[1], Thibault Genestier[2] and Jose Ferradas Troitino[1]

[1]CERN, Geneva, Switzerland, [2]General Electric Company, Belfort, France

1LPo2G-06 [L67] **The Superconducting Separation Dipoles D2 for the High Luminosity Upgrade of LHC: From Short Model to Prototype**

Andrea Bersani[1], Barbara Caiffi[1], Roberto Cereseto[1], Pasquale Fabbricatore[1], Stefania Farinon[1], Arnaud Foussat[2] and Ezio Todesco[2]

[1]INFN Genova, Genova, Italy, [2]CERN, Geneva, Switzerland

1LPo2G-07 [L68] **Construction and Cold Test of the Superferric Decapole for the LHC Luminosity Upgrade**

Marco Statera[1], Franco Alessandria[1], Francesco Broggi[1], Augusto Leone[1], Vittorio Marinozzi[1], Samuele Mariotto[2,1], Antonio Paccalini[1], Danilo Pedrini[1], Mauro Quadrio[1], Massimo Sorbi[2,1], Maurizio Todero[1], Carlo Uva[1], Alessandro Pasini[1], Paolo Fessia[3], Andrea Musso[3] and Ezio Todesco[3]

[1]INFN, Milano, Milano, Italy, [2]University of MIlan, Milano, Italy, [3]CERN, Geneve, Switzerland

1LPo2H - Cryogenics for Superconducting Devices [P I]
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Ram Dhuley, Fermi National Accelerator Laboratory & Haigun Lee, Korea University

1LPo2H-01 [L69] **Initial Cooldown Characteristic of a Conduction-cooled Superconducting Magnet Using Cryogenic Oscillating Heat Pipe**

Qing Liang[1,2], Yi Li[1] and Qiuliang Wang[1,2]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China

1LPo2H-02 [L70] **Experiments on The Conduction Cooling System with Several Heat Pipes of Flat Shape**

AKifumi Kawagoe[1], Yutaro Nobukuni[1], Toshiyuki Mito[2], Nagato Yanagi[2], Shinji Hamaguchi[2], Suguru Takada[2] and Naoki Hirano[3]

[1]Kagoshima University, Kagoshima, Kagoshima, Japan, [2]National Institute for Fusion Science, Toki-shi, Japan, [3]Chubu Electric, Co., Nagoya, Japan

1LPo2H-03 [L71] **Transient thermal behavior of a nitrogen Pulsating Heat Pipe (PHP)**

Romain Bruce[1], Maria Barba[1], Florent Bouchet[1], Antoine Bonelli[1] and Bertrand Baudouy[1]

[1]CEA Saclay, Gif-sur-Yvette, France

1LPo2H-04 [L72] **Performance of the Vertical Test Facility during tests of Hi-Lumi Magnets at BNL**

Piyush Joshi[1], Joseph Muratore[1], Andrew Marone[1], Peter Wanderer[1] and Michael Anerella[1]

[1]Brookhaven National Laboratory, Upton, New York, US

1LPo2H-06 [L73] **Transient Heat Transfer in Superfluid Helium Cooled Nb_3Sn Superconducting Coil Samples**

Mário Grosso Xavier[1], Jens Schundelmeier[1,3], Tiemo Winkler[1,2], Torsten Koettig[1], Rob van Weelderen[1] and Johan Bremer[1]

[1]CERN, Meyrin, Switzerland, [2]University of Twente, Enschede, Netherlands, [3]Karlsruhe University of Applied Sciences, Karlsruhe, Germany

1LPo2H-07 [L74] **Investigation on a Stirling-type pulse tube cryocooler with the cooling capacity of kW-class at 77 K for HTS cable applications**

Haizheng Dang[1,2], Jun Tan[1], Jiaqi Li[1], Rui Zha[1], Tao Zhang[1], Dingli Bao[1], Yongjiang Zhao[1] and Bangjian Zhao[1]

[1]Shanghai Institute of Technical Physics, Chinese Academy of Sciences, Shanghai, China, [2]Shanghai Boreas Cryogenics Co., Ltd, Shanghai, China

1LPo2H-08 [L75] **Pulsed field magnetization of a bulk HTS with a coil sharing the same cryocooler**

Kévin Berger[1], Rafael-Antonio Linares-Lamus[1], Jakub Kapek[1], Bruno Douine[1], Sébastien Leclerc[2], Pierre-Louis Marande[3], Jacques Noudem[4], Michael Koblischka[5] and Jean Leveque[1]

[1]GREEN, Université de Lorraine, Vandoeuvre-lès-Nancy CEDEX, France, [2]LEMTA, Université de Lorraine - CNRS, Vandoeuvre-lès-Nancy, France, [3]CRM2, Université de Lorraine - CNRS, Vandoeuvre-lès-Nancy, France, [4]CRISMAT, CNRS-ENSICAEN, Normandie Université, Caen, France, [5]Institute of Experimental Physics, Saarland University, Saarbrücken, Germany

1LPo2H-09 [L76] **Global Sensitivity Analysis of a Stirling-Type Pulse Tube Cryocooler**

Sam Yang[1,2], Mauricio Chagas[1,2] and Juan Ordonez[1,2]

[1]Florida State University, Tallahassee, Florida, US, [2]Florida State University, Tallahassee, Florida, US

1LPo2J - General Accelerator Magnets

Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.

Moderators: Antonio della Corte, ENEA & Andries den Ouden, Radboud University

1LPo2J-01 [L77&78] **[Invited] Production and Test Status of the Superconducting Magnets for the NICA project and the SIS100 Synchrotron of FAIR**

Hamlet Khodzhibagiyan[1], Alexander Bychkov[1], Vladimir Borisov[1], Oleg Golubitsky[1], Vladimir Kekelidze[1], Sergei Kostromin[1], Grigory Kuznetsov[1], Dmitry Nikiforov[1], Ekaterina Shevchenko[1], Andrey Starikov[1], Grigory Trubnikov[1], Egbert Fischer[2], Alexander Bleile[2], Vladimir Datskov[2], Florian Kaether[2], Anna Mierau[2], Christian Roux[2], Piter Spiller[2] and Kei Sugita[2]

[1]Joint Institute for Nuclear Research, Dubna, Moscow region, Russian Federation, [2]GSI Helmholtzzentrum fuer Schwerionenforschung, Darmstadt, Germany

1LPo2J-02 [L79] **[Invited] Preliminary Design of the Interaction Region Magnets for Future Electron-Ion Collider at Jefferson Laboratory**

Renuka Rajput-Ghoshal[1], Ruben Fair[1], Probir Ghoshal[1], Chuck Hutton[2] and Mark Wiseman[2]

[1]Jefferson Lab, Newport News, Virginia, US, [2]Jefferson Lab, Newport News, Virginia, US

1LPo2J-03 [L80] **Prototype of HTS and LTS quadrupole magnet for the IF separator of RISP**

Do Gyun Kim[1], Hyun Chul Jo[1], Joonsun Kang[1], Sukjin Choi[1], Hyun-Man Jang[1], Inwoo Chun[2] and Kideok Sim[3]

[1]Institute for Basic Science, Daejeon, Korea (the Republic of), [2]Korea University, Sejong, Korea (the Republic of), [3]Supergenics, Changwon, Korea (the Republic of)

1LPo2J-04 [L81] **Design and experimental results of a superconducting Dipole magnet**

Chao Li[1,2], Pingxiang Zhang[4], Wei Liu[3], XianHui Lan[1], WenTao Zhang[1] and Yong Feng[1,3]

[1]Xi'an Superconducting Magnet Technologies Co.,ltd, Xi'an, China, [2]Northwestern Polytechnical University, Shaanxi, Xi'an, China, [3]Western Superconducting Technologies Co.,ltd, Xi'an, China, [4]Northwest Institute for Non-ferrous metal Research, Xi'an, China

1LPo2J-05 [L82] **Design of the Iron dominated 2 T superconducting dipoles for the folded segment II of the FRIB folded Linac**

Jingping Chen[1]

[1]FRIB, Lansing, Michigan, US

1LPo2J-06 [L83] **Superconducting Magnet Performance for the LCLS-II project**

Thomas Strauss[1], Joseph DiMarco[1], Oliver Kiemschiess[1], Vladimir Kashikhin[1], Alexander Makarov[1], Darryl Orris[1] and Michael Tartaglia[1]

[1]Fermilab, Batavia, Illinois, US

1LPo2J-07 [L84] **Cable-in-Conduit using MgB_2, Nb_3Sn and Bi-2212 for wind-and-react coils**

student paper contestant

Daniel Chavez[1,2], Jeffrey Breitschopf[2], Joshua Kellams[2], Peter McIntyre[2], Matthew Rindfleisch[3], Akhdiyor Sattarov[2] and Michael Tomsic[3]

[1]Universidad de Guanajuato, COLLEGE STATION, Texas, US, [2]Texas A&M University, College Station, Texas, US, [3]HyperTech Research, Inc., Columbus, Ohio, US

1LPo2J-08 [L85] **Preliminary Design of the Interaction Region Beam Transport Systems for JLEIC**

Mark Wiseman[1], Chuck Hutton[1], Fanglei Lin[1], Vasiliy Morozov[1], Renuka Rajput-Ghoshal[1] and Guohui Wei[1]

[1]Jefferson Lab, Newport News, Virginia, US

1LPo2J-10 [L86] **The eRHIC IR Q1 Rear Side Magnet**

Holger Witte[1], Brett Parker[1] and Robert Palmer[1]

[1]Brookhaven National Laboratory, Upton, New York, US

1LPo2J-11 [L87] **3 Tesla Superferric Cable-in-Conduit Dipole for JLEIC – design and construction**

Peter McIntyre[1], Jeffrey Breitschopf[1], Daniel Chavez[1,2], Akhdiyor Sattarov[1] and James Gerity[1]

[1]Texas A&M University, College Station, Texas, US, [2]Universidad Guanajuato, Leon, Mexico

1LPo2J-12 [L88] **Modular High Field Quadrupole Design for Electron-Ion Collider**

Ramesh Gupta[1], Michael Anerella[1], Brett Parker[1], Jesse Schmalzle[1], Peter Wanderer[1], Shailendra Chouhan[2], James Kolonko[2], Delbert Larson[2], Ronald Scanlan[2], Bob Weggel[2] and Erich Willen[2]

[1]BNL, Upton, New York, US, [2]Particle Beam Lasers, Inc., Northridge, California, US

1LPo2J-13 [L89] **Electromechanical Analysis of MgB_2 cable for Transmission Line Magnet System**

Mukesh Dhakarwal[1], Toru Ogitsu[2], Michinaka Sugano[2], Hiroyuki Watanabe[3] and Hideki Tanaka[3]

[1]The Graduate University for Advanced Studies, Tsukuba, Japan, [2]KEK, Ibaraki, Japan, [3]Hitachi Ltd., Ibaraki, Japan

1LPo2K - Motors, Generators, and Rotating Machines [P I]: HTS General
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Andries den Ouden, Radboud University & John Voccio, Wentworth Institute of Technology

1LPo2K-01 [L90] **[Invited] Simulation of no-insulation superconducting coils to estimate the critical current**

Yingzhen Liu[1], Francesco Grilli[1] and Mathias Noe[1]

[1]Institute for Technical Physics, Karlsruhe, Baden-Württemberg, Germany

1LPo2K-02 [L91] **A Novel Cylindrical Flux Modulation Machine with Toroidal Low-Temperature Superconducting Windings**

Chaojie Shi[1], Ronghai Qu[1], Yuting Gao[1] and Dawei Li[1]

[1]Huazhong University of Science and Technology, Wuhan, China

1LPo2K-03 [L92] **Design and Performance Test of an 1-kW-class HTS Generator with HTS Contactless Rotary Excitation Device**

Ji Hyung Kim[1], Chang Ju Hyeon[1], Huu Luong Quach[1], Jae Hyung Moon[1], Yoon Seok Chae[1], Do Jin Kim[1], Chang-Jin Boo[2], Yong Soo Yoon[3], Jeyull Lee[4], Haeryong Jeon[4], Seunghak Han[4], Hyung-Wook Kim[5], Young-Sik Jo[5] and Ho Min Kim[1]

[1]jeju National University, Jeju, Korea (the Republic of), [2]Jeju International University, Jeju si, Korea (the Republic of), [3]Shin Ansan University, Ansan-si, Korea (the Republic of), [4]Yonsei University, Seoul, Korea (the Republic of), [5]Korea Electrotechnology Research Institute, Chang won, Korea (the Republic of)

1LPo2K-04 [L93] **Design and testing of racetrack type rotor magnets for a 60 kW HTS generator prototype**

Changhong Hao[1], Han Zhang[2], Ye Yang[2], Yufan Li[1], Liang Bai[2], Tailin Lu[1], Chen Gu[3] and Timing Qu[1]

[1]Tsinghua University, Beijing, China, [2]Dongfang Electric Corporation, Chengdu, China, [3]Tsinghua University, Beijing, China

1LPo2K-05 [L94] **Design and comparative analysis of 1 MW superconducting motor for ship propulsion using various types of superconducting wires**

Gi-Dong Nam[1], Hae-Jin Sung[1], ChangHyun Kim[1], Minwon Park[1] and In-Keun Yu[1]

[1]Changwonnational unversity, Changwon-si, Gyeongsangnam-do, Korea (the Republic of)

1LPo2K-06 [L95] **valuation of Power Losses in High-temperature Superconducting Windings of Field-excited Electric Machine**

Y. W. Tang[1], T. W. Ching[1] and Wenlong Li[2]

[1]University of Macau, Taipa, Macao, [2]Nanjing University of Science and Technology, Nanjing, China

1LPo2K-07 [L96] **Test of a High Temperature Superconducting Homopolar Generator**

Seyeon Lee[1], Woo-Seok Kim[1], Ji-kwang Lee[2], Gye-Won Hong[1] and Kyeongdal Choi[1]

[1]Korea Polytechnic University, Siheung-si, Korea (the Republic of), [2]Woosuk University, Wanjoo, Korea (the Republic of)

1LPo2K-08 [L97] **Study of Closed-Circuit Magnetization with Trapezoidal-shaped Bi2223 Winding for Rotating Machines**

Keita Tsuzuki[1], Sho Yamamura[1], Yunosuke Suzuki[1], Shun Kadowaki[2], Dai Oikawa[2], Hiroya Andoh[1] and Takehiko Tsukamoto[2]

[1]National Institution of Technology, Toyota College, Mie, Japan, [2]National Institution of Technology, Toyota College, Toyota, Aichi, Japan

1LPo2K-09 [L98] **Optimization of a Cryogen-Free Superconducting Prototype Generator With YBCO Field Windings**

Han Zhang[1], Ye Yang[1], Liang Bai[1], Xiao Zhang[1], Mingwei Kuang[1] and Jian Tang[1]

[1]Dongfang Electric Corporation, Chendu, Sichuan, China

1LPo2K-10 [L99] **A Novel HTS Flux-Switching Transverse-Flux Machine with Partitioned Stator**

Wenzhong Ma[1], Fawen Shen[1], Xianglin Li[1] and Yubin Wang[1]

[1]China University of Petroleum (East China), Qingdao, Shandong, China

1LPo2K-11 [L100] **Analysis of a Linear Electric Motor using Superconducting and Conventional Conductor Coil**

Ivan Hernandez-Robles[1], Adrián Gonzalez-Parada[1], Xiomara Gonzalez-Ramirez[1] and Juan Carlos Olivares-Galvan[2]

[1]Engineering Division of the University of Guanajuato, Irapuato-Salamanca campus, Salamanca, Guanajuato, Mexico, [2]Universidad Autonoma Metropolitana, Ciudad de Mexico, Ciudad de Mexico, Mexico

1LPo2K-12 [L101] **Design and study of 2G HTS field coils installed in a superconducting synchronous electrical machine**

Yunfei Gao[1], Wei Wang[1], Shuqian Huang[1] and Xueqing Wang[1]

[1]Sichuan University, Chengdu, Sichuan, China

1LPo2K-14 [L102] **Design and Experimental Investigation of Superconducting Rotor System for 500kW High Temperature Superconducting Generator**

Dong Zhang[1,2], Liye Xiao[1], Biao Chen[1], Luming Zhang[3], Naihao Song[1], Weiwei Zhou[1], Liwei Jing[1], Shuang Liang[1,2], Qiujun Li[1,2], Jingye Zhang[1] and Liangzhen Lin[1]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China, [3] Shanghai Electric Group Shanghai Electric Machinery Co., Ltd, Shanghai, China

1MPo2A - Characterization of Nb_3Sn Conductors

Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.

Moderators: Bernardo Bordini, CERN & Chiara Tarantini, National High Magnetic Field Laboratory, Florida State University

1MPo2A-01 [M1] **Viable Options for Internal-Tin Processed Niobium3-Tin Conductor for Intermediate Level of Jc and Magnetization**

Taeyoung Pyon[1] and Hem Kanithi[1]

[1]Luvata Waterbury, Inc., Waterbury, Connecticut, US

1MPo2A-02 [M2] **Development of High Current Density Distributed Tin processed Nb_3Sn wire**

Shinya Kawashima[1], Takao Kawarada[1], Yasuaki Terao[1], Hiroyuki Kato[2], Yukinobu Murakami[2] and Kazuyoshi Saito[2]

[1]Kobe Steel, Ltd., Kobe, Japan, [2]Japan Superconductor Technology, Inc., Kitakyushu, Japan

1MPo2A-03 [M3] **Measurements of Enhanced Upper Critical Fields in Ternary, Ta-doped, APC Nb_3Sn Conductors and an Investigation of the Shape of the Pinning Curve**

Jacob Rochester[1], Christopher Kovacs[1], Xuan Peng[2], Xingchen Xu[3], Edward Collings[1] and Mike Sumption[1]

[1]The Ohio State University, Columbus, Ohio, US, [2]Hyper Tech Research Incorporated, Columbus, Ohio, US, [3]Fermi National Accelerator Laboratory, Batavia, Illinois, US

1MPo2A-04 [M4&5] **[Invited] Quantitative Analysis and Optimisation of Nb_3Sn Wire Designs Towards Future Circular Collider Performance Targets**

Simon Hopkins[1], Adrià Canós Valero[1] and Amalia Ballarino[1]

[1]European Organization for Nuclear Research (CERN), Geneva, Switzerland

1MPo2A-05 [M6] **Improvement of stability of Nb_3Sn conductors and magnets by increasing specific heat**

Xingchen Xu[1], Carl Buehler[2], Alexander Zlobin[1], Bernd Sailer[2], Mike Field[3], Pei Li[1] and Emanuela Barzi[1]

[1]Fermilab, Batavia, Illinois, US, [2]Bruker-EAS (Bruker EST Group), Hanau, Germany, [3]Bruker-OST LLC, Carteret, New Jersey, US

1MPo2A-06 [M7] **Properties and microstructure of binary and ternary Nb_3Sn superconductors with internally oxidized ZrO_2 nanoparticles**

Florin Buta[1], Marco Bonura[1], Davide Matera[1], Amalia Ballarino[2], Simon Hopkins[2], Bernardo Bordini[2] and Carmine Senatore[1]

[1]University of Geneva, Geneva, Switzerland, [2]CERN, Geneva, Switzerland

1MPo2A-07 [M8] **Finding the limits of Nb_3Sn PIT wires**

Christopher Segal[1], Chiara Tarantini[1], Peter Lee[1] and David Larbalestier[1]

[1]Florida State University, Tallahassee, Florida, US

1MPo2A-08 [M9] **Experimental studies and comparison of stability of various Nb_3Sn composite wires**

Pei Li[1], Xingchen Xu[1], Alexander Zlobin[1], Xuan Peng[2] and Michael Tomsic[2]

[1]Fermilab, Batavia, Illinois, US, [2]HyperTech, Columbus, Ohio, US

1MPo2A-09 [M10] **Critical Current Degradation of RRP Nb_3Sn Strands Under Applied Transversal Loads**

Jose Ferradas Troitino[1,2], Christian Barth[2], Bernardo Bordini[1], Paolo Ferracin[1], Luc Gamperle[2], Juan Carlos Perez[1], Giorgio Vallone[1], Damien Zurmuehle[2] and Carmine Senatore[2]

[1]CERN, Geneva, Switzerland, [2]University Of Geneva, Geneva, Switzerland

1MPo2A-10 [M11] **Influence of Ti-doping mode on microstructure and superconducting characteristics of brass matrix internal-tin Nb_3Sn wires**

Nobuya Banno[1], Taro Morita[2,1], Tsuyoshi Yagai[2], Yasuo Miyamoto[3] and Kyoji Tachikawa[1,3]

[1]National Institute for Materials Science, Tsukuba, Japan, [2]Sophia University, Tokyo, Japan, [3]Tokai University, Hiratsuka, Japan

1MPo2A-11 [M12] **Nb_3Sn critical current and RRR testing for the LARP project**

Jeremy Levitan[1], Jun Lu[1] and Andrey Gavrilin[1]

[1]National High Magnetic Field Laboratory, Florida State University, Tallahassee, Florida, US

1MPo2B - Mechanical Properties and Strain Dependence [P I]
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Bernardo Bordini, CERN & Soumen Kar, AMPeers LLC

1MPo2B-01 [M13] **Mechanical evaluation of Nb3Sn for SRF**

Saravan Chandrasekaran[1] and Sam Posen[1]

[1]Fermi National Accelerator Laboratory, Batavia, Illinois, US

1MPo2B-02 [M14] **Critical current survival of the delaminated coated conductor and its potential HTS joint application**

Feng Feng[1], Hui Mu[1], Qishu Fu[1], Yubin Yue[2] and Timing Qu[3]

[1]Tsinghua University, Shenzhen, China, [2]Beijing Eastforce Superconducting Technology Co., Ltd., Beijing, China, [3]Tsinghua University, Beijing, China

1MPo2B-03 [M15] **Mechanical strain tolerance of MgB_2 wire made by in situ PIT process with mechanical milled powder**

Hideki Tanaka[1], Takaaki Suzuki[1] and Motomune Kodama[1]

[1]Hitachi, Ltd., Hitachi, Ibaraki, Japan

1MPo2B-04 [M16] **Effect of Fatigue Loading on Critical Current Degradation for Bi-2212 Round Wire**

Wei Chen[1]

[1]Key Laboratory of Magnetic Suspension Technology and Maglev Vehicle (Ministry of Education), Superconductivity and New Energy R&D Center, Southwest Jiaotong University, Chengdu, Sichuan, China

1MPo2B-05 [M17] **Axial strain characterization of WST high Jc Nb_3Sn strands**

Fang Liu[1], Fangyi Li[1,3], Yigong Shi[2], Huajun Liu[1], Jianwei Liu[2], Xintao Zhang[1,3], Hongjun Ma[1,3], Shi Yi[1], Huan Jin[1] and Chao Dai[1]

[1]Institute of Plasma Physics, CAS, Hefei, China, [2]Western Superconducting Technologies Co., Ltd, Xian, China, [3]University of Science and Technology of China, Hefei, China

1MPo2B-06 [M18] **Bend strain and tensile stress characteristics of Copper laminated YBCO coated conductor tapes**

Xiaoji Du[1], Liye Xiao[1], Naihao Song[1], Liwei Jing[1], Jianhui Chen[1], GuoMin Zhang[1] and Liangzhen Lin[1]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China

1MPo2B-07 [M19] **Stress and Strain Analyses of REBCO Coated Conductors: a Series of Numerical Studies of Fabrication, Cooling, Tension and Critical Current Degradation**

Peifeng Gao[1], Wan Kan Chan[2], Xingzhe Wang[1] and Justin Schwartz[3]

[1]Lanzhou University, Lanzhou, China, [2]North Carolina State University, Raleigh, North Carolina, US, [3]The Pennsylvania State University, University Park, Pennsylvania, US

1MPo2B-08 [M20] **Influence of interface tribology of REBaCuO bulk and metal ring reinforcement on mechanical stresses during field-cooled magnetization**

Hiroyuki Fujishiro[1], Keita Takahashi[1], Tomoyuki Naito[1], Yoshitaka Itoh[2], Yousuke Yanagi[2], Takashi Nakamura[3] and Mark Ainslie[4]

[1]Faculty of Science and Engineering, Morioka, Japan, [2]IMRA Material R&D Co., Kariya, Japan, [3]RIKEN, Wako, Japan, [4]University of Cambridge, Cambridge, United Kingdom

1MPo2B-09 [M21] **Evaluation of electromechanical delamination strength in CC tapes under monotonic and cyclic transverse loading**

Zhierwinjay Bautista[1], Hyung-Seop Shin[1] and Jae-Hun Lee[2]

[1]Andong National University, Andong, Kyungbuk, Korea (the Republic of), [2]SuNAM, Anseong, Gyunggi-do, Korea (the Republic of)

1MPo2B-10 [M22] **Measuring Tensile Properties and I_c vs Strain of Thin REBCO Wires at 77 K**

Kyle Radcliff[1], Robert Walsh[1], Dustin McRae[2], Kurtis Cantrell[1], Seungyong Hahn[1,3] and David Larbalestier[1]

[1]Florida State University, Tallahassee, Florida, US, [2]University of Colorado Boulder, Boulder, Florida, US, [3]Seoul National University, Seoul, Korea (the Republic of)

1MPo2B-11 [M23] **Integration of Bi-2212 short sample $I_c(\varepsilon)$-limit measurements into modeling coil performance**

Ernesto Bosque[1], Ulf Trociewitz[1], Youngjae Kim[1], Daniel Davis[1], Lamar English[1] and David Larbalestier[1]

[1]National High Magnetic Field Laboratory, Tallahassee, Florida, US

1MPo2B-12 [M24] **Bending effect on the transport performance of Bi-2212 round wires**

Zhehua Mao[1,2] and Jinggang Qin[1]

[1]Chinese Academy of Sciences, Hefei, Anhui, China, [2]University of Science and Technology of China, Hefei, Anhui, China

1MPo2C - Magnetization and AC Loss [P I]

Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.

Moderators: Fedor Gömöry, Institute of Electrical Engineering, Slovak Academy of Sciences & Michael Koblischka, AAMC

1MPo2C-01 [M25] **[Invited] Vector Susceptometry of HTS tapes in magnetic fields up to 15 T.**

Andrew Smith[1], Satoshi Awaji[2], Elizabeth Surrey[3] and Damian Hampshire[1]

[1]University of Durham, Durham, United Kingdom, [2]Institute for Materials Research, Sendai, Japan, [3]Culham Centre for Fusion Energy, Oxford, United Kingdom

1MPo2C-02 [M26] **AC Losses in HTS Inductors for Cryogenic DC-DC Power Converters**

Chanyeop Park[1], Peter Cheetham[2], Stefan Steinhoff[3], Sastry Pamidi[2,4], Weijia Yuan[5] and Lukas Graber[1]

[1]Georgia Institute of Technology , Atlanta, Georgia, US, [2]Center for Advanced Power Systems, Tallahassee, Florida, US, [3]IXYS UK Westcode Ltd., Chippenham, United Kingdom, [4]Department of Electrical and Computer Engineering, FAMU-FSU College of Engineering, Florida State University, Tallahassee, Florida, US, [5]Department of Electronic and Electrical Engineering, University of Strathclyde, Glasgow, United Kingdom

1MPo2C-03 [M27] **Suppression of Magnetization and Creep in YBCO Tape by Magnetic Field Cycling**

Cory Myers[1], Mike Sumption[1] and Edward Collings[1]

[1]Ohio State University, Columbus, Ohio, US

1MPo2C-05 [M28] **Magnetization and Loss Measurements of Nb_3Sn and YBCO Cables for accelerators using ±3 T dipole Susceptometer**

Mike Sumption[1], Christopher Kovacs[1], Cory Myers[1], Milan Majoros[1] and Edward Collings[1]

[1]The Ohio State University, Columbus, Ohio, US

1MPo2C-07 [M29] *student paper contestant*
Frequency-dependent AC Loss Characteristics of HTS Tape up to Tens of Kilohertz
PengBo Zhou[1], Chao Wang[2], Hangyu Qian[2] and Guangtong Ma[1]

[1]Southwest Jiaotong University, Chengdu, Sichuan, China, [2]Southwest Jiaotong University, Chengdu, China

1MPo2C-08 [M30]
Magnetic relaxation study on YBCO thin films with different artificial pinning centers and Fe(Se,Te) bulk samples
Andrea Augieri[1], Gianluca De Marzi[1], Francesco Rizzo[1], Chiarasole Fiamozzi Zignani[1], Andrea Masi[2], Franco Padella[3], Achille Angrisani Armenio[1], Fabio Fabbri[1], Valentina Pinto[1], Angelo Vannozzi[1], Alessandro Rufoloni[1], Antonella Mancini[1], Laura Piperno[2] and Giuseppe Celentano[1]

[1]ENEA, Frascati, Rome, Italy, [2]University of RomaTre, Roma, Toma, Italy, [3]ENEA, Roma, Roma, Italy

1MPo2C-09 [M31]
Study on Magnetization Loss on Soldered-Stacked-Square (3S) HTS Wire with 1 mm Width
Mingyang Wang[1], Zhuyong Li[1], Zhiyong Hong[1], Zhijian Jin[1] and Longbiao Wang[1]

[1]Shanghai Jiao Tong University, Shanghai, China

1MPo2C-10 [M32]
Accelerated vortex dynamics across the magnetic 3D-to-2D crossover in disordered superconductors
Serena Eley[1], Roland Willa[2], Masashi Miura[3], Michio Sato[3], Michael Henry[4] and Leonardo Civale[5]

[1]Colorado School of Mines, Los Alamos, New Mexico, US, [2]Argonne National Laboratory, Argonne, Illinois, US, [3]Seikei University, Tokyo, Japan, [4]Sandia National Laboratories, Albuquerque, New Mexico, US, [5]Los Alamos National Laboratory, Los Alamos, New Mexico, US

1MPo2C-11 [M33]
Superconducting Cables Characterization with an electrical method
Luigi Morici[1], Giuseppe Messina[1] and Edoardo Tamburo De Bella[1]

[1]ENEA, Frascati, Italy, Italy

1MPo2D - Critical Current and Flux Pinning [P I]
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Achille Angrisani Armenio, ENEA & Judy Wu, University of Kansas

1MPo2D-01 [M34]
Trapped field properties of GdBaCuO superconducting bulk with various diameters magnetized by pulsed field using identical split coil
Fumiya Shimoyashiki[1], Hiroyuki Fujishiro[1], Tomoyuki Naito[1] and Mark Ainslie[2]

[1]Iwate University, Morioka, Iwate Prefecture, Japan, [2]University of Cambridge, Camdridge, United Kingdom

1MPo2D-02 [M35]
Flux dynamics and thermal behavior of a Gd-Ba-Cu-O bulk magnetized by single- and multi-pulse techniques using split-type coil
Tatsuya Hirano[1], Hiroyuki Fujishiro[1], Tomoyuki Naito[1], Mark Ainslie[2] and Yunhua Shi[2]

[1]Iwate University, Morioka, Iwate, Japan, [2]University of Cambridge, Cambridge, United Kingdom

1MPo2D-03 [M36]
Comparison of the temperature and field dependencies of the critical current densities and pinning forces of bulk YBCO, MgB_2 and FeSe
Anjela Koblischka-Veneva[1], Michael Koblischka[1], Kévin Berger[2], Bruno Douine[2], Miryala Muralidhar[3] and Masato Murakami[3]

[1]Saarland University, Saarbruecken, Germany, [2]Universite de Lorraine, Vandoeuvre-les-Nancy, France, [3]Shibaura Institute of Technology, Tokyo, Japan

1MPo2D-04 [M37]
Reel-to-Reel Characterization of Local Critical Current Distribution in 500-m-long Copper-alloy Reinforced Bi-2223 Tape
Lin Lyu[1], Hiroaki Ohfuji[1], Yuhei Nishimiya[1], Yukihisa Kumagai[1], Kohei Higashikawa[1], Takumi Suzuki[1], Kenji Suzuki[2], Masaru Tomita[2] and Takanobu Kiss[1]

[1]Kyushu University, Fukuoka, Japan, [2]Railway Technical Research Institute, Tokyo, Japan

1MPo2D-05 [M38] **Relationship between the longitudinal magnetic field effect and the anisotropy of B_{c2} in Bi-2223 superconducting tape**

Xuan Wu[1,2] and Baorong Ni[1]

[1]Fukuoka Institute of Technology, Fukuoka, Japan, [2]Nanjing University of Science and Technology, Nanjing, China

1MPo2D-06 [M39] **Superconducting-like and Novel Magnetic Properties of Chemically-Modified Carbon Allotropes, and Potential as Ferromagnetic Flux Pinning Centers**

Nadina Gheorghiu[1], Charles Ebbing[2], George Panasyuk[1] and Timothy Haugan[3]

[1]UES, Inc., Dayton, Ohio, US, [2]UDRI, Dayton, Ohio, US, [3]AFRL, Wright-Patterson AFB, Ohio, US

1MPo2D-07 [M40] **Optimization of Mg precursor concentration to obtain high J_c in MgB_2 synthesized with Ag addition and Carbon encapsulated boron.**

Sai Srikanth Arvapalli[1], Muralidhar Miryala[1] and Masato Murakami[1]

[1]Shibaura Institute of Technology, Koto-ku, Tokyo, Japan

1MPo2D-08 [M41] **Pulsed laser deposition and transport properties of $Ba(Fe_{0.92}Co_{0.08})_2As_2$-$BaHfO_3$ nanocomposite films**

Sven Meyer[1], Marco Langer[1], Saicharan Aswartham[2], Sabine Wurmehl[2], Jens Hänisch[1] and Bernhard Holzapfel[1]

[1]Karlsruhe Insitute of Technology, Eggenstein-Leopoldshafen, Baden-Wuerttemberg, Germany, [2]IFW Dresden, Dresden, Germany

1MPo2D-09 [M42] **Interplay of grain connectivity and pinning properties in MgB_2 and Fe-based superconductors synthesized under high pressure: dominant factors leading to increased critical current density.**

Tomasz Cetner[1], Andrzej Morawski[1], Akiyasu Yamamoto[2], Wolfgang Hässler[3], Daniel Gajda[4], Grzegorz Gajda[5], Matthew Rindfleisch[6], Mustafa Akdogan[7], Hakan Yetis[7], Ibrahim Belenli[7], Andrzej Zaleski[4], Ryszard Diduszko[8] and Piotr Przyslupski[9]

[1]Institute of High Pressure Physics, Warszawa, Poland, [2]Tokyo University of Agriculture and Technology, Tokyo, Japan, [3]IFW Dresden, Dresden, Germany, [4]Institute of Low Temperatures and Structural Reasearch, Wroclaw, Poland, [5]Frako-Term, Torun, Poland, [6]Hyper Tech Research, Inc., Columbus, Ohio, US, [7]Abant Izzet Baysal University, Bolu, Turkey, [8]Institute of Tele and Radio Technics, Warszawa, Poland, [9]Institute of Physics PAS, Warszawa, Poland

1MPo2D-10 [M43] **Enhancement in critical current density with pressure in Mo_8Ga_{41} superconductor**

Prakriti Neha[1], P. Shivaprakash[2], Sonachalam Arumugam[2] and Satyabrata Patnaik[1]

[1]Jawaharlal Nehru University, New Delhi, India, [2]Bharathidasan University, Tiruchirapalli, Tamilnadu, India

1MPo2D-12 [M44] **Nondestructive characterization method of local critical current distribution in multi-filamentary MgB_2 wires based on the combination of magnetic microscopy and X-ray CT**

Akihiro Kunimasa[1], Shuhei Bochi[1], Kohei Higashikawa[1], Masayoshi Inoue[1], Takaaki Suzuki[2], Motomune Kodama[2], Hideki Tanaka[2], Hiroaki Kumakura[3] and Takanobu Kiss[1]

[1]Kyushu University, Fukuoka, Japan, [2]Hitachi Ltd., Hitachi, Japan, [3]National Institute for Materials Science, Tsukuba, Japan

1MPo2E - Cuprates and Related Materials [P I]
Exhibit Hall & Poster Sessions; 2:00 p.m. - 4:00 p.m.
Moderators: Sigrid Holleis, TU Wien & Enrico Silva, University Roma Tre

1MPo2E-01 [M45] **Improving mechanical strength of YBCO bulk superconductors by Ag addition**
student paper contestant

Jasmin Congreve[1], Yunhua Shi[1], Kai Yuan (Danny) Huang[1], Antony Dennis[1], John Durrell[1] and David Cardwell[1]

[1]University of Cambridge, Cambridge, United Kingdom

1MPo2E-02 [M46] **An efficient and fast new route to obtain good quality YBCO superconductors**

Claudio Carvalho[1], Maycon Rotta[2], Rafael Zadorosny[1], Maycon Motta[3], Gisele de Souza[1] and Alexsander Pessoa[1]

[1]Universidade Estadual Paulista, Ilha Solteira, Sao Paulo, Brazil, [2]IFMS Instituto Federal de Mato Grosso do Sul, Três Lagoas, MS, Brazil, [3]Universidade Federal de São Carlos, São Carlos, SP, Brazil

1MPo2E-03 [M47] **Evaluating the thermostability of Yttrium(III), Barium(II), Copper(II) β-diketonates by evaporation kinetics analysis**

Teng Zhang[1], Shaotao Dai[1], Tao Ma[1], Lei Hu[1] and Bangzhu Wang[1]

[1]Beijing Jiaotong University, Beijing, China

1MPo2E-04 [M48] **Gd-doped $YBa_2Cu_3O_{7-\delta}$ Superconducting Films by Chemical Solution Deposition**

Valentina Pinto[1], Fabrizio Mario Ferrarese[2,1], Angelo Vannozzi[1], Achille Angrisani Armenio[1], Andrea Augieri[1], Gianluca De Marzi[1], Antonella Mancini[1], Fabio Fabbri[1], Francesco Rizzo[1], Alessandro Rufoloni[1], Valentina Galluzzi[1], Laura Piperno[3], Giovanni Sotgiu[3] and Giuseppe Celentano[1]

[1]ENEA, Frascati, Rome, Italy, [2]University of Padova, Padova, Italy, [3]Roma Tre University, Rome, Italy

1MPo2E-05 [M49] **HTS wire production at Deutsche Nanoschicht using chemical solution deposition techniques**

Michael Baecker[1], Ron Feenstra[1], Brygida Wojtyniak[1], Mariusz Mosiadz[1], Jan Kunert[1], Oliver Brunkahl[1], Mark Rikel[1], Martina Falter[1] and Mario Sadewasser[1]

[1]Deutsche Nanoschicht, Rheinbach, Germany

1MPo2E-06 [M50] **Influence of decomposition time on the precursor solutions with different F/Ba mole ratios for the solution-derived $YBa_2Cu_3O_{7-x}$ films**

Zebin Dong[1], Hongwei Gu[1] and Fazhu Ding[1]

[1]Institute of electrical engineering, Chinese Academy of Sciences, Beijing, Beijing, China

1MPo2E-07 [M51] **Growth of Electron-doped Cuprate Superconductor $Nd_{2-x}Ce_xCuO_4$ Films by Trifluoroacetates Metal Organic Deposition**

Keita Sakuma[1], Yoshinori Kamada[1], Shuji Anno[1], Akinori Okubo[1] and Masashi Miura[1]

[1]Seikei University, Musashino-shi, Tokyo, Japan

1MPo2E-09 [M52] **Texture in superconducting magnet constituent materials and its effect on mechanical properties**

Christian Scheuerlein[1], Weimin Gan[2] and Michael Hofmann[3]

[1]CERN, Geneva, Switzerland, [2]German Engineering Materials Science Centre at MLZ, Geesthacht, Guernsey, [3]Forschungsneutronenquelle Heinz Maier-Leibnitz (FRM II), München, Germany

1EOr2A - Data Links and Mixed Signal
606-607; 4:00 p.m. - 6:00 p.m.
Moderators: Samuel Benz, NIST & Anna Leese de Escobar, US Navy

4:00 p.m. - 4:30 p.m. 1EOr2A-01: **[Invited] Digital Output Data Links from Superconductor Integrated Circuits**

Deepnarayan Gupta[1], Saad Sarwana[1], Dimitri Kirichenko[1], Vladimir Dotsenko[1], Alf Lehmann[1], Su-Wei Chang[2], Prasana Ravindran[2] and Joseph Bardin[2]

[1]HYPRES, Inc., Elmsford, New York, US, [2]University of Massachusetts Amherst, Amherst, Massachusetts, US

4:30 p.m. - 4:45 p.m. 1EOr2A-02: **1000-fold double-flux-quantum voltage multiplier employing directional propagation of flux quanta through asymmetrically-damped junction branches**

Yoshinao Mizugaki[1], Yuma Arai[1], Tomoki Watanabe[1], Hiroshi Shimada[1] and Masataka Moriya[1]

[1]The University of Electro-Communications, Chofu, Tokyo, Japan

4:45 p.m. - 5:00 p.m. 1EOr2A-03: **Superconducting MCM Demonstrated at 8 GHz through Six RQL Chips**

Jonathan Egan[1], Quentin Herr[1], Ed Rudman[1], Brainton Song[1] and Nathan Tennyson[1]

[1]Northrop Grumman, Linthicum, Maryland, US

5:00 p.m. - 5:15 p.m. 1EOr2A-04: **Hybrid Semiconductor-Superconductor Flash Analog-to-Digital Converter**

Amol Inamdar[1], Anubhav Sahu[1], Benjamin Chonigman[1], Bibhudatta Sahoo[2], Alf Lehmann[1], Dimitri Kirichenko[1] and Deepnarayan Gupta[1]

[1]HYPRES, Elmsford, New York, US, [2]IIT Kharagpur, Kharagpur, India

5:15 p.m. - 5:30 p.m. 1EOr2A-05: **Development and Applications of a Four Volt Josephson Arbitrary Waveform Synthesizer**

Nathan Flowers-Jacobs[1], Alain Rufenacht[1], Anna Fox[1], Steve Waltman[1], Robert Schwall[1], Justus Brevik[1], Paul Dresselhaus[1] and Samuel Benz[1]

[1]NIST, Boulder, Colorado, US

5:30 p.m. - 5:45 p.m. 1EOr2A-06: **RF waveform synthesizers with quantum-based voltage accuracy for communications metrology**

Peter Hopkins[1], Justus Brevik[1], Manuel Castellanos-Beltran[1], Christine Donnelly[1,2], Nathan Flowers-Jacobs[1], Anna Fox[1], David Olaya[1], Paul Dresselhaus[1] and Samuel Benz[1]

[1]NIST, Boulder, Colorado, US, [2]Stanford University, Palo Alto, California, US

5:45 p.m. - 6:00 p.m. 1EOr2A-07: **Design of Superconducting Nanowire Processor for Deep Neural Network Training**

Murat Onen[1], Brenden Butters[1] and Karl Berggren[1]

[1]Massachusetts Institute of Technolgy, Cambridge, Massachusetts, US

1EOr2B - Non-Equilibrium Detectors and Mixers

611-612; 4:00 p.m. - 6:00 p.m.

Moderators: Sergey Cherednichenko, Chalmers University of Technology & Daniel Cunnane, NASA Jet Propulsion Laboratory

4:00 p.m. - 4:30 p.m. 1EOr2B-01: **[Invited] THz Heterodyne Sensors Based on MgB_2**

Boris Karasik[1], Daniel Cunnane[1], Narendra Acharya[2], Wenura Withanage[2] and Xiaoxing Xi[2]

[1]Jet Propulsion Laboratory, Pasadena, California, US, [2]Temple University, Philadelphia, Pennsylvania, US

4:30 p.m. - 4:45 p.m. 1EOr2B-02: **Characterization of a 32×32 MKIDs array at 0.85THz**

Jing Li[1], Qing Shi[1], Zhen-Hui Lin[1], Jin-Ping Yang[1], Dong Liu[1], Zheng Lou[1], Wen Zhang[1], Wei Miao[1], Zheng Wang[1] and Shengcai Shi[1]

[1]Purple Mountain Observatory, Nanjing, China

4:45 p.m. - 5:00 p.m. 1EOr2B-03: **Fabrication of Large Format MKID Arrays for BLAST-TNG and the Future**

Michael Vissers[1], Christopher McKenney[1], Jason Austermann[1], Gene Hilton[1], Johannes Hubmayr[1] and Jiansong Gao[1]

[1]National Institute of Standards and Technology, Boulder, Colorado, US

5:00 p.m. - 5:15 p.m. 1EOr2B-04: **MgB_2 and YBCO Josephson Junction THz Mixers**

Anthony Cortez[1], Ethan Cho[1], Shane Cybart[1] and Daniel Cunnane[2]

[1]University of California, Riverside, Riverside, California, US, [2]NASA Jet Propulsion Laboratory, Pasadena, California, US

5:15 p.m. - 5:30 p.m. 1EOr2B-05: **Mid-infrared (10.8 μm) heterodyne receiver based on a superconducting hot electron bolometer and a quantum cascade laser**

Yuan Ren[1,2], Daowei Wang[1,3], Kangmin Zhou[1,2], Wei Miao[1,2], Wen Zhang[1,2] and Shengcai Shi[1,2]

[1]Purple Mountain Observatory, Chinese Academy of Sciences, Nanjing, China, [2]Key Lab of Radio Astronomy, Chinese Academy of Sciences, Nanjing, China, [3]Shanghai Normal University, Shanghai, China

5:30 p.m. - 5:45 p.m. 1EOr2B-06: **Characteristics of very high Q Nb superconducting resonators for microwave kinetic inductance detectors**

Takashi Noguchi[1,2], Agnes Dominjon[3], Matthias Kroug[1], Satoru Mima[2] and Chiko Otani[2]

[1]National Astronomical Observatory of Japan, Tokyo, Japan, [2]RIKEN, Wako, Japan, [3]Univ. Grenoble Alpes, Annecy, France

5:45 p.m. - 6:00 p.m. 1EOr2B-07: **Superconducting hafnium for low T_c optical kinetic inductance detectors**

Nicholas Zobrist[1], Giulia Collura[1], Gregoire Coiffard[1], Bruce Bumble[2], Paul Szypryt[3] and Ben Mazin[1]

[1]University of California, Santa Barbara, Goleta, California, US, [2]Jet Propulsion Laboratory, Pasadena, California, US, [3]National Institute of Standards and Technology, Boulder, Colorado, US

1EOr2C - TES Workshop: Sensor Physics
602-604; 4:00 p.m. - 6:00 p.m.
Moderators: Simon Bandler, NASA/GSFC & Douglas Bennett, National Institute of Standards and Technology

4:00 p.m. - 4:15 p.m. 1EOr2C-01: **Fabrication and characterization of transition edge sensor with integrated tunnel junction cooling**

Shannon Duff[1], Xiaohang Zhang[1], Peter Lowell[1], Johannes Hubmayr[1], Gene Hilton[1] and Joel Ullom[1]

[1]NIST, Boulder, Colorado, US

4:15 p.m. - 4:30 p.m. 1EOr2C-02: **Development of High-Resistance Mo/Au Bilayer Transition-Edge Sensors for AC-Biased Readouts**

Kazuhiro Sakai[1,2], Joseph Adams[1,2], Simon Bandler[1], James Chervenak[1], Aaron Datesman[1,3], Megan Eckart[1], Fred Finkbeiner[1,4], Ruslan Hummatov[1,2], R. Kelley[1], Antoine Miniussi[1,2], F. Porter[1], Caroline Kilbourne[1], John Sadleir[1], Stephen Smith[1,2], Nicholas Wakeham[1,5], Edward Wassell[1,3], Wonsik Yoon[1,8], Hiroki Akamatsu[6], Marcel Bruijn[6], Luciano Gottardi[6], Brian Jackson[6], Jan van der Kuur[6], Bert-Joost van Leeuwen[6], A. van der Linden[6], Henk van Weers[6] and Mikko Kiviranta[7]

[1]NASA/GSFC, Greenbelt, Maryland, US, [2]University of Maryland Baltimore County, Baltimore, Maryland, US, [3]Stinger-Ghaffarian Technologies, Greenbelt, Maryland, US, [4]Sigma Space Corp., Lanham, Maryland, US, [5]Universities Space Research Association, Columbia, Maryland, US, [6]SRON, Utrecht, Netherlands, [7]VTT, Espoo, Finland, [8]ASRC, Laurel, Maryland, US

4:30 p.m. - 4:45 p.m. 1EOr2C-03: **Weak Link and Two-Fluid model regimes of AC-biased TESs**

Christine Pappas[1,2], Daniel Becker[1], Douglas Bennett[1], Johnathon Gard[1], Gene Hilton[1], John Mates[1], Carl Reintsema[1], Daniel Schmidt[1], Daniel Swetz[1], Leila Vale[1] and Joel Ullom[1]

[1]National Institute of Standards and Technology, Boulder, Colorado, US, [2]University of Colorado, Boulder, Colorado, US

4:45 p.m. - 5:00 p.m. 1EOr2C-04: **Noise equivalent power and energy resolution of transition-edge sensors with complex thermal models**

Ilari Maasilta[1]

[1]University of Jyvaskyla, Jyvaskyla, Finland

5:00 p.m. - 5:15 p.m. 1EOr2C-05: **Thermal conductance between different elements within transition edge sensor microcalorimeters and its impact on noise**

Nicholas Wakeham[1,2], Joseph Adams[1,3], Simon Bandler[1], James Chervenak[1], Aaron Datesman[4,1], Megan Eckart[1], Fred Finkbeiner[5,1], Ruslan Hummatov[3,1], R. Kelley[1], Caroline Kilbourne[1], Antoine Miniussi[3,1], F. Porter[1], John Sadleir[1], Kazuhiro Sakai[3,1], Stephen Smith[3,1] and Edward Wassell[4,1]

[1]NASA Goddard Space Flight Center, Greenbelt, Maryland, US, [2]Universities Space Research Association, Columbia, Maryland, US, [3]University of Maryland Baltimore County, Baltimore, Maryland, US, [4]KBRwyle, Lexington Park, Maryland, US, [5]Sigma Space Corporation, Lanham, Maryland, US

5:15 p.m. - 5:30 p.m. 1EOr2C-06: **Characterization of optical transition-edge sensors**

Kaori Hattori[1], Ryo Kobayashi[1,2], Shuichiro Inoue[2], Kazuki Niwa[1], Takayuki Numata[1] and Daiji Fukuda[1]

[1]AIST, Tsukuba, Ibaraki, Japan, [2]Nihon University, Tokyo, Tokyo, Japan

5:30 p.m. - 5:45 p.m. 1EOr2C-07: **A 2D Resistor Network Model for Transition-Edge Sensors**

Daikang Yan[2,1], Lisa Gades[2], Antonino Miceli[2], Umeshkumar Patel[2] and Orlando Quaranta[2,1]

[1]Northwestern University, Evanston, Illinois, US, [2]Argonne National Laboratory, Argonne, Illinois, US

5:45 p.m. - 6:00 p.m. 1EOr2C-08: **X-ray energy resolution under MHz-bias of high normal squared resistance MoAu TES microcalorimeters for XIFU**

Luciano Gottardi[1], Stephen Smith[2], Kazuhiro Sakai[3], Hiroki Akamatsu[1], Jan van der Kuur[1], Marcel Bruijn[1], Mikko Kiviranta[4], Bert-Joost van Leeuwen[1], James Chervenak[2], Antoine Miniussi[3], Kevin Ravensberg[1] and Nicholas Wakeham[2]

[1]SRON - Netherlands Institute for Space Research, Utrecht, Utrecht, Netherlands, [2]NASA Goddard Space Flight Center, Greenbelt, Maryland, US, [3]CRESST II - UMBC, Baltimore, Maryland, US, [4]VTT, Espoo, Finland

1LOr2A - Conductors and Magnet Technology for Fusion

6B; 4:00 p.m. - 6:00 p.m.

Moderators: Cesar Luongo, ITER & Jinxing Zheng, Institute of Plasma Physics, Chinese Academy of Sciences

4:00 p.m. - 4:15 p.m. 1LOr2A-01: **Development of ITER TF Coil Winding Pack (WP) and Qualification for Assembling WP and Coil Case in Japan**

Norikiyo Koizumi[1], Mio Nakamoto[1] and Hideki Kajitani[1]

[1]QST, Naka, Ibaraki, Japan

4:15 p.m. - 4:30 p.m. 1LOr2A-02: **Performances of the TF coils procured by ENEA for the JT-60SA Tokamak during cryogenic acceptance tests**

Valentina Corato[1], Antonio Cucchiaro[1], Valter Cocilovo[1], Gian Mario Polli[1], Paolo Rossi[1], Walid Abdel Maksoud[2], Laurent Genini[2], Enrico Di Pietro[3] and Valerio Tomarchio[3]

[1]ENEA, Frascati, Rome, Italy, [2]CEA, Gif-sur-Yvette , France, [3]Fusion for Energy, Garching, Germany

4:30 p.m. - 4:45 p.m. 1LOr2A-03: **JT-60SA TF coils tests: critical properties analyses and first extrapolations to tokamak operation**

Louis Zani[1], Walid Abdel Maksoud[1], François Bonne[1], Daniel Ciazynski[1], Patrick Decool[1], Laurent Genini[1], Christine Hoa[1], Yawei Huang[1], Benoit Lacroix[1], Quentin Le coz[1], Sylvie Nicollet[1], Valerio Tomarchio[2], Alexandre Torre[1], Roser Vallcorba[1] and Jean-claude Vallet[1]

[1]CEA, St Paul lez Durance, France, [2]fusion for energy, Garching bei Munchen, Germany

4:45 p.m. - 5:00 p.m. 1LOr2A-04: **Development of a 12 T – 10 kA REBCO conductor for the fusion experimental deice**

Toshiyuki Mito[1], Nagato Yanagi[1], Shinji Hamaguchi[1], Tetsuhiro Obana[1], Suguru Takada[1] and Yoshiro Terazaki[1]

[1]National Institute for Fusion Science, Toki-shi, Gifu-ken, Japan

5:00 p.m. - 5:15 p.m. 1LOr2A-05: **Research on high performance CICCs for CFETR magnet**

Jinggang Qin[1]

[1]Institute of Plasma Physics, CAS, Hefei, China

5:15 p.m. - 5:30 p.m. 1LOr2A-06: **Test results of the DEMO TF react&wind conductor prototype no. 2**

Kamil Sedlak[1], Boris Stepanov[1], Davide Uglietti[1], Rainer Wesche[1], Xabier Sarasola[1] and Pierluigi Bruzzone[1]

[1]EPFL Lausanne, Villigen, Switzerland

5:30 p.m. - 6:00 p.m. 1LOr2A-07: **[Invited] The DTT magnet system: status of design and procurement strategy**

Aldo Di Zenobio[1], Alessandro Anemona[1], Mohammed Arabi[1], Flavio Crisanti[2], Valentina Corato[1], Antonio della Corte[1], Chiarasole Fiamozzi Zignani[1], Davide Flammini[2], Lorenzo Giannini[1], Giuseppe Messina[1], Luigi Muzzi[1], Gian Mario Polli[2], Giuseppe Ramogida[2], Gherardo Romanelli[1], Edoardo Tamburo De Bella[1], Giordano Tomassetti[1], Simonetta Turtu'[1], Rosaria Villari[2], Lorenzo Zoboli[1], Roberto Bonifetto[3], Laura Savoldi[3], Roberto Zanino[3] and Raffaele Albanese[4]

[1]ENEA, Frascati, RM, Italy, [2]ENEA, Frascati, Italy, [3]Politecnico di Torino, Torino, Italy, [4]Università di Napoli Federico II, Napoli, Italy

1LOr2B - Transformers, Energy Storage and Fault Current Limiters
6C; 4:00 p.m. - 6:15 p.m.
Moderators: Kyeongdal Choi, Korea Polytechnic University & Bright Robert, University of Leicester

4:00 p.m. - 4:15 p.m. 1LOr2B-01: **Status of the BOSSE Project : a 12 T Rare Earth-BaCuO Solenoid used as compact 1 MJ pulse-power SMES**

Jérémie Cicéron[3], Arnaud Badel[1], Julien Vialle[1], Raphael Pasquet[2], Frederick Forest[2], Xavier Chaud[4] and Pascal Tixador[3]

[1]CNRS, Grenoble, France, [2]Sigmaphi, Vannes, France, [3]University Grenoble Alpes, Grenoble, France, [4]CNRS, Grenoble, France

4:15 p.m. - 4:30 p.m. 1LOr2B-02: **Design of the MgB_2 coil of a 500 kJ / 200 kW SMES demonstrator with cryogen-free cooling**

Antonio Morandi[1], Umberto Melaccio[1], Pier Luigi Ribani[1], Simonetta Turtu'[2] and Luigi Affinito[2]

[1]University of Bologna, Bologna, Italy, [2]ENEA Frascati Research Center, Frascati, Italy

4:30 p.m. - 4:45 p.m. 1LOr2B-03: **Design, Test, and Operation of Superconducting Flywheels for Power Applications**

Cristian Boffo[1], Achim Hobl[1], Alexander Vatagin[1] and Wolfgang Walter[1]

[1]Bilfinger Noell GmbH, Wuerzburg, Germany

4:45 p.m. - 5:15 p.m. 1LOr2B-04: **[Invited] Current Limitation Experiments on a Superconducting Current Limiting Transformer of the 1MVA-Class**

Sebastian Hellmann[1], Markus Abplanalp[2], Steffen Elschner[3], Kudymow Andrej[1] and Mathias Noe[1]

[1]Karlsruhe Institute of Technology, D 76344 Eggenstein-Leopoldshafen, Germany, [2]ABB Schweiz AG, CH 5405 Baden-Dättwil, Switzerland, [3]University of Applied Science Mannheim, D 68163 Mannheim, Germany

5:15 p.m. - 5:30 p.m. 1LOr2B-05: **Development of round flexible HTS CORC® wires for fault current limiting applications**

Jeremy Weiss[1,2], Danko van der Laan[1,2], Chul Kim[3] and Sastry Pamidi[3]

[1]Advanced Conductor Technologies, Boulder, Colorado, US, [2]University of Colorado Boulder, Boulder, Colorado, US, [3]Florida State University, Tallahassee, Florida, US

5:30 p.m. - 5:45 p.m. 1LOr2B-06: **Recovery Characteristics of Porous-Stabilized REBCO Tape for Fault Current Limiters**

Kohei Yuki[1], Satoshi Ito[1] and Hidetoshi Hashizume[1]

[1]Tohoku university, Sendai, Japan

5:45 p.m. - 6:00 p.m. 1LOr2B-07: **Experiment and Field Test of a 500 kV Saturated Iron-Core Superconducting Fault Current Limiter**

Meng Song[1], Lianhong Zhong[2], Xinhui Duan[2], Nan Hu[1], Chen Liang[3], Chao Li[3], Guo Yan[4] and Pingxiang Zhang[5]

[1]electric power research institute of guangdong power grid corporation, Guangzhou, China, [2]guangdong Power Grid Corporation, Xi'an, China, [3]Xi'an Superconducting Magnet Tchnologies Co.,ltd , Xi'an, China, [4]Western Superconducting Technologies Co.,ltd, Xi'an, China, [5]Northwest Institute of Non-Ferrous Metal Research, Xi'an, China

6:00 p.m. - 6:15 p.m. 1LOr2B-08: **Design and performance evaluation of a fault current limiting HTS power cable for transmission system**

Sung-Kyu Kim[1], Kideok Sim[1], Hongsoo Ha[1], Dongmin Kim[2], Seokho Kim[2] and Jeon Wook Cho[1]

[1]Korea Electrotechnology Research Institute, Changwon, Korea (the Republic of), [2]Changwon National University, Changwon, Korea (the Republic of)

1LOr2C - Measurements, Test and Test Facilities
6A; 4:00 p.m. - 6:00 p.m.
Moderators: Michael Green, FRIB / MSU & Emmanuele Ravaioli, CERN

4:00 p.m. - 4:15 p.m. 1LOr2C-01: **Test Facility for Critical Current Measurement of Superconducting Conductors**

Hongjun Ma[1,2], Huajun Liu[1], Fang Liu[1], Jinggang Qin[1], Shi Yi[1], Huang Chen[1,2], Xintao Zhang[1,2], Yu Wu[1] and Jiangang Li[1]

[1]Insitute of Plasma Physics, Hefei, China, [2]University of Science and Technology of China, Hefei, China

4:15 p.m. - 4:30 p.m. 1LOr2C-02: **A Preliminary Design of a Test Facility for HTS conductors in a Magnetic Field up to 10 T that is cooled using Small Cryogenic Coolers**

Michael Green[1], Heng Pan[1] and Li Wang[1]

[1]Lawrence Berkeley Laboratory, Berkeley, California, US

4:30 p.m. - 5:00 p.m. 1LOr2C-03: **[Invited] A new quench detection method for HTS magnets: stray-capacitance change monitoring**

Emmanuele Ravaioli[2], Maxim Marchevsky[1], GianLuca Sabbi[1], Tengming Shen[1] and Kai Zhang[1,3]

[1]LBNL, Meyrin, Geneva, Switzerland, [2]CERN, Geneva, Geneva, Switzerland, [3]IHEP, Beijing, China

5:00 p.m. - 5:15 p.m. 1LOr2C-04: **Calorimetric Measurements of Varied Architecture YBCO Conductors and Cables Above the Penetration Field at High B*dB/dt in a Stator Environment**

John Murphy[1], Timothy Haugan[2], Mike Sumption[3], E.W. Collings[3] and Thomas Bullard[4]

[1]University of Dayton Research Institute, Dayton, Ohio, US, [2]USAF, Dayton, Ohio, US, [3]OSU, Columbus, Ohio, US, [4]UES, Dayton, Ohio, US

5:15 p.m. - 5:30 p.m. 1LOr2C-05: **High-speed Fluorescent Thermal Imaging of a 2G HTS-wound Non-insulated Pancake Coil**

Roland Gyuraki[1], Frederic Sirois[2] and Francesco Grilli[1]

[1]Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany, [2]Polytechnique Montreal, Montreal, Quebec, Canada

5:30 p.m. - 5:45 p.m. 1LOr2C-06: **Acoustic and magnetic detection of hot spots in superconducting CORC® cables**

Maxim Marchevsky[1], Eitan Hershkovitz[1], Soren Prestemon[1], Jeremy Weiss[2] and Danko van der Laan[2]

[1]Lawrence Berkeley National Laboratory , Berkeley, California, US, [2]Advanced Conductor Technologies LLC, Boulder, Colorado, US

5:45 p.m. - 6:00 p.m. 1LOr2C-07: **Strain Sensitivity and Degradation Studies of Rayleigh Interrogated Optical Fiber (RIOF) Distributed Sensors**

Sasha Ishmael[1], Federico Scurti[2,3] and Justin Schwartz[1,3]

[1]Lupine Materials and Technology Inc., Mebane, North Carolina, US, [2]North Carolina State University, Raleigh, North Carolina, US, [3]The Pennsylvania State University, State College, Pennsylvania, US

1MOr2A - Coated Conductors I: Development Towards High Field Magnets
608-609; 4:00 p.m. - 6:00 p.m.
Moderators: Giuseppe Celentano, ENEA Frascati Research Center & Takanobu Kiss, Kyushu University

4:00 p.m. - 4:30 p.m. 1MOr2A-01: **[Invited] REBCO coated conductor development in the ARIES program for HTS accelerator magnets**

Lucio Rossi[1], Amalia Ballarino[2], Ulrich Betz[3], Luca Bottura[2], Marc M. J. Dhalle[4], Thibault Lécrevisse[5], Carmine Senatore[6] and Alexander Usoskin[3]

[1]CERN, Genève 23, Switzerland, [2]CERN, Geneva, Switzerland, [3]BHTS, Alzenau, Germany, [4]University of Twente, Enschede, Netherlands, [5]CEA, Saclay, France, [6]University of Geneva, Geneva, Switzerland

4:30 p.m. - 4:45 p.m. 1MOr2A-02: **Cost Reduction of REBCO Coated Conductor by Artificial Pinning Centers and Its Performance**

Kaname Matsumoto[1], Yutaka Yoshida[2], Satoshi Awaji[3], Ataru Ichinose[4], Tomoya Horide[1], Alok Jha[1], Yusuke Ichino[2] and Yuji Tsuchiya[2]

[1]Kyushu Institute of Technology, Kitakyushu, Japan, [2]Nagoya University, Nagoya, Japan, [3]Tohoku University, Sendai, Japan, [4]CRIEPI, Yokosuka, Japan

4:45 p.m. - 5:00 p.m. 1MOr2A-03: **Recent progress in fabrication of high performance REBCO tapes and round wires**

Venkat Selvamanickam[1], Rudra Pratap[1], Wenbo Luo[1], Mehdi Kochat[1], Anis Ben Yahia[1], Eduard Galstyan[1], Soumen Kar[2], Siwei Chen[1] and Goran Majkic[1]

[1]University of Houston, Houston, Texas, US, [2]AMPeers LLC, Houston, Texas, US

5:00 p.m. - 5:15 p.m. 1MOr2A-04: **Characteristics of REBCO HTS Wires made on Thinner Hastelloy Substrate**

Yifei Zhang[1], Aarthi Sundaram[1], Satoshi Yamano[1], Dmytro Abraimov[2], Allan Knoll[1], Hiroshi Kuraseko[1], Drew Hazelton[1], Hisaki Sakamoto[3] and Toru Fukushima[1]

[1]SuperPower Inc., Schenectady, New York, US, [2]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [3]Furukawa Electric Co., Ltd., Chiba, Japan

5:15 p.m. - 5:30 p.m. 1MOr2A-05: **Growth of all chemical $YBa_2Cu_3O_7$ thick films and coated conductors using different architectures**

Cornelia Pop[1], Bohores Villarejo[1], Flavio Pino[1], Natalia Chamorro[2], Ferran Valles[1], Bernat Mundet[1], Pedro Barusco[1], Anna Palau[1], Jaume Gazquez[1], Alexander Usoskin[3], Susagna Ricart[1], Xavier Granados[1], Teresa Puig[1] and Xavier Obradors[1]

[1]Institut de Ciencia de Materials de Barcelona, Cerdanyola del Valles, Barcelona, Spain, [2]Universitat Autonoma de Barcelona, Cerdanyola del Valles, Barcelona, Spain, [3]Bruker HTS GmbH (Bruker EST Group), Alzenau, Germany

5:30 p.m. - 5:45 p.m. 1MOr2A-06: **Progress in high current nanocomposite $YBa_2Cu_3O_{7-x}$ coated conductors from colloidal solutions**

Teresa Puig[1], Ziliang Li[1], Cornelia Pop[1], Natalia Chamorro[1,2], Bohores Villarejo[1], Flavio Pino[1], Ferran Valles[1], Bernat Mundet[1], Laia Soler[1], Júlia Jareño[1], Silvia Rasi[1,3], Juri Banchewski[1], Roger Guzman[1], Max Sieger[1], Jaume Gazquez[1], Mariona Coll[1], Anna Palau[1], Susagna Ricart[1], Josep Ros[2], Jordi Farjas[3], Pere Roura[3]and Xavier Obradors[1]

[1]CSIC, Bellaterra, Spain, [2]Universitat Autonoma de Barcelona, Bellaterra, Barcelona, Spain, [3]University of Girona, Girona, Spain

5:45 p.m. - 6:00 p.m. 1MOr2A-07: **Electromechanical properties of narrow superconducting cables comprised of exfoliated YBCO filaments**

Vyacheslav Solovyov[1], Anatolii Polyanskii[2], Saad Rabbani[1] and Paul Farrell[1]

[1]Brookhaven Technology Group, Stony Brook, New York, US, [2]National High Magnetic Field Laboratory, Tallahassee, Florida, US

1MOr2B - Nb_3Sn: Meeting Future Requirements
615-617; 4:00 p.m. - 6:15 p.m.
Moderators: Bernardo Bordini, CERN & Ian Pong, LBNL

4:00 p.m. - 4:15 p.m. 1MOr2B-01: **The CERN FCC conductor development program: a world-wide effort for the future generation of high-field magnets.**

Amalia Ballarino[1], Simon Hopkins[1], Luca Bottura[1], Michael Benedikt[1], Davide Tommasini[1], Bernardo Bordini[1], Toru Ogitsu[2], Jiman Kim[3], Victor Pantsyrny[4], Ildar Abdyukhanov[4], Sergey Zernov[5], Michael Shlyakov[5], Andreas Leineweber[6], Ben Karlemo[7], Taeyoung Pyon[8], Michael Eisterer[9], Johannes Bernardi[9], Thomas Baumgartner[9] and Stephan Peiffer[9]

[1]CERN, Geneva, Switzerland, [2]KEK, Tsukuba, Japan, [3]Kiswire, Seoul, Korea (the Democratic People's Republic of), [4]Bochvar, Moscow, Russian Federation, [5]TVEL, Moscow, Russian Federation, [6]TU Freiberg, Freiberg, Germany, [7]Luvata, Pori, Finland, [8]Luvata, Waterbury, Connecticut, US, [9]TU Vienna, Vienna, Austria

4:15 p.m. - 4:30 p.m. 1MOr2B-02: **Performance limitations due to A-15 inhomogeneity in Nb_3Sn wires**

Thomas Baumgartner[1], Stephan Peiffer[2], Johannes Bernardi[2], Amalia Ballarino[3] and Michael Eisterer[1]

[1]TU Wien, Vienna, Austria, [2]TU Wien, Vienna, Austria, [3]CERN, Geneva, Switzerland

4:30 p.m. - 4:45 p.m. 1MOr2B-03: **Routes to Improve High-Field Performance in Nb_3Sn Wires**

Chiara Tarantini[1], Steve Heald[2], Shreyas Balachandran[1], Najib Cheggour[1], Peter Lee[1] and David Larbalestier[1]

[1]National High Magnetic Field Laboratory, Florida State University, Tallahassee, Florida, US, [2]Argonne National Laboratory, Argonne, Illinois, US

4:45 p.m. - 5:00 p.m. 1MOr2B-04: **Further optimizations on the heat treatment of RRP® wires**

Charlie Sanabria[1], Ian Pong[1] and Soren Prestemon[1]

[1]Lawrence Berkeley Laboratory, Berkeley, California, US

5:00 p.m. - 5:15 p.m. 1MOr2B-05: **Recent progress with APC Nb_3Sn conductors**

Xingchen Xu[1], Xuan Peng[2], Jacob Rochester[3] and Mike Sumption[3]

[1]Fermilab, Batavia, Illinois, US, [2]Hyper Tech Research Inc., Columbus, Ohio, US, [3]the Ohio State University, Columbus, Ohio, US

5:15 p.m. - 5:30 p.m. 1MOr2B-06: **Artificial Pinning Centers in Nb_3Sn Conductors with Ta, Ti, and Zr Additions**

Shreyas Balachandran[1], Chiara Tarantini[1], Benjamin Walker[1], Peter Lee[1] and David Larbalestier[1]

[1]ASC/ NHMFL/FSU, Tallahassee, Florida, US

5:30 p.m. - 5:45 p.m. 1MOr2B-07: **Development of High Jc Nb3Sn conductors in Japan for the Future Circular Collider**

Michinaka Sugano[1], Toru Ogitsu[1], Tatsushi Nakamoto[1], Hidetoshi Oguro[2], Satoshi Awaji[3], Shinya Kawashima[4], Kazuyoshi Saito[4], Yoshito Fukumoto[4], Hisaki Sakamoto[5], Hitoshi Shimizu[5], Amalia Ballarino[6], Simon Hopkins[6] and Bernardo Bordini[6]

[1]KEK, Tsukuba, Japan, [2]Tokai University, Hiratsuka, Japan, [3]Tohoku University, Sendai, Japan, [4]Kobe steel and JASTEC, Kobe, Japan, [5]Furukawa Electoric, Ichihara, Japan, [6]CERN, Geneva, Switzerland

5:45 p.m. - 6:00 p.m. 1MOr2B-08: **Characterisation of Nb_3Sn Conductors Developed for the Future Circular Collider Study**

Simon Hopkins[1], Bernardo Bordini[1], David Richter[1] and Amalia Ballarino[1]

[1]European Organization for Nuclear Research (CERN), Geneva, Switzerland

6:00 p.m. - 6:15 p.m. 1MOr2B-09: **The Nb_3Sn wire procured by CERN for the High Luminosity upgrade of the Large Hadron Collider**

Bernardo Bordini[1], Alessandro Cattabiani[1], Adrian Szeliga[1,2], David Richter[1] and Amalia Ballarino[1]

[1]CERN, Geneve, Switzerland, [2]IFJ PAN, Kraków, Poland

1MOr2C - Critical Current and Flux Pinning II: REBCO

613-614; 4:00 p.m. - 6:00 p.m.

Moderators: Timothy Haugan, The Air Force Research Laboratory & Goran Majkic, University of Houston

4:00 p.m. - 4:30 p.m. 1MOr2C-01: **[Invited] Probing the Effect of Interface on Pinning Efficiency of 1D $BaZrO_3$ and $BaHfO_3$ Artificial Pinning Centers in $YBa_2Cu_3O_{7-x}$ Thin Films**

Judy Wu[1], Bibek Gautam[1], Mary Ann Sebastian[2], Shikhar Mishra[3], Jijie Huang[3], Shihong Chen[1,4], Joseph Prestigiacomo[5], Timothy Haugan[2], Haiyan Wang[3], Michael Osofsky[5] and Zhongwen Xing[4]

[1]University of Kansas, Lawrence, Kansas, US, [2]Air Force Research lab, Dayton, Ohio, US, [3]Purdue University, West Lafayette, Indiana, US, [4]Nanjing University, Nanjing, Jiangsu, China, [5]Naval Reserach lab, Washington, District of Columbia, US

4:30 p.m. - 4:45 p.m. 1MOr2C-02: **Critical currents in $YGdBa_2Cu_3O_7$ and $BaHfO_3$-doped $YGdBa_2Cu_3O_7$ up to 65T**

Maxime Leroux[1], Fedor Balakirev[1], Masashi Miura[2] and Boris Maiorov[1]

[1]Los Alamos National Laboratory, Los Alamos, New Mexico, US, [2]Seikei University, Tokyo, Japan

4:45 p.m. - 5:00 p.m. 1MOr2C-03: **Unraveling the pinning landscape in high performance REBCO tapes with high density of nanoscale defects**

Goran Majkic[1], Rudra Pratap[1], Eduard Galstyan[1], Mehdi Kochat[1], Aixia Xu[1], Meysam Heydari Gharahcheshmeh[1], Andre Mkhoyan[2] and Venkat Selvamanickam[1]

[1]University of Houston, Houston, Texas, US, [2]University of Minnesota, Minneapolis, Minnesota, US

5:00 p.m. - 5:15 p.m. 1MOr2C-04: **Probing the angular dependence of I_c of PLD-GdBCO coated conductors at intermediate temperatures of 10-40 K**

Mayraluna Lao[1], Jens Hänisch[1], Alexander Molodyk[2] and Bernhard Holzapfel[1]

[1]Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany, [2]SuperOx, Moscow, Russian Federation

5:15 p.m. - 5:30 p.m. 1MOr2C-05: **Asymmetry and hysteresis in the angle dependence of critical currents in HTS wires**

Nicholas Strickland[1] and Stuart Wimbush[1]

[1]Victoria University of Wellington, Lower Hutt, Wellington, New Zealand

5:30 p.m. - 5:45 p.m. 1MOr2C-06: **Transport critical currents of modern ReBCO conductors in high magnetic fields up to 45T**

Dmytro Abraimov[1], Jan Jaroszynski[1], Yifei Zhang[2], Ashleigh Francis[1], Anca-Monia Constantinescu[1], Youri Viouchkov[1] and David Larbalestier[1]

[1]NHMFL, Tallahassee, Florida, US, [2]SuperPower Inc., Schenectady, New York, US

5:45 p.m. - 6:00 p.m. 1MOr2C-07: **Strong improvement in the performances of $YBa_2Cu_3O_{7-x}$ coated conductor films through the inclusion of (Nb,Ta)-based efficient artificial pinning centres at several doping levels**

Francesco Rizzo[1], Valentina Galluzzi[1], Andrea Augieri[1], Alessandro Rufoloni[1], Achille Angrisani Armenio[1], Antonella Mancini[1], Valentina Pinto[1], Angelo Vannozzi[1], Fabio Fabbri[1], Andrea Masi[2], Nicola Pompeo[2], Ahmed Kursumovic[3], Judith MacManus-Driscoll[3], Ramona Mos[4], Lelia Ciontea[4], Traian Petrisor[4], Alexander Meledin[5] and Giuseppe Celentano[1]

[1]ENEA, Frascati (Rome), Italy, [2]Università Roma 3, Roma, Italy, [3]University of Cambridge, Cambridge, United Kingdom, [4]Technical University of Cluj-Napoca, Cluj-Napoca, Romania, [5]University of Aachen, Aachen, Germany

Welcome & Exhibitor Reception
4th Level Atrium and Exhibit Hall; 6:30 p.m. - 8:30 p.m.

Tuesday, October 30, 2018

2LP1A - Plenary Session – sponsored by Commonwealth Edison Company (ComEd)
Ballroom 6ABC; 8:00 a.m. - 8:45 a.m.
Moderators: Philippe Masson, AML Superconductivity and Magnetics & Antonio Morandi, University of Bologna

2LP1A-01: High Temperature Superconductors (HTS) as Enabling Technology for Sustainable Mobility and Energy Efficiency
Dr. Tabea Arndt[1]
[1]Siemens AG, Erlangen, Germany

In Memoriam and Jan Evetts SUST Award following the plenary talk.

Coffee Break
Exhibit Hall; 9:15 a.m. - 9:45 a.m.

2EPo1A - Data Links, Mixed Signal and Metrology
Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Pascal Febvre, University of Savoie & Alan Kleinsasser, JPL

2EPo1A-01 [E1] **A solution for ultra-low BER interface of superconductor-semiconductor by using an error-correction-code encoder**
Xizhu Peng[1], Xiaoqiao Liu[1], Jie Ren[2], Zhen Wang[2] and He Tang[1]
[1]University of Electronic Science and Technology of China, Chengdu, Sichuan, China, [2]Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, China

2EPo1A-02 [E2] **The thermal impedance amplifier: driving semiconductor electronics from superconducting signals**
Adam McCaughan[1], Varun Verma[1], Sonia Buckley[1], Jeffrey Shainline[1] and Sae Woo Nam[1]
[1]NIST, Boulder, Colorado, US

2EPo1A-03 [E3] **Flip-chip assembly of a hybrid SFQ-to-nTron interface circuits**
Thomas Ortlepp[1,3], Emily Toomey[2], Indira Kaepplinger[1], Marco Colangelo[2], Oliver Kieler[4] and Karl Berggren[2]
[1]CiS Research Institute for Microsensor Systems GmbH, Erfurt, Germany, [2]MIT, Cambridge, Massachusetts, US, [3]Yokohama National University, Yokohama, Japan, [4]PTB, Braunschweig, Germany

2EPo1A-04 [E4] **A Low Power Cryogenic Digital Data Link achieving a Data Rate of 18 Gb/s**
Su-Wei Chang[1], Prasana Ravindran[1], Wei-Ting Wong[1], Saad Sarwana[2], Vladimir Dotsenko[2], Jia Tang[2], Steven Ruotolo[2], Deepnarayan Gupta[2] and Joseph Bardin[1]
[1]UMASS-Amherst, Amherst, Massachusetts, US, [2]HYPRES Inc., Elmsford, New York, US

2EPo1A-05 [E5] **Demonstration of PTL Based On-Chip Communication for Superconducting Circuits**
Andrew Urbanas[1], Jonathan Egan[1], Kieran Perkins[1], Anna Herr[1] and Joseph Cetin[1]
[1]Northrop Grumman, Linthicum, Maryland, US

2EPo1A-06 [E6] **Radio-frequency waveform synthesis with improved Josephson arbitrary waveform synthesizer circuits**
Justus Brevik[1], Christine Donnelly[1,2], Nathan Flowers-Jacobs[1], Anna Fox[1], Peter Hopkins[1], Paul Dresselhaus[1] and Samuel Benz[1]
[1]NIST - Boulder, Boulder, Colorado, US, [2]Stanford University, Stanford, California, US

2EPo1A-07 [E7] **Applied Flux Effects in Josephson Voltage Standard Circuits**
Anna Fox[1], Miranda Thompson[2] and Paul Dresselhaus[1]
[1]NIST, Boulder, Colorado, US, [2]University of Colorado, Boulder, Colorado, US

2EPo1A-08 [E8] **Demonstration of an RF Waveform Synthesizer Using RSFQ Circuits**

Manuel Castellanos-Beltran[1], David Olaya[1], Adam Sirois[1], Christine Donnelly[1], Paul Dresselhaus[1], Samuel Benz[1] and Peter Hopkins[1]

[1]National Institute of Standards and Technology, Boulder, Colorado, US

2EPo1A-09 [E9] **Synthesis of voltage reference waveforms at frequencies up to 1 GHz with Josephson arrays**

Christine Donnelly[1,2], Peter Hopkins[1], Paul Dresselhaus[1], Justus Brevik[1], Anna Fox[1], Samuel Benz[1] and Nathan Flowers-Jacobs[1]

[1]NIST, Boulder, Colorado, US, [2]Stanford University, Palo Alto, California, US

2EPo1A-10 [E10] **Gray zone measurements of the Josephson balanced comparator**

Timur Filippov[1], Anubhav Sahu[1], Mustafa Çelik[1], Dimitri Kirichenko[1] and Deepnarayan Gupta[1]

[1]HYPRES, Inc, Elmsford, New York, US

2EPo1A-11 [E11] **Superconducting neuromorphic computing using quantum phase-slip junctions**

Ran Cheng[1], Uday Goteti[1] and Michael Hamilton[1]

[1]Auburn University, Auburn, Alabama, US

2EPo1A-12 [E12] **Superconductor Digital-RF Circuits for Cryogenic Detectors**

Deepnarayan Gupta[1], Dimitri Kirichenko[1], Saad Sarwana[1], Alan Kadin[1] and Timur Filippov[1]

[1]HYPRES, Inc., Elmsford, New York, US

2EPo1B - Nanowire Applications [P]

Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.

Moderators: Hui Dong, Shanghai Institute of Microsystem and Information Technology & Shigeyuki Miyajima, National Institute of Information and Communications Technology

2EPo1B-01 [E13] **Improving the performance of superconducting nanowire single-photon detector with optical film techniques**

Hao Li[1,2], Lixing You[1,2], Weijun Zhang[1,2], Xiaoyan Yang[1,2], Heqing Wang[1,2], Zhen Wang[1,2] and Xiaoming Xie[1,2]

[1]Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, China, [2]CAS Center for Excellence in Superconducting Electronics, Shanghai, China

2EPo1B-02 [E14] **High efficiency microfiber-coupled superconducting nanowire single-photon detector**

Xintong Hou[1,2], Lixing You[1], Hao Li[1], Ni Yao[3], Weijun Zhang[1], Xiaoyu Liu[1], Heqing Wang[1,2], Wei Fang[3], Zhen Wang[1], Xiaoming Xie[1] and Limin Tong[3]

[1]Shanghai Institute of Microsystem and Information Technology (SIMIT), Shanghai, China, [2]University of Chinese Academy of Sciences, Beijing, China, [3] Zhejiang University, Hangzhou, Zhejiang, China

2EPo1B-03 [E15] **Demonstration of a superconducting nanowire single photon detector with an ultrahigh polarization extinction ratio over 400**

Ruiying Xu[1], Lin Kang[1], Guanghao Zhu[1], Labao Zhang[1], Xiaoqing Jia[1], Xuecou Tu[1], Qingyuan Zhao[1], Biaobing Jin[1], Wei-wei Xu[1], Jian Chen[1] and Peiheng Wu[1]

[1]Research Institute of Superconductor Electronics (RISE) School of Electron Science and Engineering, Nanjing University, Nanjing, Jiangsu, China

2EPo1B-04 [E16] **1.2 GHz single photon detector with 4×4 array of NbN nanowires**

Labao Zhang[1], Lin Kang[1], Xiaoqing Jia[1], Jian Chen[1] and Peiheng Wu[1]

[1]Nanjing University, Nanjing, China

2EPo1B-05 [E17] **A linear superconducting nanowire array for single photon imaging**

Lingdong Kong[1], Qingyuan Zhao[1], Kai Zheng[1], Lin Kang[1], Jian Chen[1] and Peiheng Wu[1]

[1]Nanjing University, Nanjing, Jiangsu, China

2EPo1B-06 [E18] **Demonstration of a superconducting nanowire single-photon detector using adiabatic quantum-flux-parametron logic in a 0.1 W Gifford–McMahon cryocooler**

Naoki Takeuchi[1,2], Taro Yamashita[2,3], Shigeyuki Miyajima[4], Shigehito Miki[4,5], Nobuyuki Yoshikawa[1,6] and Hirotaka Terai[4]

[1]Yokohama National University, Yokohama, Japan, [2]Japan Science and Technology Agency, Kawaguchi, Japan, [3]Nagoya University, Nagoya, Japan, [4]National Institute of Information and Communications Technology, Kobe, Japan, [5]Kobe University, Kobe, Japan, [6]Yokohama National University, Yokohama, Japan

2EPo1B-07 [E19] **Development of 2 K space cryocoolers for cooling the superconducting nanowire single photon detector**

Haizheng Dang[1,2], Rui Zha[1], Tao Zhang[1], Jun Tan[1], Jiaqi Li[1], Dingli Bao[1], Yongjiang Zhao[1] and Bangjian Zhao[1]

[1]Shanghai Institute of Technical Physics, Chinese Academy of Sciences, Shanghai, China, [2]Shanghai Boreas Cryogenics Co., Ltd, Shanghai, China

2EPo1C - TES Workshop: Device Physics
Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Faustin Carter, Argonne National Laboratory & Kelsey Morgan, University of Colorado Boulder

2EPo1C-01 [E20] **[Invited] Development of fine-pitch ultra high resolution X-ray transition-edge sensor X-ray microcalorimeters with buried microstrip wires for future X-ray missions**

Kazuhiro Sakai[1,2], Joseph Adams[1,2], Simon Bandler[1], James Chervenak[1], Aaron Datesman[1,3], Megan Eckart[1], Fred Finkbeiner[1,4], Ruslan Hummatov[1,2], R. Kelley[1], Antoine Miniussi[1,2], F. Porter[1], Caroline Kilbourne[1], John Sadleir[1], Stephen Smith[1,2], Nicholas Wakeham[1,5], Edward Wassell[1,3] and Wonsik Yoon[1,6]

[1]NASA/GSFC, Greenbelt, Maryland, US, [2]University of Maryland Baltimore County, Baltimore, Maryland, US, [3]Stinger-Ghaffarian Technologies, Greenbelt, Maryland, US, [4]Sigma Space Corp., Lanham, Maryland, US, [5]Universities Space Research Association, Columbia, Maryland, US, [6]ASRC, Laurel, Maryland, US

2EPo1C-02 [E21] **[Invited] Understanding and Manipulating the Thermal Conductance of SiN Membranes in Sub-Kelvin Refrigerators and Sensors**

Xiaohang Zhang[1], Toumas Puurtinen[2], Peter Lowell[1], Shannon Duff[1], Kelsey Morgan[1], Daniel Schmidt[1], Gene Hilton[1], Ilari Maasilta[2] and Joel Ullom[1]

[1]National Institute of Standards and Technology, Boulder, Colorado, US, [2]University of Jyvaskyla, Jyvaskyla, Finland

2EPo1C-03 [E22] **[Invited] Iridium Based Transition-Edge Sensor for Neutrinoless Double Beta Decay Searches**

Gensheng Wang[1], G Benato[3], Clarence Chang[1,2], Junjia Ding[1], A Drobizhev[3], Brian Fujikawa[4], S Han[3], Raul Hennings-Yeomans[3], G. Karapetrov[5], Yu Kolomensky[3,4], Laura Marini[3], Valentyn Novosad[1], T O'Donnell[3], J Ouellet[6], John Pearson[1], Tomas Polakovic[5,1], D Reggio[3], B Schmidt[3], B Sheff[3], Vivek Singh[3], Ryan Smith[3], S Wagaarachchi[3], B Welliver[4] and Volodymyr Yefremenko[1]

[1]Argonne National Laboratory, Lemont, Illinois, US, [2]Kavli Institute for Cosmological Physics, University of Chicago, Chicago, Illinois, US, [3]University of California, Berkeley, California, US, [4]Lawrence Berkeley National Laboratory, Berkeley, California, US, [5]Drexel University, Philadelphia, Pennsylvania, US, [6]Massachusetts Institute of Technology, Cambridge, Massachusetts, US

2EPo1C-04 [E23&24] **[Invited] Thermoelectric radiation detector based on superconductor/ferromagnet systems**

Tero Heikkila[1], Risto Ojajarvi[1], Ilari Maasilta[1], Francesco Giazotto[2], Subrata Chakraborty[1] and F. Sebastian Bergeret[3]

[1]University of Jyvaskyla, University of Jyvaskyla, Finland, [2]Istituto Nanoscienze-CNR and Scuola Normale Superiore, Pisa, Italy, [3]Centro Mixto CSIC-UPV/EHU, San Sebastian, Spain

2EPo1C-05 [E25] **Fabrication and characterization of Ti/Pd and Ti/Pd/Au thin films for Transition-Edge Sensors**

Eugenio Monticone[1], Mauro Rajteri[1] and Danilo Serazio[1]

[1]INRIM, Torino, Italy

2EPo1C-06 [E26] **Complex impedance measurements of TESs performed under AC bias using FDM readout system**

Emanuele Taralli[1], Pourya Khosropanah[1], Luciano Gottardi[1], Kenichiro Nagayoshi[1], Marcel Ridder[1], Marcel Bruijn[1] and Jian-Rong Gao[1,2]

[1]SRON Netherlands Institute for Space Research, Utrecht, Netherlands, [2]Kavli Institute of NanoScience, Delft University of Technology, Delft, Netherlands

2EPo1C-07 [E27] **Simulation of quasi-ballistic heat transport in superconductor transition-edge sensor circuits**

Jun-Kang Chen[1] and Xingxiang Zhou[1]

[1]University of Science and Technology of China, Hefei, Anhui, China

2EPo1C-08 [E28] **Study of basic parameters of Mo/Au-based TES**

Carlos Pobes[2], Agustín Camón[2], Lourdes Fàbrega[1], Pavel Strichovanec[2,1], Javier Moral[1], Nieves Casan-Pastor[1], Javier Sesé[3] and Rosa Jáudenes[1,2]

[1]CSIC, Bellaterra, Barcelona, Spain, [2]CSIC-Universidad de Zaragoza, Zaragoza, Zaragoza, Spain, [3]Universidad de Zaragoza, Zaragoza, Zaragoza, Spain

2EPo1C-09 [E29] **Minimization of thermal cross-talk in kilo-pixel microcalorimeter arrays**

Antoine Miniussi[2,1], Joseph Adams[2,1], Simon Bandler[2], James Chervenak[2], Aaron Datesman[2,3], Megan Eckart[2], Fred Finkbeiner[2,4], Ruslan Hummatov[2,1], R. Kelley[2], Caroline Kilbourne[2], F. Porter[2], John Sadleir[2], Kazuhiro Sakai[2,1], Stephen Smith[2,1], Nicholas Wakeham[2,5] and Edward Wassell[2,3]

[1]University of Maryland Baltimore, Baltimore, Maryland, US, [2]NASA Goddard Space Flight Center, Greenbelt, Maryland, US, [3]Stinger-Ghaffarian Technologies, Greenbelt, Maryland, US, [4]Sigma Space Corp., Lanham, Maryland, US, [5]Universities Space Research Association, Columbia, Maryland, US

2EPo1C-10 [E30] **Transition Temperature Variations in MoAu Bi-Layer Transition Edge Sensors**

Ari Brown[1], Emily Barrentine[1], Karwan Rostem[1,2], Kevin Denis[1], Elmer Sharp[1,3], James Hays-Wehle[1,4] and Edward Wollack[1]

[1]NASA Goddard Space Flight Center, Greenbelt, Maryland, US, [2]Johns Hopkins University, Baltimore, Maryland, US, [3]Global Science & Technology Inc., Greenbelt, Maryland, US, [4]University of Maryland, Baltimore County, Catonsville, Maryland, US

2EPo1C-11 [E31] **Modelling a Transition-Edge Sensor X-ray Microcalorimeter Strip Array for Compton Scattering and Energy Dispersive Diffraction**

Antonino Miceli[1], Daikang Yan[1,2], Lisa Gades[1], Umeshkumar Patel[1] and Orlando Quaranta[1,2]

[1]Argonne National Laboratory, Argonne, Illinois, US, [2]Northwestern University, Evanston, Illinois, US

2EPo1D - Microwave Filters and Antennas

Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Paul Dresselhaus, NIST & Alan Kleinsasser, JPL

2EPo1D-01 [E32] **Compact Dual-Band High-Temperature Superconducting Bandpass Filter Using Coplanar Waveguide Short-Circuit Ring Loaded Resonator**

Xuehui Guan[1], Chenfei Le[1], Chaochao Tao[1], Baoping Ren[1] and Haiwen Liu[1]

[1]East China Jiaotong University, Nan Chang, China

2EPo1D-02 [E33] **Millimeter-Wave Ultra Wide Band Multilayer Superconducting Filters**

Huayong Jia[1] and Raafat Mansour[1]

[1]University of Waterloo, Waterloo, Ontario, Canada

2EPo1D-03 [E34] **Improvement of filter properties of independently tunable HTS dual-band bandpass filter**

Naoto Sekiya[1]

[1]University of Yamanashi, Kofu, Japan

2EPo1D-04 [E35] **Compact, low loss and high power handling HTS dual-mode double-strip resonator filter with new feeding structure**

Shinya Kobayashi[1] and Naoto Sekiya[1]

[1]University of Yamanashi, Kofu, Yamanashi, Japan

2EPo1D-05 [E36] **Fabrication and Evaluation of 4-Pole Cascaded Quadruplet Bandpass Filter Using Superconducting Bulk Resonators**

Atsushi Saito[1], Kodama Shun[1], Takafumi Saito[1], Satoshi Ono[2], Kensuke Nakajima[1] and Shigetoshi Ohshima[1]

[1]Yamagata University, Yonezawa, Japan, [2]The University of Electro-Communications, Chofu, Tokyo, Japan

2EPo1D-06 [E37] **Miniaturized High Temperature Superconducting Bandpass Filter Based on D-CRLH Resonators**

Xuehui Guan[1], Hui Su[1], Haiwen Liu[1], Pin Wen[1] and Wang Liu[1]

[1]East China Jiaotong University, Nan Chang, China

2EPo1D-07 [E38] **Design of Superconducting Wideband Bandpass Filter With Two Controlled Narrow-Band Notches and Wide Stopband**

Haiwen Liu[1,2], Tiankang Liu[2], Yichen Xu[2], Baoping Ren[2], Pin Wen[2,1] and Xuehui Guan[2]

[1]Xi'an Jiaotong University, Xi'an, Shaanxi, China, [2]East China Jiaotong University, Nanchang, Jiangxi, China

2EPo1E - LTS Fabrication [P]
Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Michael Cyberey, University of Virginia & Alan Kleinsasser, JPL

2EPo1E-01 [E39] **Characterization of a superconductor electronics fabrication process with eight planarized niobium layers using shift register circuits and in-line optical defect inspection**

Evan Golden[1], Scott Zarr[1], Alex Wynn[1], Sergey Tolpygo[1], Vladimir Bolkhovsky[1], Ravi Rastogi[1], Alexandra Day[1], Terence Weir[1] and Leonard Johnson[1]

[1]MIT Lincoln Laboratory, Lexington, Massachusetts, US

2EPo1E-02 [E40] **Reliability Studies of Nb/AlO_x/Al/Nb Josephson Junctions Through Accelerated-life Electrical Stress Testing**

Uday Goteti[1], Matthew Denton[1], Keith Krause[1], Andrew Stephen[1], John Sellers[1], Steffen Sullivan[1], Michael Hamilton[1], Alex Wynn[2] and Sergey Tolpygo[2]

[1]Auburn University, Auburn, Alabama, US, [2]MIT Lincoln Laboratory, Lexington, Massachusetts, US

2EPo1E-03 [E41] **Characteristic Modeling of Superconducting Vias in Multilayer Processes**

Ruben van Staden[1], Coenrad Fourie[1] and Paul Le Roux[1]

[1]University of Stellenbosch, Stellenbosch, Western Cape, South Africa

2EPo1E-04 [E42] **Film stress influence on Nb/Al-AlO_x/Nb Josephson junctions**

Yu Wu[1,3], Wei Xiong[1,2], Liliang Ying[1], Guanqun Li[1,2], Jie Ren[1,2], Xue Zhang[1,2], Wei Peng[1,2] and Zhen Wang[1,2]

[1]Shanghai institute of microsystem and information technology, Shanghai, China, [2]Univerisity of Chinese Academy of Science, Beijing, China, [3]ShanghaiTech University, Shanghai, China

2EPo1E-05 [E43&44] **[Invited] Capacitance Study of Amorphous Nb_xSi_{1-x} Barrier Josephson Junctions**

Miranda Thompson[1,2], Anna Fox[2], Paul Dresselhaus[2] and Samuel Benz[2]

[1]University of Colorado at Boulder, Boulder, Colorado, US, [2]National Institute of Science and Technology, Boulder, Colorado, US

2EPo1E-06 [E45] **Electrical noise in amorphous NbSi barrier Josephson Junctions**

Paul Dresselhaus[1], Miranda Thompson[1,2], Anna Fox[1] and Samuel Benz[1]

[1]NIST, Boulder, Colorado, US, [2]University of Colorado, Boulder, Colorado, US

2EPo1E-07 [E46] **Nb/Al,AlN$_x$/Nb Trilayer Process with Epitaxial Nb Base Electrode**

Matthias Kroug[1], Akihira Miyachi[1] and Wenlei Shan[1]

[1]National Astronomical Observatory, Mitaka, Japan

2EPo1E-08 [E47] **Evaluation of Crystallinity and Anodization Rate of Nb Thin Films for Fabricating Full Epitaxial Nb/AlN/Nb Junctions**

Takuya Narisawa[1], Yasuhiro Odashima[1], Yuki Inukai[1] and Atsushi Saito[1]

[1]Yamagata University, Yonezawa, Yamagata, Japan

2EPo1E-09 [E48] **Sub-micron Nb-based tunnel junctions for THz receivers and parametric amplifiers.**

Dimitry Avtushenko[1,2], Maxim Paramonov[1], Pavel Dmitriev[1], Andrey Ermakov[1], Lyudmila Filippenko[1], Michael Fominskiy[1], Dmitry Gulevich[3] and Valery Koshelets[1]

[1]Kotel'nikov Institute of Radio Engineering and Electronics RAS, Moscow, Moscow, Russian Federation, [2]Moscow Institute of Physics and Technology (State University), Dolgoprudny, Russian Federation, [3]ITMO University, St. Petersburg, Russian Federation

2EPo1E-10 [E49] **All-Optical Josephson Junctions for Superconducting Quantum Circuits**

Guilhem Ribeill[1], Matthew Ware[1], Brian Hassick[1], Andrew Wagner[1] and Tom Ohki[1]

[1]Raytheon BBN Technologies, Cambridge, Massachusetts, US

2EPo1E-11 [E50] **Measuring changes in inductance with micro-strip resonators**

Rupert Lewis[1], Michael Henry[3], Nancy Missert[2] and Michael Frank[4]

[1]Sandia National Labs, Albuquerque, New Mexico, US, [2]Sandia National Labs, Albuquerque, New Mexico, US, [3]Sandia National Labs, Albuquerque, New Mexico, US, [4]Sandia National Labs, Albuquerque, New Mexico, US

2LPo1A - Motors, Generators, and Rotating Machines [P II]: HTS Bulk
Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Tim Coombs, Cambridge University & Wei Wang, Sichuan University

2LPo1A-01 [L1] **Conceptual Design of an Axial Flux Machine with an High temperature Superconducting Tape Stacks Rotor**

Zhen Huang[1], Luning Hao[1] and Fangliang Dong[1]

[1]Shanghai Jiao Tong University, Shanghai, China

2LPo1A-02 [L2] **A Novel Double-Stator HTS Linear Vernier Generator for Direct Drive Marine Wave Energy Conversion**

You Zhou[1], Ronghai Qu[1], Yuting Gao[1], Dawei Li[1] and Chaojie Shi[1]

[1]Huazhong University of Science & Technology, Wuhan, Hubei, China

2LPo1A-03 [L3] **A Novel HTS Claw-Pole Vernier Machine Using Single Excitation Unit with Stationary Seal**

Xianglin Li[1], Shiyang Yu[1] and Yubin Wang[1]

[1]China University of Petroleum (East China), Qingdao, Shandong, China

2LPo1A-04 [L4] **Optimum design of basic unit cubic superconducting bulks integrated magnetic bearing.**

Kazuhito Yamagishi[1]

[1]Yokohama National University, Yokohama, Japan

2LPo1A-05 [L5] **A new superconducting motor topology using 2G tape stacks**

Fernando Dias[1], Guilherme Sotelo[2], Rubens de Andrade Jr.[3], Alexander Polasek[4], Felipe Costa[1] and Elkin Rodriguez[1]

[1]Federal University of Rio de Janeiro, Niterói, Brazil, [2]Fluminense Federal University, Niterói, Rio de Janeiro, Brazil, [3]Federal University of Rio de Janeiro, Rio de Janeiro, Rio de Janeiro, Brazil, [4]Electrical Energy Research Center, Rio de Janeiro, Rio de Janeiro, Brazil

2LPo1A-06 [L6] **Design of a high-performance superconducting modulated coaxial magnetic gear**

Libing Jing[1], Ronghai Qu[1], Yuting Gao[1] and Chaojie Shi[1]

[1]Huazhong University of Science &Technology, Wuhan, China

2LPo1A-07 [L7] **Long Term Rotation Test of a 5 kW-class HTS Induction/Synchronous Motor Cooled with Solid Argon and Small Amount of Liquid Nitrogen**

Kentaro Kuroda[1], Taketsune Nakamura[1] and Ryohei Nishino[1]

[1]Kyoto University, Kyoto, Japan

2LPo1A-08 [L8] **HTS axial flux permanent magnets electrical machine prototype: test and results**

Giuseppe Messina[1], Luigi Morici[1], Ferruccio Maierna[1] and Edoardo Tamburo De Bella[2]

[1]ENEA, Frascati (Rome), Italy, [2]University of Rome Tor Vergata, Rome, Italy

2LPo1A-09 [L9] **Research on an Asymmetric-primary Axis-flux Maglev Generator with superconducting excitation for the Wind Turbine**

Jing Liu[1] and Lei Huang[2]

[1]China University of petroleum, QingDao, ShanDong, China, [2]Southeast University, NanJing, China

2LPo1A-10 [L10] **Design and Comparison of Interior Permanent Magnet Synchronous Motors Using Different Bulk Superconductor Arrangements**

Yutaka Terao[1], Wataru Akada[1] and Hiroyuki Ohsaki[1]

[1]The University of Tokyo, Kashiwa, Chiba, Japan

2LPo1B - Magnet Stability, Magnetization Effects, AC Losses and Protection [P II]
Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Reinhard Heller, Karlsruhe Institute of Technology & Blandine Rozier, G2ELab

2LPo1B-01 [L11] **[Invited] Application of High Frequency AC Loss Power in Controlled Quench of High Temperature Superconducting Coils**

Kikelomo Ijagbemi[1,2], Patrick Noyes[1], Sastry Pamidi[3,2] and Eric Stiers[4]

[1]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [2]FAMU_FSU College of Engineering, Tallahassee, Florida, US, [3] Center for Advanced Power Systems, Tallahassee, Florida, US, [4]National High Magnetic Field Laboratory, Tallahassee, Florida, US

2LPo1B-02 [L12] **Increase of Thermal Stability due to Insulative High-thermal-conduction Plastic Sheets in Conduction-Cooled HTS Coils**

Tomoaki Takao[1], Taro Takano[1], Kazuya Kuboki[1] and Atsuhiko Yamanaka[2]

[1]Sophia University, Tokyo, Japan, [2]Nagoya University, Nagoya, Japan

2LPo1B-03 [L13] **Quench Protection of Insulated Wind and React HTS Tape Solenoids and Toroidal coils with large Diameters**

Michael Green[1] and Xinglong Guo[2]

[1]Lawrence Berkeley Laboratory, Berkeley, California, US, [2]Jiangsu University, Zhenjiang, China

2LPo1B-04 [L14] **Experimental Determination of AC Loss Components in Superconducting Composites**

Yifeng Yang[1]

[1]University of Southampton, Southhampton, United Kingdom

2LPo1B-05 [L15] *student paper contestant* **Reduction of Screening Current-induced field in a HTS Coil Wound by 2G Tapes with 1 mm width**

Mingyang Wang[1], Zhuyong Li[1], Zhiyong Hong[1] and Zhijian Jin[1]

[1]Shanghai Jiao Tong University, Shanghai, China

2LPo1B-06 [L16] **AC Loss Measurements of HTS Solenoid Coils Made of CORC® with Striations**

Seyeon Lee[1], Woo-Seok Kim[1], Ji-kwang Lee[2], Yungil Kim[3,1], Jun Ki Hong[1] and Kyeongdal Choi[1]

[1]Korea Polytechnic University, Siheung-si, Gyeonggi-do, Korea (the Republic of), [2]Woosuk University, Wanjoo-gun, Korea (the Republic of), [3]SuNAM, Ansung-si, Korea (the Republic of)

2LPo1B-07 [L17] **Influence of residual magnetization and temperature change on shielding magnetic flux density attenuation in conduction-cooled REBCO coil**

Makoto Tsuda[1], Jun Miyazaki[1], Masatoshi Kanamaru[1], Daisuke Miyagi[1], Hideaki Miura[2] and Shoichi Yokoyama[2]

[1]Tohoku University, Sendai, Miyagi, Japan, [2]Mitsubishi Electric corporation, Amagasaki, Japan

2LPo1B-08 [L18] **Minimum quench energy of a wind and react Bi-2212 coil in the temperature region 4.2 to 30 K immersed in either liquid helium, vapour or vacuum.**

Edward Young[1], Iole Falorio[1] and Yifeng Yang[1]

[1]Institute of Crygenics, Southampton, United Kingdom

2LPo1B-09 [L19] 2LPo1B-09 [L19]: **Acoustic quench detection for Bi-2212 racetrack coils**

Maxim Marchevsky[1], Eitan Hershkovitz[1], Tengming Shen[1], Kai Zhang[1], Daniel Davis[2] and Soren Prestemon[1]

[1]Lawrence Berkeley National Laboratory, Berkeley, California, US, [2]The National High Magnetic Field Laboratory, Tallahassee, Florida, US

2LPo1B-10 [L20] **Experimental Study on Quasi-isotropic Critical Current of a novel HTS Conductor with High Engineering Current Density**

Hao Chen[1], Yinshun Wang[1], Xi Yuan[1] and Yidan Hu[1]

[1]North China Electric Power University, Beijing, China

2LPo1C - Grid Study with Superconducting Devices [P I]

Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.

Moderators: Muhammad Junaid, Xi'an Jiaotong University & Philippe Masson, AML Superconducting and Magnetics

2LPo1C-01 [L21] **[Invited] Dynamic performance analysis of long-distance power transmission system with superconducting cable from large photovoltaic generation**

Kohei Higashikawa[1], Junichi Arai[2], Katsuhiko Harada[3], Tadashi Koshizuka[4], Jun Matsushima[5], Hisatoshi Ikeda[5], Noureddine Harid[6] and Ahmed Al-Durra[6]

[1]Kyushu University, Fukuoka, Japan, [2]Kogakuin University, Tokyo, Japan, [3]Kyushu Electric College, Fukuoka, Japan, [4]Tokyo Denki University, Tokyo, Japan, [5]The University of Tokyo, Tokyo, Japan, [6]Khalifa University of Science and Technology, Abu Dhabi, United Arab Emirates

2LPo1C-02 [L22&23] **[Invited] Integration of High Temperature Superconducting Power Cables into MVDC Power Systems for Navy Ships**

Peter Cheetham[1], Harsha Ravindra[1], Chul Kim[1], Lukas Graber[2], Michael Steuerer[1] and Sastry Pamidi[1,3]

[1]Florida State University, Tallahassee, Florida, US, [2]Georgia Institute of Technology, Atlanta, Georgia, US, [3]FAMU-FSU College of Electrical Engineering, Tallahassee, Florida, US

2LPo1C-03 [L24] **Impact of Smart HTS transmission cable to protection systems of the power grid in South Korea**

Eun Young Ko[1], Sangsoo Seo[1], Jeon Wook Cho[1] and Seung Ryul Lee[1]

[1]KERI, Uiwang-city, Gyeonggi-do, Korea (the Republic of)

2LPo1C-04 [L25] **Power Flow Analysis of a 10kV Distribution Network with HTS Power Cable**

Ziheng Hu[1], Jianping Liao[1], Bin Zhang[1], Peng Chen[1], Xuhui Xu[1], Yijun Wang[1], Bo Tan[1], Zhenwei Ma[1], Zhenzi Wang[1], Wei Wang[1] and Bangzhu Wang[1]

[1]Shenzhen Power Supply Bureau Co., Ltd, Shenzhen, Guangdong, China

2LPo1C-05 [L26] **Novel power system with superconducting cable with energy storage function for large-scale introduction of renewable energies**

Kohei Higashikawa[1] and Takanobu Kiss[1]

[1]Kyushu University, Fukuoka, Japan

2LPo1C-06 [L27] **Conceptual Design of High Temperature Superconducting Power Supply Network in Urban Central Area**

Fengshun Jiao[1]

[1]Shenzhen Power Supply CO., LTD, ShenZhen, China

2LPo1C-07 [L28] **Design of a 10-Mvar class HTS dynamic synchronous condenser prototype for China Southern Power Grid**

Peng Song[1], Timing Qu[1], Zhengjun Shi[2], Nan Hu[2], Meng Song[2], Yufan Yan[1], Yufan Li[1], Hui Mu[3], Longnian Li[4] and Chen Gu[5]

[1]Tsinghua University, Beijing, China, [2]Guangdong Power Grid Corporation, Guangdong, Guangzhou, China, [3]Graduate School at Shenzhen, Tsinghua University, Shenzhen, Guangdong, China, [4]Tsinghua University, Beijing, China, [5]Tsinghua University, Beijing, China

2LPo1D - Cables (HTS, LTS), CICC and Current Leads [P I]
Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Jerome Fleiter, CERN & Peng Gao, University of Twente

2LPo1D-01 [L29] **[Invited] Performance of 6 slots ENEA HTS cable under mechanical loads**

Nadezda Bagrets[1], Giuseppe Celentano[2], Angelo Vannozzi[2], Klaus-Peter Weiss[1], Michael Wolf[1] and Antonio della Corte[2]

[1]Karlsruher Institute of Technology, Eggenstein-Leopoldshafen, Germany, [2]ENEA, Frascati, Italy

2LPo1D-02 [L30] **Stability and current sharing studies in Rutherford and Roebel cables**

Edward Collings[1], Milan Majoros[1] and Mike Sumption[1]

[1]The Ohio State University, Columbus, Ohio, US

2LPo1D-03 [L31] **Experimental Study on Thermal Stability of a Geometrically Symmetrical Strand Fabricated by 2G Wires at 4.2 K**

Changtao Kan[1] and Yinshun Wang[1]

[1]North China Electric Power University, Beijing, China

2LPo1D-04 [L32] **The Influence of Pressure and Strain in an HTS Tape on it's Critical Current**

Jaakko Murtomaeki[1], Jeroen van Nugteren[2], Glyn Kirby[2], Antti Stenvall[1] and Lucio Rossi[3]

[1]Tampere University of Technology, Seinaejoki, Finland, [2]CERN, Geneva, Switzerland, [3]CERN, Geneva, Switzerland

2LPo1D-05 [L33] **Numerical Study on Transportation Characteristics of Superconducting Conductor on Round Core Cables**

Wenrong Li[1], Jie Sheng[1], Zhuyong Li[1], Michal Vojenčiak[2], Rifki Terzioğlu[2], Fedor Gömöry[2] and Zhiyong Hong[1]

[1]Shanghai Jiao Tong University, Shanghai, China, [2]Slovak Academy of Science, Bratislava, Slovakia

2LPo1D-06 [L34] **3D T-A formulation modelling on the AC losses and quench behaviour of high temperature superconductor CORC cable.**

Yawei Wang[1,2], Zixuan Zhu[2,1], Min Zhang[1,2] and Weijia Yuan[1,2]

[1]University of Strathclyde, Bath, United Kingdom, [2]University of Bath, BATH, United Kingdom

2LPo1D-07 [L35] **Evaluation of the structural characteristic of a Twisted Stacked-Tape Cable under high Lorentz loads using finite element analysis**

Federica Pierro[1], Zija Zhao[1], Luisa Chiesa[1] and Makoto Takayasu[2]

[1]Tufts University, Medford, Massachusetts, US, [2]MIT, Cambridge, Massachusetts, US

2LPo1D-08 [L36] **[Invited] The flexibility of CORC® cables and wires: Experiments and FE Modeling on simple configurations**

Anvar Abdulsalam[1,2], Kirill Ilin[1], Konstantin Yagotintsev[1], Binet Monachan[3,1], Ashok Balan[3,1], Bryan Kortman[1], Bas Pellen[1], Timothy Haugan[4], Jeremy Weiss[5], Danko van der Laan[5], Rijo Thomas[3], Md Shahriar Hossain[2,6] and Arend Nijhuis[1]

[1]University of Twente, Enschede, Overijssel, Netherlands, [2]University of Wollongong, Wollongong, New South Wales, Australia, [3]TKM college of Engineering, Kollam, Kerala, India, [4]US Air Force Research Laboratory, Wright Patterson AFB, Ohio, US, [5]Advanced Conductor Technologies and University of Colorado, Boulder, Colorado, US, [6]The University of Queensland, Brisbane, Queensland, Australia

2LPo1D-09 [L37] **Study on the Characteristics of HTS large Current Conductor**

Li Ren[1]

[1]Huazhong University of Science and Technology, Wuhan, Hubei, China

2LPo1D-10 [L38&39] **[Invited] Latest performance of CORC® wires for accelerators: Record in-field current densities beyond 400 A/mm² at 20 T**

Jeremy Weiss[1,2], Danko van der Laan[1,2], Dustin McRae[1,2], Hubertus Weijers[3], Dmytro Abraimov[3], David Larbalestier[3], Xiaorong Wang[4], Hugh Higley[4], Soren Prestemon[4], Tim Mulder[5,6], Herman ten Kate[5,6] and Ramesh Gupta[7]

[1]Advanced Conductor Technologies, Boulder, Colorado, US, [2]University of Colorado Boulder, Boulder, Colorado, US, [3]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [4]Lawrence Berkeley National Laboratory, Berkeley, California, US, [5]CERN, Geneva, Switzerland, [6]University of Twente, Enschede, Netherlands, [7]Brookhaven National Laboratory, Upton, New York, US

2LPo1E - Fault Current Limiters [P I]

Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.

Moderators: Qihuan Dong, University of Cambridge & Steffen Elschner, University of Applied Science Mannheim

2LPo1E-01 [L41&42] **[Invited] Influence of the type and thickness of the shunt and substrate on REBCO tapes with a current flow diverter architecture for fault current limitation in an HVDC grid**

Christian Lacroix[1] and Frederic Sirois[1]

[1]Polytechnique Montreal, Montreal, Quebec, Canada

2LPo1E-02 [L40] **A New Type of DC Superconducting Fault Current Limiter**

Ziqiang Wei[1], Ying Xin[1], Bo Tian[2], Chao Yang[1], Jianxi Lan[1] and Chunzhou Tang[1]

[1]Tianjin University, Tianjin, Tianjin, China, [2]Futong Group, Co., Tianjin, China

2LPo1E-03 [L43] **The parameter design and system simulation of 160kV/1kA resistive type superconducting DC fault current limiter**

Meng Song[1], Lianhong Zhong[2], Xinhui Duan[2] and Nan Hu[1]

[1]electric power research institute of guangdong power grid corporation, Guangzhou, China, [2]Guangdong Power Grid Corporation, Guangzhou, China

2LPo1E-04 [L44] **Study on the testing methods of current limiting capability for dc SFCL**

Bin Li[1], Changqi Wang[1], Ying Xin[1] and Ziqiang Wei[1]

[1]Tianjin University, Key Laboratory of Smart Grid of Ministry of Education, Tianjin, China

2LPo1E-05 [L45] **Application of superconducting fault current limiters in the multi-terminal HVDC system**

Qingqing Yang[1,2], Jianwei Li[3,1] and Fei Liang[1]

[1]University of Bath, Bath, United Kingdom, [2]Beijing Electric Power Research Institute, Beijing, Beijing, China, [3] Beijing Institute of Technology, Beijing, Beijing, China

2LPo1E-06 [L46] **Characterizations and AC losses measurements on 2G HTS tapes and small-scale bifilar pancake for HVDC SFCL applications in the framework of FASTGRID project.**

Guillaume Escamez[1], Giuliano Angeli[2], Massimo Ascade[2], Marco Bocchi[2], Valerio Rossi[2], Angelo Valzasina[2], Luciano Martini[2] and Christian-Eric Bruzek[1]

[1]Supergrid, Villeurbanne, France, [2]RSE, Milano, Italy

2LPo1E-07 [L47] **Development of pancake structured SFCL module for DC connected wind turbine generators**

Esraa F. Shaaban[1], Abdelwahab Hassan[1], Diaa-Eldin Mansour[1], Weijia Yuan[2] and Min Zhang[2]

[1]Tanta University, Tanta, Egypt, [2]University of Bath, Bath, United Kingdom

2LPo1E-08 [L48] **Short-circuit characteristic analysis of resistive superconducting fault current limiters for DC applications**

Dong Xia[1,2]

[1]Chinese Academy of Sciences, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China

2LPo1E-09 [L49] **Electromagnetic analysis and Optimized Design of a hybrid type DC Superconducting Fault Current Limiter**

Siyuan Liang[1], Yuejin Tang[1], Li Ren[1], Ying Xu[1], Zheng Li[1], Xiangyu Tan[1] and Zhongping Zhang[1]

[1]Huazhong University of Science and Technology, Wuhan City, Hubei Province, China

2LPo1E-10 [L50] **Analyze the fault current limitation and recovery characteristics of the SFCL applied to DC power system**

Byung-Ik Jung[2] and Hye-Won Choi[1]

[1]Chosun University, Gwangju, Korea (the Republic of), [2]Dongkang University, Gwang-ju, Korea (the Republic of)

2LPo1E-11 [L51] **Practical application of a DC reactor type superconducting fault current limiter and implementation of PHILS in DC grid**

JaeIn Lee[1], Changsoon Kim[1], Minwon Park[1] and In-Keun Yu[1]

[1]Changwon National University, Pohang, Korea (the Republic of)

2LPo1E-12 [L52] **Feasibility study of applying superconducting fault current limiters in Voltage Source Converter based HVDC (VSC-HVDC) systems**

R Cao[2], Bin Wang[3], Hangtian Lei[4] and Jianzhao Geng[1]

[1]University of Cambridge, Cambridge, United Kingdom, [2]China Southern Power Grid, Guangzhou, China, [3]Tsinghua University, Beijing, China, [4]University of Idaho, Moscow, Idaho, US

2LPo1F - Fault Current Limiters [P II]

Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.

Moderators: Steffen Elschner, University of Applied Science Mannheim & Seok-Cheol Ko, Kongju National University

2LPo1F-01 [L53] **A Novel Superconducting DC Circuit Breaker Control Logic**

Jun Xu[1], Huiyuan Zhang[1] and Hongwei Liu[1]

[1]North China Electric Power University, Beijing, Beijing, China

2LPo1F-02 [L54] **Design of an Inductive-Type DC SFCL Prototype**

Bin Li[1], Changqi Wang[1], Song Yang[1], Ying Xin[1] and Ziqiang Wei[1]

[1]Tianjin University, Key Laboratory of Smart Grid of Ministry of Education, Tianjin, Tianjin, China

2LPo1F-03 [L55] **Improvement of DC Current Limiting and Interrupting Operation of DC Circuit Breaker using Double Quench of SFCL**

Sang-Jae Choi[1], Hyeong-Jin Lee[1], Jaechul Kim[1] and Sung-Hun Lim[1]

[1]Soongsil University, Seoul, Korea (the Republic of)

2LPo1F-04 [L56] **A DC Superconducting Fault Current Limiter with Superconducting Split Reactor**

Zhifeng Zhang[1], Haonan Wang[1], QianQian Feng[1], Liye Xiao[1], GuoMin Zhang[1], Qingquan Qiu[1] and Liangzhen Lin[1]

[1]Institute of Electrical Engineering, CAS, Beijing, China

2LPo1F-05 [L57] **Effects of magnetic field on quench characteristics of DC resistive type superconducting fault current limiter**

Bin Xiang[1], Muhammad Junaid[1], Lei Gao[1], Zhiyuan Liu[1], Yingsan Geng[1] and Jianhua Wang[1]

[1]Xi'an Jiaotong University, China, Xi'an, Shaanxi, China

2LPo1F-06 [L58] **Analysis of the design and operation characteristics of the superconducting DC fault current limiter with fault current limitation and cut-off**

Hye-Won Choi[1], In-Sung Jeong[1], Sangyong Park[1], Hui-Seok Gu[1] and Hyo Sang Choi[1]

[1]Chosun University, Gwang-ju, Korea (the Republic of)

2LPo1F-07 [L59] **Analysis of Superconducting DC circuit breaker according to protection range of superconducting DC fault current limiter**

In-Sung Jeong[1], Hyo Sang Choi[1], Hye-Won Choi[1], Sangyong Park[1] and Hui-Seok Gu[1]

[1]Chosun University, Gwang-ju, Korea (the Republic of)

2LPo1F-08 [L60] **Characteristics of a Superconducting Fault Current Limiting Module as a Part of a DC Circuit Breaking System**

Seyeon Lee[1], Jooyeong So[1], Kyeongdal Choi[1], Ji-kwang Lee[2] and Woo-Seok Kim[1]

[1]Korea Polytechnic University, Siheung, Korea (the Republic of), [2]Woosuk University, Jeonju, Korea (the Republic of)

2LPo1F-09 [L61] **Optimization of the superconducting DC circuit breaker by selecting the proper reactance value**

Hui-Seok Gu[1], In-Sung Jeong[1], Hye-Won Choi[1], Sangyong Park[1] and Hyo Sang Choi[1]

[1]Chosun university, Gwangju, Korea (the Republic of)

2LPo1F-10 [L62] **Numerical study on the arc extinguishing of superconducting arc-induction type DC circuit breaker depending on the application of the superconductor magnet**

Sangyong Park[1], In-Sung Jeong[1], Hye-Won Choi[1], Hui-Seok Gu[1] and Hyo Sang Choi[1]

[1]CHOSUN UNIVERSITY, Gwangju, Korea (the Republic of)

2LPo1F-11 [L63] **Electromagnetic force analysis of the superconducting fault current limiter for DC applications**

Hongwei Liu[1]

[1]North China Electric Power University, Beijing, China

2LPo1G - Energy Storage [P I]

Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Woo-Seok Kim, Korea Polytechnic University & Antonio Morandi, University of Bologna

2LPo1G-01 [L64] **Numerical Analysis of a fully HTS Magnetic Bearing Under High-speed Operation**

Chang-Qing Ye[1], Guangtong Ma[1], Tianyong Gong[1], Zhaoying Yan[1] and Wenjiao Yang[1]

[1]Applied Superconductivity Laboratory, Chengdu, Sichuan, China

2LPo1G-02 [L65] **Considerations on Designing No-Insulation HTS Coil for GJ-class Superconducting Magnetic Energy Storage**

Jung Tae Lee[1], Jeong Hwan Park[1], Soo Bin An[1], Woo-Seok Kim[3], Hyun Hee Son[2], Jong Suk Ro[4], Haigun Lee[2], Kyeongdal Choi[3] and Seungyong Hahn[1]

[1]Seoul National University, Seoul, Korea (the Republic of), [2]Korea University, Seoul, Korea (the Republic of), [3]Korea Polytechnic University, Siheung, Gyeonggi-do, Korea (the Republic of), [4]Chungang University, Seoul, Korea (the Republic of)

2LPo1G-03 [L66] **Hybrid SMES/battery Energy Storage System for the Plug-in Electric Buses**

Jianwei Li[1], Hongwen He[1] and Rui Xiong[1]

[1] Beijing Institute of Technology, Beijing, China

2LPo1G-04 [L67] **A quantitative benefits study of the superconducting magnetic energy storage system hybridized with the battery**

Jianwei Li[1], Hongwen He[1] and Rui Xiong[1]

[1]Beijing Institute of Technology, Beijing, China

2LPo1G-05 [L68] **Multi-objective filter designing for HTS SMES considering the voltage distribution characteristic**

Meng Liao[1] and Jing Shi[1]

[1]Huazhong University of Science and Technology, Wuhan, Hubei, China

2LPo1G-06 [L69] **Optimal Sizing and Performance Evaluation of SMES-Battery Hybrid Energy Storage System for a High-Penetration Microgrid**

Lei Chen[1], Hongkun Chen[1], Guocheng Li[1], Huiwen He[2], Ying Xu[3] and Li Ren[3]

[1]Wuhan University, Wuhan, Hubei, China, [2]China Electric Power Research Institute, Wuhan, Hubei, China, [3]Huazhong University of Science and Technology, Wuhan, Hubei, China

2LPo1G-07 [L70] **Application of M-SMES Units in Microgrids Reconfiguration**

Lihui Zhang[1], Jing Shi[1], Yuanyuan Li[1], Xiao Zhou[1], Rongyu Su[1], Li Ren[1], Yuejin Tang[1] and Jingdong Li[1]

[1]Huazhong University of Science and Technology, Wuhan, China

2LPo1G-08 [L71] **Characteristics Analysis at High Speed of Asynchronous Axial Magnetic Coupler for Superconducting Flywheel Energy Storage System**

Wanjie Li[1,2], GuoMin Zhang[1], Liwang Ai[1,3], Guole Liu[1,3] and Zhiyuan Gao[1]

[1]INSTITUTE OF ELECTRICAL ENGINEERING, CHINESE ACADEMY OF SCIENCES, Beijing, China, [2] Xi'an XD Electrical Research Institute Co. Ltd., Xi'an, Shaanxi, China, [3]University of Chinese Academy of Sciences, Beijing, China

2LPo1G-09 [L72] **SMES Application to Enhance Transient Stability Performance: Controller Design and Capacity Estimation**

Hansang Lee[1], Chang Hee Han[2], Sung-Kwan Joo[2] and Gilsoo Jang[2]

[1]Semyung University, Jecheon, Korea (the Republic of), [2]Korea University, Seoul, Korea (the Republic of)

2LPo1H - Nb_3Sn Magnets for Next Generation Accelerators [P I]

Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Daniel Cheng, Lawence Berkeley National Lab & Susana Izquierdo Bermudez, CERN

2LPo1H-01 [L73] **[Invited] Production of the first 1-m long Canted-Cosine-Theta (CCT) model magnet at PSI**

Giuseppe Montenero[1], Bernhard Auchmann[2,1], Lucas Brouwer[3], Ciro Calzolaio[1], Shlomo Caspi[3], Felder Roland[1], Stéphane Sanfilippo[1] and Serguei Sidorov[1]

[1]Paul Scherrer Institut, Villigen, Switzerland, [2]CERN, Geneva, Switzerland, [3]LBNL, Berkeley, California, US

2LPo1H-02 [L74] **Nb_3Sn Racetrack Model Coils results**

Juan Carlos Perez[1], Susana Izquierdo Bermudez[1], Nicolas Bourcey[1], Marta Bajko[1], Philippe Grosclaude[1], Hugues Bajas[1], Paolo Ferracin[1], Bernardo Bordini[1], Jerome Feuvrier[1], Giorgio Vallone[1], Etienne Rochepault[2] and Michael Guinchard[1]

[1]CERN, Geneva, Switzerland, [2]CEA/SACLAY, Saclay, France

2LPo1H-03 [L75] **Construction and test of the enhanced Racetrack Model Coil, first CERN R&D magnet for the FCC**

Juan Carlos Perez[1], Susana Izquierdo Bermudez[1], Nicolas Bourcey[1], Manuel Francisco Garcia Perez[1], Philippe Grosclaude[1], Michael Guinchard[1], Hugues Bajas[1], Davide Tommasini[1] and Carlo Petrone[1]

[1]CERN, Geneva, Switzerland

2LPo1H-04 [L76] **Assembly and Tests of Mechanical Models of the 15 T Nb_3Sn Dipole Demonstrator**

Igor Novitski[1], Justin Carmichael[1], Steven Krave[1], Charles Orozco[1], Stoyan Stoynev[1] and Alexander Zlobin[1]

[1]Fermilab, Batavia, Illinois, US

2LPo1H-05 [L77] **The development of a short model of a cos-theta 16T dipole for FCC**

Alessandro Maria Ricci[1,3], Andrea Bersani[1], Barbara Caiffi[1], Pasquale Fabbricatore[1], Stefania Farinon[1], Samuele Mariotto[2], Alessandra Pampaloni[1], Massimo Sorbi[2] and Marco Statera[2]

[1]Istituto Nazionale di Fisica Nucleare, Genoa, Italy, [2]Istituto Nazionale di Fisica Nucleare, Milano, Italy, [3]Università degli Studi di Genova, Genova, Italy

2LPo1H-06 [L78] **The Use of Grading in High Field Block-Coil Dipoles**

Etienne Rochepault[2,1], Paolo Ferracin[1], Susana Izquierdo Bermudez[1], Clément Lorin[2] and Helene Felice[2]

[1]CERN, Genève 23, Switzerland, [2]CEA Paris-Saclay, Gif-Sur-Yvette, France

2LPo1H-07 [L79] **Design of the Beam Separation Dipole for Future Circular Collider**

Kento Suzuki[1], Tatsushi Nakamoto[1], Toru Ogitsu[1] and Michinaka Sugano[1]

[1]KEK, Tsukuba, Japan

2LPo1H-08 [L80] **Preliminary design of the recombination dipole for Future Circular Collider**

Alessandra Pampaloni[1], Andrea Bersani[1], Barbara Caiffi[1], Pasquale Fabbricatore[1], Stefania Farinon[1] and Alessandro Maria Ricci[1]

[1]INFN, Genoa, Italy

2LPo1J - Detector Magnets
Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderator: Andrea Bersani, INFN Genova

2LPo1J-01 [L81] **[Invited] Operation characteristics and longtime test results of no insulation 18T magnet for Axion research**

Jingeun Kim[1], DongLak Kim[1], Heejun Park[1], Jonghee Yoo[1,2] and Yannis Semertzidis[1,2]

[1]Institute for Basic Science, Daejeon, Korea (the Republic of), [2]KAIST, Daejeon, Korea (the Republic of)

2LPo1J-02 [L82] **Development of a novel ultra-thin and -transparent 2T superconducting detector solenoid for the Future Circular Collider**

Tobias Kulenkampff[1,4], Alexey Dudarev[1], Veronica Ilardi[1,3], Matthias Mentink[2], Helder Filipe Pais da Silva[1], Erwin Bielert[1] and Herman ten Kate[1,3]

[1]CERN, Ornex, France, [2]CERN, Meyrin, Switzerland, [3]University of Twente, Enschede, Netherlands, [4]Technical University of Vienna, Vienna, Austria

2LPo1J-03 [L83] **ReBCO tape based Superconducting Switches and Rectifier for charging high current magnets**

Alexey Dudarev[1], Nikolay Bykovskiy[1] and Herman ten Kate[1]

[1]CERN, Geneva, Switzerland

2LPo1J-04 [L84] **The eRHIC IR B0 Spectrometer Magnet**

Holger Witte[1], Brett Parker[1] and Robert Palmer[1]

[1]Brookhaven National Laboratory, Upton, New York, US

2LPo1J-05 [L85] **An Alternative eRHIC IR Sweet Spot B0 Spectrometer Magnet**

Brett Parker[1], Holger Witte[1] and Robert Palmer[1]

[1]Brookhaven National Laboratory, Upton, New York, US

2LPo1J-06 [L86] **Performance of the new ALPHA-G conduction cooled solenoid**

Cristian Boffo[1], Thomas Gerhard[1] and Hong Wu[1]

[1]Bilfinger Noell GmbH, Würzburg, Bayern, Germany

2LPo1J-07 [L87] **Design optimization of the superconducting detector magnet system for BabyIAXO**

Nikolay Bykovskiy[1], Alexey Dudarev[1] and Herman ten Kate[1]

[1]CERN, Geneva, Switzerland

2LPo1J-08 [L88] **Superconducting Detector Magnets Baseline Designs for Particle Physics Experiments at the Future Circular Collider**

Herman ten Kate[1], Erwin Bielert[1], Christophe Berriaud[2], Benoit Cure[1], Alexey Dudarev[1], Andrea Gaddi[1], Hubert Gerwig[1], Veronica Ilardi[1,3], Slava Klyukhin[1], Tobias Kulenkampff[1], Matthias Mentink[4] and Udo Wagner[4]

[1]CERN, Geneva, Switzerland, [2]CEA, Saclay, France, [3]University of Twente, Enschede, Netherlands, [4]CERN, Geneve, Switzerland

2LPo1K - Magnet Design and Analysis Techniques [P II]
Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Helene Felice, CEA - IRFU/SACM & Soren Prestemon, LBNL

2LPo1K-01 [L89] **3D finite element analysis of impregnated Rutherford cable stacks**

Francois Nunio[1], Pierre Manil[1] and Gilles Lenoir[1]

[1]CEA, Gif-Sur-Yvette cedex, Essonne, France

2LPo1K-02 [L90] **Advanced Screening Current Simulation of REBCO Pancake Coils Considering REBCO Tape Thickness**

So Noguchi[1], Hiroshi Ueda[2] and Atsushi Ishiyama[3]

[1]Hokkaido University, Sapporo, Japan, [2]Okayama University, Okayama, Japan, [3]Waseda University, Tokyo, Japan

2LPo1K-03 [L91] **Comparative Analyses of Quench Behaviors of MgB_2 Magnets Wound with Dry and Wet Winding Methods**

Seung Jae Hong[1], Jong Cheol Kim[1], Young-Gyun Kim[1], Hyun Hee Son[1] and Haigun Lee[1]

[1]Korea University, Seoul, Korea (the Republic of)

2LPo1K-04 [L92] **A Study on Stress-strain Characteristics of GdBCO Magnets with respect to Frictional Force between Superconducting Tapes**

Hyun Hee Son[1], Jong Cheol Kim[1], Young-Gyun Kim[1], Jimin Kim[1], Jung Tae Lee[2], Seungyong Hahn[2] and Haigun Lee[1]

[1]Korea University, Seoul, Korea (the Republic of), [2]Seoul National University, Seoul, Korea (the Republic of)

2LPo1K-05 [L93] **Mechanical Performance of a Superconducting 28 GHz Ion Source Magnet for FRIB**

Heng Pan[1], Diego Arbelaez[1], Helene Felice[2], Soren Prestemon[1], Ray Hafalia[1], Eduard Pozdeyev[3], Etienne Rochepault[4], Guillaume Machicoane[3], Xing Rao[3] and Mykola Omelayenko[3]

[1]Lawrence Berkeley National Laboratory, Berkeley, California, US, [2]French Atomic Energy Commission, Saclay, France, [3]FRIB, East Lansing, Michigan, US, [4]CERN, Geneva, Switzerland

2LPo1K-06 [L94] **STEAM: A versatile tool for simulating transients in superconducting magnets and circuits**

Emmanuele Ravaioli[1], Bernhard Auchmann[2,1], Lorenzo Bortot[1], Idoia Cortes Garcia[4], Alejandro Fernandez Navarro[3], Michal Maciejewski[1], Matthias Mentink[1], Marco Prioli[1], Sebastian Schöps[4], Edvard Stubberud[1] and Arjan Verweij[1]

[1]CERN, Geneva, Geneva, Switzerland, [2]PSI, Villigen, Switzerland, [3]CIEMAT, Madrid, Spain, [4]Technische Universität Darmstadt, Darmstadt, Germany

2LPo1K-07 [L95] **Design, Fabrication and Performance Verification of a 5 T EMPS Superconducting Magnet System**

Jae Young Jang[1], Young Jin Hwang[1], Myung Su Kim[1] and Yeon Suk Choi[1]

[1]Korea Basic Science Institute, Daejeon, Korea (the Republic of)

2LPo1K-08 [L96] **A Study on Distributed Network Model to Simulate Post-Quench Behaviors of NI HTS Magnets**

Mincheol Cho[1], Kijin Han[3], So Noguchi[4], Jeseok Bang[1], Jaemin Kim[1], Uijong Bong[1], Soo Bin An[1], Kabindra Bhattarai[2], Kwangmin Kim[2], Kwang Lok Kim[2] and Seungyong Hahn[1,2]

[1]Seoul National Univ., Seoul, Korea (the Republic of), [2]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [3]Dongguk University, Seoul, Korea (the Republic of), [4]Hokkaido University, Sapporo, Japan

2LPo1K-09 [L97] **Design of Target Superconducting Magnet for EMuS Experiment at CSNS**

Zhilong Hou[1]

[1]Institute of High Energy Physics Chinese Academy of Sciences, Beijing, China

2LPo1K-10 [L98] **Magnetic lens effect analysis of high temperature superconductors by finite element software**

Donghui Jiang[1], Guihong Zou[1], Zhiyou Chen[1], Xinxing Qian[1], Wenge Chen[1] and Guangli Kuang[1]

[1]The High Magnetic Field Laboratory of the Chinese Academy of Sciences, Hefei, Anhui, China

2LPo1K-11 [L99] **Manufacture of a 7.5 M Long Cryogen-Free Magnet System for Neutron Decay Studies**

Jeremy Good[1] and Roger Mitchell[1]

[1]Cryogenic Ltd, London, United Kingdom

2MPo1A - Artificial Structures, Thin Films, and Multilayers [P I]
Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Qiang Li, Brookhaven National Lab & Francesco Rizzo, ENEA

2MPo1A-01 [M1] **Y-211 nanowires produced by Solution Blow Spinning (SBS) and their properties as flux pinning centers**

Maycon Rotta[1,2], Devendra Namburi[3], Alexsander Pessoa[1], Claudio Carvalho[1], Yunhua Shi[3], John Durrell[3], David Cardwell[3] and Rafael Zadorosny[1]

[1]São Paulo State University (UNESP), Ilha Solteira, São Paulo, Brazil, [2]Instituto federal de Ciencia e Tecnologia do Mato Grosso do Sul, Três Lagoas, Mato Grosso do Sul, Brazil, [3]University of Cambridge, Cambridge, United Kingdom

2MPo1A-02 [M2] **Structure and electromagnetic properties for B-doped Q-carbon thin films prepared by magnetron sputtering**

Jie Zhang[1]

[1]southwest jiaotong university, Chengdu, Sichuan, China

2MPo1A-03 [M3] **Pulsed laser deposition emulation of high-throughput chemical solution deposition processes of $YBa_2Cu_3O_{7-\delta}$**

Max Sieger[1], Laia Soler[1], Júlia Jareño[1], Juri Banchewski[1], Roger Guzman[1], Bernat Mundet[1], Xavier Obradors[1] and Teresa Puig[1]

[1]Institut de Ciència de Materials de Barcelona (ICMAB-CSIC), Bellaterra, Barcelona, Spain

2MPo1A-04 [M4] **Role of columnar defect size on angular dependent flux pinning in YBCO thin films**

Moe Aye[1,2], Mukarram Khan[1], Jussi Tikkanen[1], Hannu Huhtinen[1] and Petriina Paturi[1]

[1]University of Turku, Turku, Finland, [2]University of Yangon, Yangon, Myanmar

2MPo1A-05 [M5] **Improving the flux pinning in YBCO films on IBAD-MgO based template with artificial BCO nanodots and correlated dislocations**

Mukarram Khan[1], Yue Zhao[2], Xiang Wu[3], Hannu Huhtinen[1] and Petriina Paturi[1]

[1]University of Turku, Turku, Finland, [2]Shanghai Jiao Tong University, Shanghai, China, [3]Shanghai Superconductor Technology Co. Ltd., Shanghai, China

2MPo1A-06 [M6] **Magnetization and Levitation Characteristics of HTS Sheets in Small Gradient Magnetic Field**

Wenjiang Yang[1], Yu Ji[1], Mao Ye[1] and Xiaodong Li[1]

[1]School of Astronautics, Beihang University, Beijing, P.R. China, Beijing, China

2MPo1A-07 [M7] **Experimental Approach on the Leakage Current Characteristics for the Accurate Electrical Conductivity Measurement of PPLP**

Ik-Soo Kwon[1] and Bang-Wook Lee[1]

[1]Hanyang University, Ansan, Korea (the Republic of)

2MPo1A-08 [M8] **XRD study of MOD-YBCO film with or without APC**

Antonella Mancini[1], Laura Piperno[2], Achille Angrisani Armenio[1], Valentina Pinto[1], Angelo Vannozzi[1], Giuseppe Celentano[1], Alessandro Rufoloni[1], Andrea Augieri[1], Francesco Rizzo[1], Valentina Galluzzi[1] and Fabio Fabbri[1]

[1]ENEA, Frascati, ITALY, Italy, [2]Università Roma Tre, Rome, Italy

2MPo1A-09 [M9] **Survey of the Effects of Different Pinning Systems on the Angular Transport Current Behavior in YBCO Thin Films**

Michael Susner[1], Mary Ann Sebastian[1] and Timothy Haugan[1]

[1]Air Force Research Laboratory, Kettering, Ohio, US

2MPo1A-10 [M10] **Fabrication of $Y_1Ba_2Cu_3O_{7-d}$ films using Trifluoroacetates on YSZ substrates**

Luis Camacho Urbina[1]

[1]Universidad Nacional Mayor de San Marcos, Lima, Peru

2MPo1B - Critical Current and Flux Pinning [P II]
Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Marco Bonura, University of Geneva & Boris Maiorov, LANL

2MPo1B-01 [M11] **Current flow and flux pinning properties of YBCO foam struts**

Michael Koblischka[1], Alex Wiederhold[1], Anjela Koblischka-Veneva[1], Kévin Berger[2], Bruno Douine[2] and E.S. Reddy[3]

[1]Saarland University, Saarbruecken, Germany, Germany, [2]Universite de Lorraine, Vandoeuvre-les-Nancy Cedex, France, [3]ACCESS, Aachen, Germany

2MPo1B-02 [M12] **Introduction of atom-replaced pins into Y-based superconductor — Single-crystalline perovskite structure including both $PrBa_2Cu_3O_{7-x}$ and $YBa_2Cu_3O_{7-y}$ —**

Mariko Hayashi[1], Takeshi Araki[1], Hirotaka Ishii[1], Gen Nishijima[2], Akiyoshi Matsumoto[2], Takeharu Kato[3], Daisaku Yokoe[3] and Ryuji Yoshida[3]

[1]Toshiba Corporation, Kawasaki, Japan, [2]National Institute for Materials Science, Tsukuba, Japan, [3]Japan Fine Ceramics Center, Nagoya, Japan

2MPo1B-03 [M13] **Magnetic vortex pinning in $YBa_2Cu_3O_{7-x}$ nanocomposite thin films using $CoFe_2O_4$@$BaTiO_3$ magneto-electric core-shell nanoparticles**

Traian Petrisor[1], Mircea Nasui[1], Amalia Mesaros[1], Ramona Mos[1], Mihai Gabor[1], Abhignyan Nagesetti[2], Sakhrat Khizroev[2], Lelia Ciontea[1] and Traian Petrisor[1]

[1]Technical University of Cluj-Napoca, Cluj-Napoca, Romania, [2]Florida International University, Miami, Florida, US

2MPo1B-04 [M14] **Combination of different types of pinning mechanisms for performance enhancements in (RE^1, RE^2, RE^3, RE^n)$Ba_2Cu_3O_{7-\delta}$ superconducting nanocomposite films**

Pablo Cayado[1], Mayraluna Lao[1], Manuela Erbe[1], Jens Hänisch[1] and Bernhard Holzapfel[1]

[1]Karlsruhe Institute Of Technology (KIT), Karlsruhe, Baden-Württemberg, Germany

2MPo1B-05 [M15] **Critical Currents and Vortex Dynamics in Fractal Superconducting Structures**

Yuri Kuzmin[1]

[1]Ioffe Physical Technical Institute of RAS, Saint Petersburg, Russian Federation

2MPo1B-06 [M16] **Modelling the Critical Current of Surfaces and Grain Boundaries in Superconducting Films at High Magnetic Fields**

Alexander Blair[1] and Damian Hampshire[1]

[1]Durham University, Durham, Durham, United Kingdom

2MPo1B-07 [M17] **Vortex pinning and flux flow microwave studies of coated conductors**

Nicola Pompeo[1], Andrea Alimenti[1], Kostiantyn Torokhtii[1], Antonella Mancini[2] and Enrico Silva[1]

[1]Università Roma Tre, Roma, Italy, [2]Italian National Agency for New Technologies Energy and Sustainable Economic Development (ENEA), Frascati, Italy

2MPo1B-08 [M18] **Field-induced anisotropy in Nb films with different thicknesses**

Fabiano Colauto[1], Danusa Carmo[1,2], Antônio Marcos de Andrade[3], Ana M. Oliveira[4], Wilson Ortiz[1], Yuri Galperin[5] and Tom Johansen[5]

[1]Federal University of Sao Carlos, Sao Carlos, Sao Paulo, Brazil, [2]Brazilian Center for Research in Energy and Materials, Campinas, Sao Paulo, Brazil, [3]Federal University of Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, Brazil, [4] Federal Institute of Education, Science and Technology of São Paulo, Sao Carlos, Sao Paulo, Brazil, [5]University of Oslo, Oslo, Norway

2MPo1B-09 [M19] **Longitudinal Magnetic Field Effects on REBCO Coated Conductors with BHO Nanoparticles Fabricated by UTOC-TFA-MOD Process**

Tatsunori Okada[1], Hidenori Misaizu[1], Satoshi Awaji[1], Koichi Nakaoka[2], Takato Machi[2], Teruo Izumi[2] and Masashi Miura[3]

[1]Tohoku University, Sendai, Japan, [2]National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan, [3]Seikei University, Tokyo, Japan

2MPo1B-10 [M20] **Flux Pinning at Grain Boundaries in $SmBa_2Cu_3O_y$ Bicrystalline Films at High Field and Low Temperature**

Yuji Tsuchiya[2], Junya Akita[2], Yusuke Ichino[2], Tatsunori Okada[1], Satoshi Awaji[1], Kaname Matsumoto[3] and Yutaka Yoshida[2]

[1]Tohoku university, Sendai, Miyagi, Japan, [2]Nagoya University, Nagoya, Japan, [3]Kyushu Institute of Technology, Kitakyushu, Japan

2MPo1B-11 [M21] **Comparison between YBCO coated conductor and Bi-2223 tape samples in I_c at different temperatures and magnetic fields**

Ying Xin[1] and Qian Dong[2]

[1]Tianjin University, Tianjin, Tianjin, China, [2]Tianjin University, Tianjin, Tianjin, China

2MPo1C - Critical Current and Flux Pinning [P III]
Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Alok Jha, Kyushu Institute of Technology & Francesco Rizzo, ENEA

2MPo1C-01 [M22] **Evaluations of local current transport characteristics of REBCO coated conductors by use of combination of reel-to-reel in-field magnetization measurement and site-specified four probe measurements up to 24 T of external magnetic fields**

Takumi Suzuki[1], Taiki Mori[1], Syunsuke Omura[1], Shohei Noda[1], Yuki Yamauchi[1], Kohei Higashikawa[1], Masayoshi Inoue[1], Tatsunori Okada[2], Satoshi Awaji[2], Wataru Hirata[3], Shinji Fujita[3], Yasuhiro Iijima[3] and Takanobu Kiss[1]

[1]Kyushu University, Fukuoka, Japan, [2]Tohoku University, Sendai, Japan, [3]Fujikura Ltd., Sakura, Japan

2MPo1C-02 [M23] **Ion Beam Surface Modification of Film Grown by Trifluoroacetic Metal-organic Deposition Method**

Sansheng Wang[1], Fang Li[1] and Xiaoyun Le[1]

[1]Beihang University, Beijing, Beijing, China

2MPo1C-03 [M24] **Molecular dynamics simulation of vortex motion in anisotropic superconductors with artificial pinning sites**

Petriina Paturi[1], Mika Malmivirta[1], Teemu Hynninen[1] and Hannu Huhtinen[1]

[1]University of Turku, Turku, Finland

2MPo1C-04 [M25] **Variable Temperature Transport Current Measurements on ReBCO Coated Conductors**

Ashleigh Francis[1], Dmytro Abraimov[1], Youri Viouchkov[1] and David Larbalestier[1]

[1]Florida State University, Tallahassee, Florida, US

2MPo1C-05 [M26] **Improvement of in-field superconducting properties of YGBCO films grown by PLD**

Linfei Liu[1], Wei Wang[1], Yanjie Yao[1], Xiang Wu[2], Saidan Lu[1] and Yijie Li[1,2]

[1]Shanghai Jiao Tong University, Shanghai, Shanghai, China, [2]Shanghai Superconductor Technology Co., Shanghai, Shanghai, China

2MPo1C-06 [M27] **Experimental Study on Magnetic Field Dependence of Critical Current for a Soldered-Stacked-Square (3S) HTS Wire with 1 mm Width**

Zhuyong Li[1], Jianwen Zhang[1], Y.S. Luo[2], L Li[2], Song Meng[2], Zhiyong Hong[1] and Zhijian Jin[1]

[1]Shanghai Jiao Tong University, Shanghai, China, [2]Electric Power Research Institute, Guangdong Power Grid Corporation, Guangzhou, China

2MPo1C-07 [M28] **Modification of pinning in $YBa_2Cu_3O_7$ for superconducting applications**

Antony Jones[1,2], Simon Lam[2], Jia Du[2] and Alexey Pan[1]

[1]Institute of Superconducting and Electronic Materials, Wollongong, New South Wales, Australia, [2]CSIRO Manufacturing, Sydney, New South Wales, Australia

2MPo1C-08 [M29] **The effect of the Ba/Y ratio on critical current density in TFA-MOD $(Y_{0.77},Gd_{0.23})Ba_2Cu_3O_y$+$BaHfO_3$ CCs**

Kazuki Shimizu[1], Junya Kawanami[1], Michio Sato[1], Masashi Miura[1], Koichi Nakaoka[2] and Teruo Izumi[2]

[1]Seikei University, Yokohama, Japan, [2]AIST, Tsukuba, Japan

2MPo1C-09 [M30] **The magnetic properties of several HTS GdBCO coated conductors**

Kyu Jeong Song[1], Gi Ppeum Choi[1], Byung Du Park[1], Ji Cheon Lim[1] and Chan Park[2]

[1]Chonbuk National University, Jeonju, Korea (the Republic of), [2]Seoul National University, Seoul, Korea (the Republic of)

2MPo1C-10 [M31] **Critical current measurement at 4.2 K in parallel field on various commercial REBCO conductors**

Kiyosumi Tsuchiya[1], Akihiro Kikuchi[2], Mio Uchida[3], Miki Nishioka[3], Xudong Wang[1], Akio Terashima[1], Tomoaki Takao[3], Ataru Ichinose[4] and Hidetoshi Oguro[5]

[1]High Energy Accelerator Research Organization, KEK, Tshukuba, Japan, [2]National Institute for Materials Science, NIMS, Tsukuba, Japan, [3]Sophia University, Tokyo, Japan, [4]Central Research Institute of Electric Power Industry, CRIEPI, Yokosuka, Japan, [5]Tokai University, Hiratsuka, Japan

2MPo1C-11 [M32] **Method for judging Current-carrying capacity of HTS tapes in 50Hz AC condition**

Dongsheng Pu[1], Li Ren[1], Ying Xu[1], Guilun Chen[1], Jingdong Li[1] and Pengfei Li[1]

[1]Huazhong University of Science and Technology, Wuhan, Hubei, China

2MPo1C-12 [M33] **Influence of Pulsed Laser Deposition Temperature on the Microstructure and the Flux Pinning Landscape of $BaHfO_3$ and Y_2O_3 Double Doped $YBa_2Cu_3O_{7-\delta}$ Thin Films**

Mary Ann Sebastian[1,2], Bibek Gautam[3], Charles Ebbing[1,2], Michael Susner[2,4], Wenrui Zhang[5], Jijie Huang[5], Haiyan Wang[5], Shihong Chen[3,6], Judy Wu[3] and Timothy Haugan[2]

[1]University of Dayton Research Institute, Wright Patterson AFB, Ohio, US, [2]Air Force Research Laboratory, Wright Patterson AFB, Ohio, US, [3]University of Kansas, Lawrence, Kansas, US, [4]UES, Inc., Dayton, Ohio, US, [5]Purdue University, West Lafayette, Indiana, US, [6]Nanjing University, Nanjing, Jiangsu, China

2MPo1D - Ancillary Materials for Superconducting Applications
Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Boris Maiorov, LANL & Tengming Shen, LBNL

2MPo1D-01 [M34] **Temperature Dependence of the Surface Flashover Voltage of Solid Insulation Martials in Pressurized Helium Gas Cooled Superconducting Devices**

Aws Al-Taie[1,2], Peter Cheetham[2], Chanyeop Park[3], Jia Wei[3], Chul Kim[2], Lukas Graber[3] and Sastry Pamidi[1,2]

[1]Florida State University, Tallahassee, Florida, US, [2]Florida State University, Tallahasee, Florida, US, [3]Georgia Institute of Technology, Atlanta, Georgia, US

2MPo1D-02 [M35] **Electrical Insulation Characteristics of PPLP for HTS Power Cable at Helium**

Chang Peng[2], Shaotao Dai[1] and Yinshun Wang[2]

[1]Beijing Jiaotong University, Beijing, China, [2]North China Electric Power University, Beijing, China

2MPo1D-03 [M36] **Evaluation on Properties of YBCO tapes insulated by Electrocoating**

Han Zhang[1], Ye Yang[1], Liang Bai[1], Xiao Zhang[1], Mingwei Kuang[1] and Jian Tang[1]

[1]Dongfang Electric Corporation, Chengdu, Sichuan, China

2MPo1D-04 [M37] **Study of Turn-to-Turn Electrical Breakdown for Superconducting Fault Current Limiter Applications**

Raphaël Chassagnoux[1,2], Olivier Lesaint[2], Olivier Gallot-Lavallée[2], Nelly Bonifaci[2], Sébastien Flury[2], Jean-Luc Palenzuela[2], Pierre Legendre[1], Guillaume Escamez[1], Christophe Creusot[1] and Alain Girodet[1]

[1]SuperGrid Institute SAS, Villeurbanne, France, [2]Univ. Grenoble Alpes, CNRS, Grenoble INP, G2Elab, Grenoble, France

2MPo1D-05 [M38] **Particle-Initiated Surface Flashover Characteristics of Ribbed Insulator in Cryogenic Environment**

Jae-Hong Koo[1], Dong-Hun Oh[1], Tae-Hyun Kim[1] and Bang-Wook Lee[1]

[1]Hanyang University, Ansan, Korea (the Republic of)

2MPo1D-06 [M39] **Characteristics of DC Partial Discharge Inception and Breakdown Voltage regarding Voids of GFRP in Liquid Nitrogen**

Dong-Hun Oh[1], Jae-Hong Koo[1], Mansoor Asif[1] and Bang-Wook Lee[1]

[1]Hanyang University, Ansan, Korea (the Republic of)

2MPo1D-07 [M40] **Thermomechanical properties of polymers for use in superconducting magnets**

Christian Scheuerlein[1], Friedrich Lackner[1], Frederic Savary[1], Birgit Rehmer[2], Patrick Uhlemann[2] and Christian Meyer[2]

[1]CERN, Geneva, Switzerland, [2]Federal Institute for Materials Research and Testing, Berlin, Germany

2MPo1D-08 [M41] **Yielding and strain-hardening of reinforcement materials**

Ke Han[1], Jun Lu[1] and Vince Toplosky[1]

[1]National High Magnetic Field Laboratory, Tallahassee, Florida, US

2MPo1D-09 [M42] **2G HTS Racetrack Coil Protection Using Smart Switching Feature of V_2O_3**

Hyung-Wook Kim[1], Young-Sik Jo[1], Seog-Whan Kim[1], Doohun Kim[2] and Jin Hur[3]

[1]Korea Electrotechnology Research Institute, Changwon-si, Gyeongsangnam-do, Korea (the Republic of), [2]Korea Electrotechnology Research Institute, Changwon-si, Korea (the Republic of), [3]Incheon National University, Incheon, Korea (the Republic of)

2MPo1D-10 [M43] **Effects of Iron Diffusion Barrier on Magnetic Field Characteristics of MgB_2 Magnets**

Jiman Kim[1,2], Jong Cheol Kim[1], Young-Gyun Kim[1], Hyun Hee Son[1] and Haigun Lee[1]

[1]Korea University, Seoul, Korea (the Republic of), [2]Kiswire Advanced Technology Co., Ltd., Daejeon, Korea (the Republic of)

2MPo1E - Pnictides, Fe-Chalcogenides and New Emerging Materials [P I]
Exhibit Hall & Poster Sessions; 8:45 a.m. - 10:45 a.m.
Moderators: Andrea Masi, Università degli Studi di Roma Tre & Tsuyoshi Tamegai, The University of Tokyo

2MPo1E-02 [M44] **Fabrication of FeSe superconductors with high-energy ball milling aided sintering technique**

Shengnan Zhang[1], Jianqing Feng[1], Jixing Liu[1,3], Botao Shao[1,2], Chenshan Li[1], Xiaobo Ma[1] and Pingxiang Zhang[1]

[1]Northwest Institute for Nonferrous Metal Research, Xi'an, Shaanxi, China, [2]Xi'an University of technology, Xi'an, Shaanxi, China, [3]Northeast University, Shenyang, Liaoning, China

2MPo1E-03 [M45] **J_c enhancement in $FeSe_{0.5}Te_{0.5}$ films by isotropic defects produced by Au-ion irradiation**

Toshinori Ozaki[1,2], Lijun Wu[2], Weidong Si[2], Cheng Zhang[2] and Qiang Li[2]

[1]Kwansei Gakuin University, Sanda, Hyogo, Japan, [2]Brookhaven National Laboratory, Upton, New York, US

2MPo1E-05 [M46] **Structural Domains and Intrinsic Pinning in Ni-substituted Single Crystal $Ba(Fe_{1-x}Ni_x)_2As_2$**

Michael Susner[1], Gabriel Bioletti[2], Timothy Haugan[1] and Shen Chong[2]

[1]Air Force Research Laboratory, Wright-Patterson Air Force base, Ohio, US, [2]Victoria University of Wellington, Wellington, New Zealand

2MPo1E-06 [M47] **Single Crystal Growth and Doping of Possible Chromium Analogues to Fe-based Superconductors**

Michael Susner[1], Shen Chong[2], Thomas Bullard[1] and Timothy Haugan[1]

[1]Air Force Research Laboratory, Kettering, Ohio, US, [2]Victoria University of Wellington, Wellington, New Zealand

2MPo1E-07 [M48] **Compositional variations and impurity segregations in K-/Co-doped $BaFe_2As_2$ fine-grain polycrystalline bulks**

Fumitake Kametani[1], Yi-Feng Su[2], Yesusa Collantes[1], Taylor Shelby[1], Temidayo Abiola Oloye[1], Gianmarco Bovone[1], Chiara Tarantini[1], Eric Hellstrom[1] and David Larbalestier[1]

[1]National High Magnetic Field Laboratory, Florida State University, Tallahassee, Florida, US, [2]National High Magnetic Field Laboratory, Tallahassee, Florida, US

2MPo1E-08 [M49] **Effect of excess Fe in $Fe_{1+d}Te_{0.6}Se_{0.4}$ on the flux pinning**

Osuke Miura[1]

[1]Tokyo metroplolitan university, Hachioji, Tokyo, Japan

2MPo1E-09 [M50] **Combined effect of sintering duration and quenching in enhancing FeSe superconducting properties**

Ahmadou Ka[1], Muralidhar Miryala[1], Masato Murakami[1], Sai Srikanth Arvapalli[1] and Sreejith PK[1]

[1]Shibaura institute of technology, Koto-ku, Tokyo, Japan

2MPo1E-10 [M51] **Weak or strong anisotropy in Fe(Se,Te) superconducting films made of a layered iron-based material?**

Gaia Grimaldi[1], Antonio Leo[2,1], Angela Nigro[2,1], Nadia Martucciello[1], Valeria Braccini[3], Emilio Bellingeri[3], Carlo Ferdeghini[3] and Sandro Pace[2,1]

[1]CNR, Fisciano, Salerno, Italy, [2]University of Salerno, Fisciano, Salerno, Italy, [3]CNR , Genova, Italy

2EOr1A - TES Workshop: Analysis and Calibration of Microcalorimeter Data
611-612; 10:45 a.m. - 12:15 p.m.
Moderators: Sebastian Kempf, Kirchhoff-Institute for Physics & Ilari Maasilta, University of Jyvaskyla

10:45 a.m. - 11:00 a.m. 2EOr1A-01: **Maximizing TES performance in photon-rich environments through continuously variable-length records and crosstalk mitigation algorithms**

Joseph Fowler[1], Bradley Alpert[1], W. Bertrand Doriese[1], Kelsey Morgan[1], Galen O'Neil[1], Joel Ullom[1] and Daniel Swetz[1]

[1]National Institute of Standards and Technology, Boulder, Colorado, US

11:00 a.m. - 11:15 a.m. 2EOr1A-02: **Energy calibration of high-resolution X-ray TES microcalorimeters with 3eV optical photons**

Felix Jaeckel[1], Conjeepuram Ambarish[1], Rachel Gruenke[1], Kari Kripps[1], Dan McCammon[1], Mackenzie Meyer[1], Avirup Roy[1], Dallas Wulf[1], Joseph Adams[2], Simon Bandler[2], James Chervenak[2], Aaron Datesman[2], Megan Eckart[2], Audrey Ewin[2], Fred Finkbeiner[2], R. Kelley[2], Caroline Kilbourne[2], Antoine Miniussi[2], F. Porter[2], John Sadleir[2], Kazuhiro Sakai[2], Stephen Smith[2], Nicholas Wakeham[2], Edward Wassell[2] and Wonsik Yoon[2]

[1]University of Wisconsin, Madison, Wisconsin, US, [2]NASA Goddard Space Flight Center, Greenbelt, Maryland, US

11:15 a.m. - 11:30 a.m. 2EOr1A-03: **Construction of response function of TES X-ray microcalorimeter for STEM-EDS**

Tasuku HAYASHI[1], Haruka Muramatsu[1], Keisei Maehisa[1], Noriko Yamasaki[1], Kazuhisa Mitsuda[1], Keisuke Maehata[3] and Toru Hara[2]

[1]ISAS, Sagamihara, Kanagawa Prefecture, Japan, [2]NIMS, Tsukuba, Japan, [3]Kyushu University, Hukuoka, Japan

11:30 a.m. - 11:45 a.m. 2EOr1A-04: **Accurate calibration of TES microcalorimeter array x-ray spectrometers**

Galen O'Neil[1], Luis Miaja-Avila[1], Daniel Swetz[1], Joel Ullom[1], Young Il Joe[1], Daniel Schmidt[1] and Kelsey Morgan[1]

[1]NIST, Boulder, Colorado, US

11:45 a.m. - 12:00 p.m. 2EOr1A-05: **Extended line-spread function of TES microcalorimeters with Au/Bi absorbers**

Megan Eckart[1], Joseph Adams[1,2], Simon Bandler[1], James Chervenak[1], Aaron Datesman[1,3], Fred Finkbeiner[1,4], R. Kelley[1], Caroline Kilbourne[1], Maurice Leutenegger[1,2], Antoine Miniussi[1,2], Samuel Moseley[1,5], F. Porter[1], John Sadleir[1], Kazuhiro Sakai[1,2], Stephen Smith[1,2], Nicholas Wakeham[1,6], Edward Wassell[1,3] and Wonsik Yoon[1,7]

[1]NASA/GSFC, Greenbelt, Maryland, US, [2]University of Maryland, Baltimore County, Baltimore, Maryland, US, [3]KBRwyle, Lexington Park, Maryland, US, [4]Sigma Space Corporation, Lanham, Maryland, US, [5]Adnet Systems, Inc., Bethesda, Maryland, US, [6]Universities Space Research Association, Columbia, Maryland, US, [7]ASRC, Laurel, Maryland, US

12:00 p.m. - 12:15 p.m. 2EOr1A-06: **Correction of non-ideal effects in X-ray spectra using TES calorimeters in synchrotron beamlines**

Sang Jun Lee[1], Charles Titus[2], Dale Li[1], Bradley Alpert[3], Dan Becker[4,3], Douglas Bennett[3], Hsiao-Mei Cho[1], W. Bertrand Doriese[3], Johnathon Gard[4,3], Gene Hilton[3], Joseph Fowler[3], Vincent Kotsubo[3], Jun-Sik Lee[1], Galen O'Neil[4,3], Carl Reintsema[3], Daniel Schmidt[3], Daniel Swetz[3], Leila Vale[3], Joel Ullom[3,4], Kent Irwin[1,2]and Dennis Nordlund[1]

[1]SLAC National Accelerator Laboratory, Menlo Park, California, US, [2]Stanford University, Stanford, California, US, [3]National Institute of Standards and Technology, Boulder, Colorado, US, [4]University of Colorado, Boulder, Colorado, US

2EOr1B - Digital Logic
602-604; 10:45 a.m. - 12:15 p.m.
Moderators: Paul Dresselhaus, NIST & Timur Filippov, HYPRES, Inc

10:45 a.m. - 11:15 a.m. 2EOr1B-01: **[Invited] Scalability demonstrations of RQL logic for energy-efficient computing**

Quentin Herr[1] and Anna Herr[1]

[1]Northrop Grumman, Ellicott City, Maryland, US

11:15 a.m. - 11:30 a.m. 2EOr1B-02: **Phase Mode Logic (PML)**

Alexander Braun[1]

[1]Northrop Grumman, Linthicum, Maryland, US

11:30 a.m. - 11:45 a.m. 2EOr1B-03: **Design and Implementation of a Low-Power Area-Efficient Adiabatic-Quantum-Flux-Parametron FPGA using Josephson-CMOS Hybrid Memories**

Yukihiro Okuma[1], Yuki Yamanashi[1,2] and Nobuyuki Yoshikawa[1,2]

[1]Yokohama National University, Yokohama, Kanagawa, Japan, [2]Yokohama National University, Yokohama, Kanagawa, Japan

11:45 a.m. - 12:00 p.m. 2EOr1B-04: **Fast RSFQ Parallel Counters**

Mustafa Çelik[1], Timur Filippov[1], Anubhav Sahu[1], Dimitri Kirichenko[1], Saad Sarwana[1], Alf Lehmann[1] and Deepnarayan Gupta[1]

[1]Hypres, Inc., Elmsford, New York, US

12:00 p.m. - 12:15 p.m. 2EOr1B-05: **DC-Offset-Free Quantum Flux Parametron using Ferromagnet Phase Shift Elements**

Masamitsu Tanaka[1], Hiroshi Ito[1], Soya Taniguchi[1], Hayato Iwashita[1], Kyosuke Sano[1], Taro Yamashita[1,2] and Akira Fujimaki[1]

[1]Nagoya University, Nagoya, Japan, [2]JST-PRESTO, Kawaguchi, Japan

2EOr1C - Nanowire Applications
606-607; 10:45 a.m. - 12:15 p.m.
Moderators: Gregory Goltsman, Moscow State Pedagogical University & Huabing Wang, Nanjing University

10:45 a.m. - 11:00 a.m. 2EOr1C-01: **Superconducting nanowire single photon detectors for deep space optical communication**

Matthew Shaw[1], Jason Allmaras[2], Emma Wollman[1], Andrew Beyer[1], Ryan Briggs[1], Lauren McNally[1], Angel Velasco[1], Ryan Rogalin[1], Meera Srinivasan[1], Francesco Marsili[1] and William Farr[1]

[1]Jet Propulsion Laboratory, Pasadena, California, US, [2]Caltech, Pasadena, California, US

11:00 a.m. - 11:15 a.m. 2EOr1C-02: **Development of superconducting nanostrip X-ray detector for high-resolution resonant inelastic soft X-ray scattering (RIXS)**

Masahiro Ukibe[1], Chiharu Watanabe[1], Nobuyuki Zen[1], Go Fujii[1], Kazumasa Makise[1], Masataka Ohkubo[1], Te-Hui Lee[2] and Di-Jing Huang[2]

[1]AIST, Tsukuba, Ibaraki, Japan, [2]NSRRC, Hsinchu, Taiwan

11:15 a.m. - 11:30 a.m. 2EOr1C-03: **Demonstration of a 16-pixel NbTiN superconducting nanowire single-photon detector array with a row-column readout architecture**

Masahiro Yabuno[1], Shigeyuki Miyajima[1], Shigehito Miki[1] and Hirotaka Terai[1]

[1]National Institute of Information and Communications Technology, Kobe, Hyogo, Japan

11:30 a.m. - 11:45 a.m. 2EOr1C-04: **Short turn-on-delay superconducting nanostructure transistors**

Kyosuke Sano[1], Masato Suzuki[1], Kohei Maruyama[1], Naoki Kondo[1], Masamitsu Tanaka[1], Taro Yamashita[1,3], Masumi Inoue[2] and Akira Fujimaki[1]

[1]Nagoya University, Nagoya, Japan, [2]Meijo University, Nagoya, Japan, [3]JST-PRESTO, Saitama, Japan

11:45 a.m. - 12:00 p.m. 2EOr1C-05: **Demonstration of microwave multiplexed readout of DC biased superconducting nanowire detectors**

Philip Mauskopf[1,2], Karl Berggren[3], Edward Schroeder[1], Marco Colangelo[3], Di Zhu[3], Sean Bryan[2,4], Hamdi Mani[2] and Adrian Sinclair[2]

[1]Arizona State University, Tempe, Arizona, US, [2]Arizona State University, Tempe, Arizona, US, [3]MIT, Boston, Massachusetts, US, [4]Arizona State University, Tempe, Arizona, US

12:00 p.m. - 12:15 p.m. 2EOr1C-06: **A Single-Flux-Quantum based Event-Driven Encoder for a Large-Pixel Superconducting Nanowire Single-Photon Detector Array**

Shigeyuki Miyajima[1], Masahiro Yabuno[1], Shigehito Miki[1,2], Taro Yamashita[3,4] and Hirotaka Terai[1]

[1]National Institute of Information and Communications Technology, Kobe, Hyogo, Japan, [2]Kobe University, Kobe, Japan, [3]Nagoya University, Nagoya, Japan, [4]Japan Science and Technology Agency, Kawaguchi, Saitama, Japan

2LOr1A - Magnetic Levitation and Induction Heating
613-614; 10:45 a.m. - 12:15 p.m.
Moderators: Antonio Morandi, University of Bologna & Ying Xin, Tianjin University

10:45 a.m. - 11:00 a.m. 2LOr1A-01: **Dynamic Behavior of Superconductor-Permanent Magnet Levitation with Halbach Arrays for Flywheel Design and Control**

Dillon Morehouse[1], David Arnett[2], Herbert Hess[2] and Christine Berven[1]

[1]University of Idaho, Moscow, Idaho, US, [2]University of Idaho, Moscow, Idaho, US

11:00 a.m. - 11:15 a.m. 2LOr1A-02: **Hysteresis loss measurements on a rotating superconducting ring spinning bearing**

Tilo Espenhahn[1], Maria Sparing[1], Marcel Möller[1], Oliver Neunzig[1], Florian Wunderwald[1], Mahmud Hossain[2], Günter Fuchs[1], Ludwig Schultz[1,3], Kornelius Nielsch[1,3], Anwar Abdkader[2], Chokri Cherif[2] and Ruben Hühne[1]

[1]Leibniz Institute for Solid State and Materials Research Dresden, Dresden, Germany, [2]Technische Universität Dresden, Dresden, Germany, [3]Technische Universität Dresden, Dresden, Germany

11:15 a.m. - 11:30 a.m. 2LOr1A-03: **One-axis Controlled Superconducting Magnetic Levitation System Using Persistent Current**

Mochimitsu Komori[1], Akira Minoda[1], Kaoru Nemoto[1], Ken-ichi Asami[1] and Nobuo Sakai[1]

[1]Kyushu Institute of Technology, Kitakyushu, Fukuoka, Japan

11:30 a.m. - 11:45 a.m. 2LOr1A-04: **Progress in the Development of the Commercial MgB2 Magnets for Superconducting Induction Heater in Korea**

Jongho Choi[1], Sangho Cho[1] and Minwon Park[2]

[1]Supercoil Co., Ltd., CHANGWON, GYEONGNAM, Korea (the Republic of), [2]Changwon National University, Changwon, Korea (the Republic of)

11:45 a.m. - 12:00 p.m. 2LOr1A-05: **Study of a multiple-billet HTS induction heating machine with multiple REBCO racetrack pairs in a circular pattern**

Jingeun Kim[1], Seungyong Hahn[2] and Yannis Semertzidis[1,3]

[1]Institute for Basic Science, Daejeon, Korea (the Republic of), [2]Seoul National University, Seoul, Korea (the Republic of), [3]KAIST, Daejeon, Korea (the Republic of)

12:00 p.m. - 12:15 p.m. 2LOr1A-06: **Impact Innovation Alliance (IIA), a joint venture in Chile for the development of industrial applications based on superconductive technologies, designed and constructed the 1st Superconductivity Industrial Laboratory and designed, built and tested the 1stMgB2 Superconductive Coil in Chile.**

Rubén Viñuela[1], Pablo Morales[1], Aníbal Núñez[1], Alex Garay[1] and Raúl Martinez[1]

[1]Impact Innovation Alliance (IIA), Concón, Valparaíso, Chile

2LOr1B - Performance Analysis of Accelerator Magnets
6B; 10:45 a.m. - 12:15 p.m.
Moderators: Helene Felice, CEA - IRFU/SACM & Soren Prestemon, LBNL

10:45 a.m. - 11:00 a.m. 2LOr1B-01: **Preload and training in Nb_3Sn magnets for particle accelerators**

Ezio Todesco[1], Giorgio Ambrosio[2], Marta Bajko[1], Hugues Bajas[1], Luca Bottura[1], Daniel Cheng[3], Guram Chlachidze[2], Paolo Ferracin[1], Helene Felice[4], Susana Izquierdo Bermudez[1], Christian Loffler[1], Emelie Nilsson[1], Juan Carlos Perez[1], Frederic Savary[1], Stoyan Stoynev[2], Thomas Strauss[2], Giorgio Vallone[1] and Gerard Willering[1]

[1]CERN, Geneva, Switzerland, [2]FNAL, Aurora, Illinois, US, [3]LBNL, Berkeley, California, US, [4]CEA, Saclay, France

11:00 a.m. - 11:15 a.m. 2LOr1B-02: **Identifying sources of training in high-field superconducting accelerator magnets**

Maxim Marchevsky[1], Diego Arbelaez[1], Lucas Brouwer[1], Shlomo Caspi[1], Emelie Nilsson[2] and Soren Prestemon[1]

[1]Lawrence Berkeley National Laboratory, Berkeley, California, US, [2]CERN, Geneva, Switzerland

11:15 a.m. - 11:30 a.m. 2LOr1B-03: **Analysis of Nb_3Sn Accelerator Magnet Training**

Stoyan Stoynev[1], Kevin Riemer[1] and Alexander Zlobin[1]

[1]FNAL, Batavia, Illinois, US

11:30 a.m. - 11:45 a.m. 2LOr1B-04: **Design and test results of the Nb_3Sn Canted-Cosine-Theta dipole magnet CCT5**

Diego Arbelaez[1], Lucas Brouwer[1], Shlomo Caspi[1], Daniel Dietderich[1], Stephen Gourlay[1], Scott Myers[1], Thomas Lipton[1], Ray Hafalia[1], Marcos Turqueti[1], Maxim Marchevsky[1], Xiaorong Wang[1] and Soren Prestemon[1]

[1]Lawrence Berkeley National Lab, Berkeley, California, US

11:45 a.m. - 12:00 p.m. 2LOr1B-05: **Test Results of the First Two Full-Length Prototype Quadrupole Magnets for the LHC Hi-Lumi Upgrade**

Joseph Muratore[1], Michael Anerella[1], Piyush Joshi[1], Paul Kovach[1], Andrew Marone[1], Vittorio Marinozzi[3], Emmanuele Ravaioli[2], Honghai Song[1], Peter Wanderer[1], Giorgio Ambrosio[3], Giorgio Apollinari[3], Ruben Carcagno[3], Daniel Cheng[4] and GianLuca Sabbi[4]

[1]Brookhaven National Laboratory, Upton, New York, US, [2]CERN, Geneva, Switzerland, [3]Fermi National Accelerator Laboratory, Batavia, Illinois, US, [4]Lawrence Berkeley National Laboratory, Berkeley, California, US

12:00 p.m. - 12:15 p.m. 2LOr1B-06: **Test Results for a Superconducting 28 GHz Ion Source Magnet for FRIB**

Diego Arbelaez[1], Marcos Turqueti[1], Jordan Taylor[1], Xiaorong Wang[1], Heng Pan[1], Soren Prestemon[1], Scott Myers[1], Ray Hafalia[1], Helene Felice[1,2], Etienne Rochepault[1,3], Guillaume Machicoane[4], Eduard Pozdeyev[4], Mykola Omelayenko[4] and Xing Rao[4]

[1]Lawrence Berkeley National Lab, Berkeley, California, US, [2]French Atomic Energy Commission, Saclay, France, [3]European Organization for Nuclear Research (CERN), Geneva, Switzerland, [4]Facility for Rare Isotope Beams, East Lansing, Michigan, US

2LOr1C - Fault Current Limiters
6A; 10:45 a.m. - 12:15 p.m.
Moderators: Min Chul Ahn, Kunsan National University & Pascal Tixador, Grenoble-INP

10:45 a.m. - 11:15 a.m. 2LOr1C-01: **[Invited] Iron-core Free Superconducting Shielded Reactor for Current Limitation on the Distribution Grid Level**

Kudymow Andrej[2], Anne Bauer[1], Steffen Elschner[3], Wilfried Goldacker[2], Hans-Peter Kraemer[1], Mathias Noe[2], Severin Strauss[2] and Christian Schacherer[1]

[1]Siemens AG, D 91058 Erlangen, Germany, [2]Karlsruhe Institute of Technology, D 76344 Eggenstein-Leopoldshafen, Germany, [3]University of Applied Science Mannheim, D 68163 Mannheim, Germany

11:15 a.m. - 11:30 a.m. 2LOr1C-02: **Development of 150 V/m HTS conductor for fault current limitation in high voltage DC networks**

Guillaume Escamez[1], Christian-Eric Bruzek[1], Bertrand Dutoit[4], Frederic Sirois[2], Christian Lacroix[2], Markus Bauer[3], Veit Grosse[3] and Pascal Tixador[5]

[1]SUPERGRID, Villeurbanne, France, [2]Polytechnique Montreal, Montreal, Quebec, Canada, [3]THEVA Dünnschichttechnik GmbH, Ismaning, Germany, [4]Ecole Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, [5]CNRS Grenoble, Grenoble, France

11:30 a.m. - 11:45 a.m. 2LOr1C-03: **Status of EC project FASTGRID**

Pascal Tixador[1], Markus Bauer[2], Christian-Eric Bruzek[3], Albert Calleja[4], Guy Deutscher[5], Bertrand Dutoit[6], Fedor Gömöry[7], Luciano Martini[8], Mathias Noe[9], Xavier Obradors[10], Marcela Pekarcikova[11] and Frederic Sirois[12]

[1]Univ. Grenoble Alpes, CNRS, Grenoble-INP, Grenoble, France, [2]THEVA, Munchen, Germany, [3]SGI, Lyon, France, [4]Oxolutia, Barcelona, Spain, [5]TAU, Tel Aviv, Israel, [6]EPFL, Lausanne, Switzerland, [7]IEE, Bratislava, Slovakia, [8]RSE, Milano, Italy, [9]KIT, Karlsruhe, Germany, [10]ICMAB-CSIC, Barcelona, Spain, [11]STUBA Bratislava, Bratislava, Slovakia, [12]Polytechnique Montreal, Montreal, Quebec, Canada

11:45 a.m. - 12:00 p.m. 2LOr1C-04: **Real-time simulation and Power-Hardware-in-the-Loop test of an Air-Coil Superconducting Fault Current Limiter**

Joern Geisbuesch[1], Felix Kaiser[1], Wescley Tiago Batista de Sousa[1] and Mathias Noe[1]

[1]Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany

12:00 p.m. - 12:15 p.m. 2LOr1C-05: **Optical fiber hot spots detection for Fault Current Limiter health monitoring**

Zhisheng Yang[1], Jiabin Yang[1], Li Zhang[1], Guillaume Escamez[2], Christian-Eric Bruzek[3], Luc Thévenaz[1] and Bertrand Dutoit[1]

[1]Ecole Polytechnique Fédérale de Lausanne, Lausanne, Vaud, Switzerland, [2]Supergrid Institute SAS, Villeurbanne, France, [3]Nexans, Paris, France

2LOr1D - MRI and NMR
6C; 10:45 a.m. - 12:15 p.m.
Moderators: Kathleen Amm, Brookhaven National Lab & Michael Parizh, GE - Global Research Center

10:45 a.m. - 11:00 a.m. 2LOr1D-01: **Assembly and Test of a 3-Nested-Coil 800-MHz REBCO Insert (H800) for the MIT 1.3 GHz LTS/HTS NMR Magnet**

Philip Michael[1], Dongkeun Park[1], Yoon Hyuck Choi[1], Jiho Lee[1], Yi Li[1], Juan Bascunan[1], So Noguchi[2], Seungyong Hahn[3] and Yukikazu Iwasa[1]

[1]MIT - Francis Bitter Magnet Laboratory, Cambridge, Massachusetts, US, [2]Hokkaido University, Sapporo, Japan, [3]Seoul National University, Seoul, Korea (the Republic of)

11:00 a.m. - 11:15 a.m. 2LOr1D-02: **Construction and Test Results of the MIT 1.3-GHz LTS/HTS NMR Magnet**

Dongkeun Park[1], Juan Bascunan[1], Philip Michael[1], Jiho Lee[1], Yoon Hyuck Choi[1], Yi Li[1], Seungyong Hahn[2] and Yukikazu Iwasa[1]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [2]Seoul National University, Seoul, Korea (the Republic of)

11:15 a.m. - 11:30 a.m. 2LOr1D-03: **Development Progress of 9.4 T Metal-Clad No-Insulation All-REBCO Magnet for High-Resolution NMR Applications**

SangGap Lee[1], Seungyong Hahn[2,3], Jaemin Kim[2,4], Jae Young Jang[1], Young Jin Hwang[1], Jun Hee Han[1], Yungil Kim[4], Kang Hwan Shin[4], Hunju Lee[4], Sehwan In[5], Yong-Ju Hong[5], Hankil Yeom[5], Kwangmin Kim[3], Kwang Lok Kim[3], Hongmin Yang[6] and Min Chul Ahn[6]

[1]Korea Basic Science Institute, Cheongju, Chungbuk, Korea (the Republic of), [2]Seoul National University, Seoul, Korea (the Republic of), [3]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [4]SuNAM Co., Ltd., Anseong, Gyeonggi, Korea (the Republic of), [5]Korea Institute of Machinery and Materials, Daejeon, Korea (the Republic of), [6]Kunsan National University, Gunsan, Jeonbuk, Korea (the Republic of)

11:30 a.m. - 11:45 a.m. 2LOr1D-04: **Commissioning status of the Iseult/INUMAC Whole Body 11.7 T MRI System**

Lionel Quettier[2], Pierre Vedrine[2], Arnaud Madur[2], Guy Aubert[2], Jean Belorgey[2], Christophe Berriaud[2], Thierry Schild[2], Frédéric Molinié[2], Philippe Bredy[2], Guillaume Dilasser[2], Graham Gilgrass[1], Vadim Stepanov[2], François-Paul Juster[2], Armand Sinanna[2], Hervé Lannou[2], Olivier Dubois[2], Loris Scola[2] and Alain Payn[2]

[1]Siemens Healthcare, Witney, United Kingdom, [2]CEA, Gif Sur Yvette, France

11:45 a.m. - 12:00 p.m. 2LOr1D-05: **An 1 kA Current Level Transformer-Rectifier Flux Pump for a Transportable HTS MRI**

Jianzhao Geng[1], David Menon[2], Ari Ercole[3] and Tim Coombs[1]

[1]University of Cambridge, Cambridge, United Kingdom, [2]Cambridge, Cambridge, United Kingdom, [3]Cambridge, Cambridge, United Kingdom

12:00 p.m. - 12:15 p.m. 2LOr1D-06: **Development of MgB_2 superconductor wire and coils for AC and DC applications**

Michael Tomsic[1], Matthew Rindfleisch[1], Dave Doll[1], Cj Thong[1], Xuan Peng[1], Mike Sumption[2], Fang Wan[2], Danlu Zhang[2] and Edward Collings[2]

[1]Hyper Tech Research, Inc., Columbus, Ohio, US, [2]Ohio State University, Columbus, Ohio, US

2MOr1A - Mechanical Properties and Strain Dependence
608-609; 10:45 a.m. - 12:30 p.m.
Moderators: Najib Cheggour, Florida State University & Carmine Senatore, University of Geneva

10:45 a.m. - 11:00 a.m. 2MOr1A-01: **A 3D Finite Element Model of the Reversible Critical Current Reduction due to transverse load in Nb3Sn wires**

Alessandro Cattabiani[1] and Bernardo Bordini[1]

[1]CERN, Geneve, Switzerland

11:00 a.m. - 11:15 a.m. 2MOr1A-02: **Scaling behavior of the critical current under transverse stress in RRP and PIT Nb_3Sn wires**

Carmine Senatore[1], Luc Gamperle[1], Christian Barth[1], Jose Ferradas Troitino[1,2], Bernardo Bordini[2] and Davide Tommasini[2]

[1]University of Geneva, Geneva, Geneva, Switzerland, [2]CERN, Geneva, Switzerland

11:15 a.m. - 11:30 a.m. 2MOr1A-03: **Towards Understanding the Origins of the Strain Irreversibility Cliff in RRP® Nb_3Sn Wires**

Najib Cheggour[1,5], Kozo Osamura[2], Shutaro Machiya[3], Peter Lee[1], Takuro Kawasaki[4] and Stefanus Harjo[4]

[1]Florida State University, Tallahassee, Florida, US, [2]Research Institute for Applied Sciences, Kyoto, Japan, [3]Daido University, Nagoya, Japan, [4]J-PARC Center, Tokai-mura, Japan, [5]University of Colorado, Boulder, Colorado, US

11:30 a.m. - 11:45 a.m. 2MOr1A-04: **Characterization of electromechanical properties in differently sheathed MgB_2 wires under tension**

Hyung-Seop Shin[1], Zhierwinjay Bautista[1], Hidetoshi Oguro[2] and Satoshi Awaji[3]

[1]Andong National University, Andong, Korea (the Republic of), [2]Tokai University, Hiratsuka, Japan, [3]IMR, Tohoku University, Sendai, Japan

11:45 a.m. - 12:00 p.m. 2MOr1A-05: **Modeling-driven optimization of mechanically-robust REBCO tapes and wires**

Anis Ben Yahia[1], Soumen Kar[1,2], Goran Majkic[1] and Venkat Selvamanickam[1]

[1]University of Houston, Houston, Texas, US, [2]AMPeers LLC, Houston, Texas, US

12:00 p.m. - 12:15 p.m. 2MOr1A-06: **Symmetric Tape Round (STAR) REBCO wires with superior mechanical properties for accelerator magnets**

Soumen Kar[1,2], Wenbo Luo[2], Jithin sai Sandra[1], Goran Majkic[2] and Venkat Selvamanickam[2]

[1]AMPeers LLC, Houston, Texas, US, [2]University of Houston, Houston, Texas, US

12:15 p.m. - 12:30 p.m. 2Mor1A-07: **Recent advances in DI-BSCCO Type HT-NX for the use of high magnetic field applications**

Masashi Kikuchi[1], Shin-ichi Kobayashi[1], Goro Osabe[1], Satoru Yamade[1], Takayoshi Nakashima[1], Soichiro Takeda[1], Tomoyuki Okada[1], Kenta Niki[1], Kazuhiko Hayashi[1] and Takeshi Kato[1]

[1]Sumitomo Electric Industries, LTD., Osaka, Japan

2MOr1B - AC Losses in Bulks and Coils
615-617; 10:45 a.m. - 12:15 p.m.
Moderators: Naoyuki Amemiya, Kyoto University & Mike Sumption, The Ohio State University

10:45 a.m. - 11:00 a.m. 2MOr1B-01: **A dynamic mesh model of levitation forces between superconducting bulks and permanent magnets**

Francesco Grilli[1], Antonio Morandi[2] and Federica De Silvestri[2]

[1]Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany, [2]University of Bologna, Bologna, Italy

11:00 a.m. - 11:15 a.m. 2MOr1B-02: **A new concept of a Hybrid Trapped Field Magnet Lens (HTFML)**

Mark Ainslie[1], Keita Takahashi[2], Sora Namba[2] and Hiroyuki Fujishiro[2]

[1]University of Cambridge, Cambridge, United Kingdom, [2]Iwate University, Morioka, Japan

11:15 a.m. - 11:30 a.m. 2MOr1B-03: **Penetration depth of shielding currents due to crossed fields in bulk superconductors**

Jan Srpčič[1], Difan Zhou[1], Kai Yuan (Danny) Huang[1], Yunhua Shi[1], Mark Ainslie[1], Fernando Perez Mendez[1], Devendra Namburi[1], Antony Dennis[1], Martin Boll[2], David Cardwell[1] and John Durrell[1]

[1]University of Cambridge, Cambridge, Cambridgeshire, United Kingdom, [2]Siemens AG, Erlangen, Germany

11:30 a.m. - 11:45 a.m. 2MOr1B-04: **Multiple-pulses activation of HTS bulks: measurements and reproduction of the trapped field**

Pierre Bernstein[1], Jacques Noudem[1] and Louis Dupont[2]

[1]Université de Normandie, Caen, France, [2]CAYLAR SAS, Villebon-sur-Yvette, France

11:45 a.m. - 12:00 p.m. 2MOr1B-05: **What is the temperature rise in a TFM magnetization assisted by the giant field leap?**

Roy Weinstein[1,2], Drew Parks[1,2], Ravi-Persad Sawh[1] and Kent Davey[3]

[1]University of Houston, Houston, Texas, US, [2]Roxxyquest LLC, Houston, Texas, US, [3]American Electromechanics Inc., Edgewater, Florida, US

12:00 p.m. - 12:15 p.m. 2MOr1B-06: **AC Losses for Diverse Misalignment Factors In The Winding Precision of ReBCO Pancake Coils.**

Harold Ruiz[1], Bright Robert[1] and Muhammad Fareed[1]

[1]University of Leicester, Leicester, Leicestershire, United Kingdom

Lunch: 12:15 p.m. - 1:30 p.m.

Coffee Break
Exhibit Hall; 2:00 p.m. - 2:30 p.m.

2EPo2A - Coherent Detectors and Sources
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Gregory Goltsman, Moscow State Pedagogical University & Boris Karasik, Jet Propulsion Laboratory

2EPo2A-01 [E1] **Characteristics of frequency up-conversion in SIS junctions at millimeter wavelengths**

Yoshinori Uzawa[1,2], Takafumi Kojima[2], Wenlei Shan[2], Alvaro Gonzalez[2] and Matthias Kroug[2]

[1]National Institute of Information and Communications Technology, Koganei, Tokyo, Japan, [2]National Astronomical Observatory of Japan, Tokyo, Japan

2EPo2A-03 [E2] **Development of Nb/AlN/NbN Superconducting Mixes for Dome A Terahertz Telescope**

Dong Liu[2,1], Ming Yao[2,1], Zheng Wang[2,1] and Shengcai Shi[2,1]

[1]Key Laboratory of Radio Astronomy, CAS, Nanjing, China, [2]Purple Mountain Observatory, CAS, Nanjing, China

2EPo2A-04 [E3] **An Efficient Noise Analysis Method of the Mixing Circuit Based on Linear Networks Noise Correlation Matrices**

Wentao Wu[1,2]

[1]Shanghai Institute of Microsystem and Information Technology, Shanghai, China, [2]CAS Center for ExcelleNce in Superconducting Electronics (CENSE), Shanghai, China

2EPo2A-05 [E4] **Evaluation of Mid Infrared Superconducting Hot Electron Bolometer Mixers**

Akira Kawakami[1], Hisashi Shimakage[2], Junsei Horikawa[3], Syukichi Tanaka[1] and Yoshinori Uzawa[1]

[1]NICT, Kobe, Japan, [2]Ibaraki University, Hitachi, Ibaraki, Japan, [3]Fukui College, Sabae, Fukui, Japan

2EPo2A-06 [E5] **Fabrication of Planar Integrated Circuits for Multi-Beam Superconducting Heterodyne Receivers at mm/sub-mm wavelengths**

Shohei Ezaki[1], Wenlei Shan[1], Shin'ichiro Asayama[2] and Takashi Noguchi[1]

[1]National Astronomical Observatory of Japan, Mitaka, Tokyo, Japan, [2]National Astronomical Observatory of Japan, Mitaka, Tokyo, Japan

2EPo2A-07 [E6] **Optical Spectroscopic Study of AlN-Based SIS devices Grown by Inductively Coupled Plasma**

Tannaz Farrahi[1], Michael Cyberey[1], Michael Eller[1], Jian Zhang[1], Robert Weikle[1] and Arthur Lichtenberger[1]

[1]University of Virginia, Charlottesville, Virginia, US

2EPo2A-08 [E7] **Influence of Quantum Susceptance in Specific Capacitance Measurements of SIS Junctions**

Takafumi Kojima[1], Matthias Kroug[1], Yuto Kozuki[2] and Yoshinori Uzawa[3]

[1]National Astronomical Observatory of Japan, Mitaka, Tokyo, Japan, [2]Osaka Prefecture University, Sakai, Japan, [3]National Institute of Information and Communications Technology, Koganei, Japan

2EPo2A-10 [E8] **Incorporation of the Noise Contribution of a Noise Matching IF Network into Tucker's Theory of Quantum Mixing**

Edward Tong[1], Paul Grimes[1] and Lingzhen Zeng[1]

[1]Harvard-Smithsonian Center for Astrophysics, Cambridge, Massachusetts, US

2EPo2B - SQUID Applications [P I]: Geophysics and NDE
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Keiji Enpuku, Kyushu University & Shane Keenan, CSIRO

2EPo2B-01 [E9] **Magnetic shielding capability and its advantages of MgB2 tube made by Liquid Infiltration process**

Zigeng Huang[1], Wenhao Luo[1], Xinwei Cai[1], Furen Wang[1], Zizhao Gan[1], Zhiqiang Gu[1], Ruirui Niu[1], Can Yang[1] and Qingrong Feng[1]

[1]Beijing National Laboratory for Condensed Matter Physics, and Institute of Physics, Chinese Academy of Sciences, Beijing, China

2EPo2B-02 [E10] **SQUID-based semi-airborne electromagnetic method for mineral exploration**

Ronny Stolz[1], Markus Schiffler[1], Vyacheslav Zakosarenko[1,2], Matthias Schmelz[1], Thomas Schönau[1,3], Solveig Anders[4], Maria Cherevatova[5], Uwe Meyer[6] and Michael Becken[5]

[1]Leibniz Institute of Photonic Technology, Jena, Germany, [2]Supracon AG, Jena, Germany, [3]Friedrich Schiller University, Jena, Germany, [4]Leibniz Institute of Photonic Technology, Jena, Germany, [5]University of Münster, Münster, Germany, [6]Federal Institute for Geosciences and Natural Resources (BGR), Hannover, Germany

2EPo2B-03 [E11] **SQUID based airborne full tensor gradient system and its flying test**

Shulin Zhang[1,2], Guofeng Zhang[1,2], Longqing Qiu[1,2], Zhengwei Song[1,2], Jun Wu[1,2], Yongliang Wang[1,2], Chaoxiang Zhang[1,2] and Liangliang Rong[1,2]

[1]Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, China, [2]CAS Center for Excellence in Superconducting Electronics (CENSE), Shanghai, China

2EPo2B-04 [E12] **The abnormal negative response of transient electromagnetic method at polarizable mining area using LT SQUID as a B sensor**

Liangliang Rong[1], Yi Zhang[1], Yifeng Pei[1], Jun Wu[1], Guofeng Zhang[1] and Yongliang Wang[1]

[1]SIMIT(State Key Laboratory of Functional Materials for Informatics, Shanghai Institute of Microsystem and Information technology),CAS, Shanghai, China

2EPo2B-05 [E13] **A high-balance planar SQUID gradiometer**

Guofeng Zhang[2,1], Xue Zhang[2,1], Yongliang Wang[2,1], Liangliang Rong[2,1], Xiaoming Xie[2,1] and Zhen Wang[2,1]

[1]Chinese Academy of Science, Center for Excellence in Superconducting Electronics, Shanghai, China, [2]State Key Laboratory of Functional Materials for Informatics, Shanghai Institute of Microsystem and Information Technology (SIMIT), Chinese Academy of Sciences (CAS), Shanghai, China

2EPo2B-06 [E14] **Portable cryostat with temperature control function for operation of HTS-SQUID at higher slew rate**

Tsunehiro Hato[1], Akira Tsukamoto[1] and Keiichi Tanabe[1]

[1]Superconducting Sensing Technology Research Association, Yokohama, Japan

2EPo2B-07 [E15] **Development of a highly sensitive magnetic field detector in a wide frequency range for non-destructive testing using HTS-coil with magnetic sensors**

Tetsuro Hirata[1], Yuto Goda[1], Kenji Sakai[1], Toshihiko Kiwa[1], Seiji Adachi[2], Akira Tsukamoto[2], Keiichi Tanabe[2] and Keiji Tsukada[1]

[1]Okayama University, Okayama, Okayama, Japan, [2]Superconducting Sensing Technology Research Association, Yokohama, Japan

2EPo2B-08 [E16] **All-round inspection of a pipe based on ultrasonic guided wave testing utilizing magnetostrictive method and HTS-SQUID gradiometer**

Yoshimi Hatsukade[1], Yuki Azuma[1], Natsuki Masutani[1], Kazuya Sato[1], Taro Yoshida[1], Seiji Adachi[2] and Keiichi Tanabe[2]

[1]Kindai University, Higashi-Hiroshima City, Hiroshima, Japan, [2]SUSTERA, Yokohama, Kanagawa, Japan

2EPo2B-09 [E17] **Development of three-channel HTS-SQUID inspection system for orthotropic steel decks of expressway bridges**

Akira Tsukamoto[1], Tsunehiro Hato[1], Seiji Adachi[1], Yasuo Oshikubo[1], Keiji Tsukada[2] and Keiichi Tanabe[1]

[1]SUSTERA, Yokohama, Kanagawa, Japan, [2]Okayama University, Okayama, Japan

2EPo2B-10 [E18] **SQUID-based non-destructive charged particle beam monitor**

Vyacheslav Zakosarenko[1,2], Matthias Schmelz[1], Thomas Schönau[1,3], Solveig Anders[4], Juergen Kunert[4], Volker Tympel[5], Ralf Neubert[3], Frank Schmidl[3], Paul Seidel[3], Thomas Stoehlker[5,3] and Ronny Stolz[1]

[1]Leibniz Institute of Photonic Technology, Jena, Germany, [2]Supracon AG, Jena, Germany, [3]Friedrich-Schiller-University, Jena, Germany, [4]Leibniz Institute of Photonic Technology, Jena, Germany, [5]Helmholtz-Institute Jena, Jena, Germany

2EPo2C - Nanowire Device Physics

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.

Moderators: Khalil Harrabi, King Fahd University of Petroleum and Minerals & Kai Zou, Tianjin University

2EPo2C-01 [E19] **[Invited] Varying Thicknesses to Minimize Current-Crowding in Superconducting Nanowire Single-Photon Detectors**

Reza Baghdadi[1], Ilya Charaev[1], Ekkehart Schmidt[2], Michael Mueller[2], Konstantin Ilin[2], Alexei Semenov[3], Michael Siegel[2] and Karl Berggren[1]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [2]Institute of Micro- and Nanoelectronic Systems, Karlsruhe, Germany, [3]Institute of Optical Systems, Berlin, Germany

2EPo2C-02 [E20] **[Invited] Single photon detection in micron scale superconducting strips**

Yuliya Korneeva[1], Denis Vodolazov[1,2], Alexander Semenov[1,5], Irina Florya[1], Alexander Korneev[1,4], Gregory Goltsman[1,4] and Teunis Klapwijk[1,3]

[1]Moscow State University of Education, MOSCOW, Russian Federation, [2]Institute for Physics of Microstructures, Russian Academy of Sciences, Nizhny Novgorod, Russian Federation, [3]Delft University of Technology, Kavli Institute of Nanoscience, Delft, Netherlands, [4]Higher School of Economics National Research University, Moscow, Russian Federation, [5]Moscow Institute of Physics and Technology (State University), Moscow, Russian Federation

2EPo2C-03 [E21] **[Invited] A stochastic, compact nanowire model for simulating dark counts in SNSPDs**

Adam McCaughan[1] and Sae Woo Nam[1]

[1]NIST, Boulder, Colorado, US

2EPo2C-04 [E22] **Investigating Bias Current Dependent Microwave Dissipation in NbN Nanowires**

Daniel Santavicca[1], Brian Noble[1], Marco Colangelo[2], Qingyuan Zhao[2] and Karl Berggren[2]

[1]University of North Florida, Jacksonville, Florida, US, [2]Massachusetts Institute of Technology, Cambridge, Massachusetts, US

2EPo2C-05 [E23] **Practical single-photon detectors made of micron-wide superconducting strip**

Alexander Korneev[1,2], Eugeny Smirnov[1], Yuliya Korneeva[1], Irina Florya[1], Nadezhda Manova[1], Gregory Goltsman[1,2] and Teunis Klapwijk[3,1]

[1]Moscow State University of Education, Moscow, Russian Federation, [2]Higher School of Economics National Research University, Moscow, Russian Federation, [3]Delft University of Technology, Delft, Netherlands

2EPo2C-06 [E24] **RF-amplifier-free superconducting nanowire single-photon detector system**

Xiaoming Chi[1], Kai Zou[1], Yuhao Cheng[1], Chao Gu[1], Julien Zichi[2], Shufan Chen[1], Val Zwiller[2] and Xiaolong Hu[1]

[1]Tianjin University, Tianjin, China, [2]Royal Institute of Technology (KTH), Stockholm, Sweden

2EPo2C-07 [E25] **Simulating the Distributed Characteristics of Superconducting Nanowire Single-Photon Detectors**

Qingyuan Zhao[2], Daniel Santavicca[1], Di Zhu[2], Brian Noble[1] and Karl Berggren[2]

[1]University of North Florida, Jacksonville, Florida, US, [2]Massachusetts Institute of Technology, Cambridge, Massachusetts, US

2EPo2C-08 [E26] **Study on the nanocryotron properties by the numerical calculation**

Masumi Inoue[1], Yuki Goto[1], Kyosuke Sano[2], Taro Yamashita[2,3], Masamitsu Tanaka[2] and Akira Fujimaki[2]

[1]Meijo University, Nagoya, Aichi, Japan, [2]Nagoya University, Nagoya, Japan, [3]JST-PRESTO, Kawaguchi, Japan

2EPo2C-09 [E27] **Ratio of electron and phonon heat capacity of NbN and WSi single photon detectors.**

Elmira Baeva[1,5], Mariia Sidorova[3,5], Alexander Korneev[4,5], Yuliya Korneeva[5], Mikhail Mikhailov[6], Alexander Semenov[5], Philipp Zolotov[1,2], Pavel Morozov[2], Alexander Divochy[5,2], Yury Vakhtomin[2,5], Konstantin Smirnov[4,2] and Gregory Goltsman[4,5]

[1]National Research University Higher School of Economics, Moscow, Russian Federation, [2] CJSC Superconducting nanotechnology (Scontel), MOSCOW, MOSCOW, Russian Federation, [3] DLR Institute of Optical Systems, Berlin, Germany, [4]National Research University Higher School of Economics, Moscow, Moscow, Russian Federation, [5]Moscow State University of Education, Moscow, Moscow, Russian Federation, [6]National Technical University "Kharkiv Polytechnic Institute", Kharkiv, Kharkiv, Ukraine

2EPo2C-10 [E28] **Photon-number resolving SNSPD for integrated photonics**

Ekkehart Schmidt[1], Eric Reutter[4,5], Mario Schwartz[3], Konstantin Ilin[1], Peter Michler[3], Alexey Ustinov[2] and Michael Siegel[1]

[1]Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, [2]Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, [3]University of Stuttgart, Stuttgart, Germany, [4]Institute of Micro- and Nanoelectronic Systems & Physikalisches Institut, Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, [5]Max Planck Institute for Solid State Research, Stuttgart, Germany

2EPo2C-11 [E29] **Magnetic-field enhancement of spectral response in superconducting nanowire single-photon detector (SNSPD)**

Ilya Charaev[1], Alexei Semenov[2], Konstantin Ilin[3] and Michael Siegel[3]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [2]German Aerospace Center, Berlin, Germany, [3]Karlsruhe Institute of Technology, Karlsruhe, Germany

2EPo2C-12 [E30] **Quantifying the Contributions to the Timing Uncertainty of a Dual-Readout SNSPD**

Daniel Santavicca[1], Brian Noble[1], Gregory Wurtz[1], Adam McCaughan[2], Marco Colangelo[2] and Karl Berggren[2]

[1]University of North Florida, Jacksonville, Florida, US, [2]Massachusetts Institute of Technology, Cambridge, Massachusetts, US

2EPo2D - TES Workshop: Fabrication
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Cathy Foley, CSIRO & Flavio Gatti, University of Genova

2EPo2D-01 [E31&32] **[Invited] Commercially fabricated low loss superconducting resonators integrated with detectors for frequency-domain multiplexing readout of future cosmic microwave background experiments**

Patrick Truitt[1], Aritoki Suzuki[2], Daniel Yohannes[1], Michael Kamkar[1], Tijmen de Haan[2], Christopher Raum[3], Ben Westbrook[3], Leo Steinmetz[3] and Adrian Lee[3]

[1]HYPRES, Inc., Elmsford, New York, US, [2]LBNL, Berkeley, California, US, [3]UC Berkeley, Berkeley, California, US

2EPo2D-02 [E33] **[Invited] Development of Ir-TES with single element superconductor for near infrared single photon counting with energy resolution**

Yoshitaka Miura[1], Tomoya Irimatsugawa[1], Masashi Ohno[1] and Hiroyuki Takahashi[1]

[1]The University of Tokyo, Bunkyouku, Tokyo, Japan

2EPo2D-03 [E34] **Exploring the proximity effect in Mo/Au bilayers**

Lourdes Fàbrega[1], Agustín Camón[2], Pavel Strichovanec[2,1] and Carlos Pobes[2]

[1]CSIC, Bellaterra, Barcelona, Spain, [2]CSIC-Universidad de Zaragoza, Zaragoza, Zaragoza, Spain

2EPo2D-04 [E35] **Progress on the fabrication of Mo/Au Transition Edge Sensors for X-ray detection**

Pavel Strichovanec[2,1], Agustín Camón[2], Javier Moral[1], Javier Sesé[3], Nieves Casan-Pastor[1], Carlos Pobes[2], Rosa Jáudenes[1,2] and Lourdes Fàbrega[1]

[1]CSIC, Bellaterra, Barcelona, Spain, [2]CSIC, Zaragoza, Zaragoza, Spain, [3]Universidad de Zaraogza, Zaragoza, Zaragoza, Spain

2EPo2D-05 [E36] **Fabrication and Optimization of AlMn Film for Transition Edge Sensor**

Yue Lyu[2,3], Wentao Wu[1,4], Jianguo Chen[2,3], Bo Gao[1,4] and Zhen Wang[1,4]

[1]CAS Center for Excellence in Superconducting Electronics (CENSE), Shanghai, China, [2]CAS Center for Excellence in Superconducting Electronics (CENSE) and State Key Laboratory of Functional Materials for Informatics, Shanghai Institute of Microsystem and Information Technology, Shanghai, China, [3]University of Chinese Academy of Sciences, Beijing, China, [4]State Key Laboratory of Functional Materials for Informatics, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, China

2EPo2D-06 [E37] **Fabrication of Magnetic Calorimeter Arrays with Buried Wiring**

Archana Devasia[1,2], Simon Bandler[2], Peter C. Nagler[2], Thomas Stevenson[2] and Wonsik Yoon[2]

[1]University of Maryland Baltimore County, Baltimore, Maryland, US, [2]NASA Goddard Space Flight Center, Greenbelt, Maryland, US

2EPo2D-07 [E38] **The impact of transition edge sensor design on achievable performance uniformity of kilo-pixel arrays**

Nicholas Wakeham[1,2], Joseph Adams[3,1], Simon Bandler[1], James Chervenak[1], Aaron Datesman[4,1], Megan Eckart[1], Fred Finkbeiner[5,1], Ruslan Hummatov[3,1], R. Kelley[1], Caroline Kilbourne[1], Antoine Miniussi[3,1], F. Porter[1], John Sadleir[1], Kazuhiro Sakai[3,1], Stephen Smith[3,1] and Edward Wassell[4,1]

[1]NASA Goddard Space Flight Center, Greenbelt, Maryland, US, [2]Universities Space Research Association, Columbia, Maryland, US, [3]University of Maryland Baltimore County, Baltimore, Maryland, US, [4]KBRwyle, Lexington Park, Maryland, US, [5]Sigma Space Corporation, Lanham, Maryland, US

2EPo2D-08 [E39] **Integration of Multi-Level Superconducting Buried Wiring Layers with Transition-Edge Sensor Detectors For Large-Scale Arrays**

Aaron Datesman[1,2], Joseph Adams[1], Simon Bandler[1], Meng-Ping Chang[1,2], James Chervenak[1], Megan Eckart[1], Audrey Ewin[1], Fred Finkbeiner[1,3], Jong Yoon Ha[1,4], R. Kelley[1], Caroline Kilbourne[1], Antoine Miniussi[1,5], F. Porter[1], John Sadleir[1], Kazuhiro Sakai[1,5], Stephen Smith[1], Nicholas Wakeham[1,6] and Edward Wassell[1,2]

[1]NASA Goddard Space Flight Center, Greenbelt, Maryland, US, [2]Stinger-Ghaffarian Technologies, Greenbelt, Maryland, US, [3]Sigma Space Corp., Lanham, Maryland, US, [4]SB Microsystems Inc., Glen Burnie, Maryland, US, [5]University of Maryland Baltimore County, Baltimore, Maryland, US, [6]Universities Space Research Association, Columbia, Maryland, US

2EPo2D-09 [E40] **Design of magnetic calorimeter array with high dense wiring**

Thomas Stevenson[1], Manuel Balvin[1], Simon Bandler[1], Archana Devasia[1,2], Peter C. Nagler[1], Stephen Smith[1,2] and Wonsik Yoon[1,3]

[1]NASA GSFC, Greenbelt, Maryland, US, [2]University of Maryland Baltimore County, Baltimore, Maryland, US, [3]ASRC, Laurel, Maryland, US

2EPo2D-10 [E41] **A simple, safe, and efficient front-side etching method for fabrication of suspended superconductor transition-edge sensors**

Qiang Sun[1] and Xingxiang Zhou[1]

[1]University of Science and Technology of China, Hefei, Anhui, China

2EPo2D-11 [E42] **Fabrication of a Hybrid Transition Edge Sensor Array for Lynx**

Edward Wassell[2,1], Joseph Adams[1,3], Simon Bandler[1], Meng-Ping Chang[2,1], James Chervenak[1], Aaron Datesman[2,1], Megan Eckart[1], Audrey Ewin[1], Fred Finkbeiner[4,1], Jong Yoon Ha[5,1], R. Kelley[1], Caroline Kilbourne[1], Antoine Miniussi[3,1], F. Porter[1], John Sadleir[1], Kazuhiro Sakai[3,1], Stephen Smith[1] and Nicholas Wakeham[6,1]

[1]NASA Goddard Space Flight Center, Greenbelt, Maryland, US, [2]KBRwyle, Lexington Park, Maryland, US, [3]University of Maryland Baltimore County, Baltimore, Maryland, US, [4]Signa Space Corporation, Lanham, Maryland, US, [5]SB Microsystems, Glen Burnie, Maryland, US, [6]Universities Space Research Association, Columbia, Maryland, US

2EPo2D-12 [E43] **Development of fast response Titanium-Gold bilayer optical TES with optical fiber self-alignment structure**

Ryo Kobayashi[2,1], Kaori Hattori[2], Shuichiro Inoue[1] and Daiji Fukuda[2,1]

[1]Nihon Univ., Chiyoda-ku, Tokyo, Japan, [2]AIST, Tukuba, Ibaraki, Japan

2EPo2E - Novel Digital Logic

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Cathy Foley, CSIRO & Alf E. Lehmann, HYPRES, Inc.

2EPo2E-01 [E44] **[Invited] Experimental study of a reversible gate using flux-soliton polarity**

Liuqi Yu[1], Waltraut Wustmann[1] and Kevin Osborn[1]

[1]The Laboratory for Physical Sciences, College Park, Maryland, US

2EPo2E-02 [E45&46] **[Invited] Evaluation of Single Flux Quantum Flip-Flops Containing π-Shifted Josephson Junctions**

Yuki Yamanashi[1], Sotaro Nakaishi[1] and Nobuyuki Yoshikawa[1]

[1]Yokohama National University, Yokohama, Japan

2EPo2E-03 [E47] **Asynchronous ballistic reversible fluxon logic**

Michael Frank[1], Rupert Lewis[2], Nancy Missert[3] and Michael Henry[4]

[1]Sandia National Laboratories, Albuquerque, New Mexico, US, [2]Sandia National Laboratories, Albuquerque, New Mexico, US, [3]Sandia National Laboratories, Albuquerque, New Mexico, US, [4]Sandia National Laboratories, Albuquerque, New Mexico, US

2EPo2E-04 [E48] **Compact model of superconductor-ferromagnetic transistor**

Gleb Krylov[1] and Eby Friedman[1]

[1]University of Rochester, Rochester, New York, US

2EPo2E-06 [E49] **Development of a Josephson junction synapse for superconducting neuromorphic computing**

Kenneth Segall[1], Anthony D'Addario[1] and Daniel Schult[2]

[1]Colgate University, Hamilton, New York, US, [2]Colgate University, Hamilton, New York, US

2EPo2E-07 [E50] **Control and readout of the flux state in nanowire-based loops**

Emily Toomey[1], Marco Colangelo[1], Adam McCaughan[2], Brenden Butters[1], Qingyuan Zhao[3] and Karl Berggren[1]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [2]NIST, Boulder, Colorado, US, [3]Nanjing University, Nanjing, China

2EPo2E-08 [E51] **Complementary quantum logic family using Josephson junctions and quantum phase-slip junctions**

Uday Goteti[1] and Michael Hamilton[1]

[1]Auburn University, Auburn, Alabama, US

2EPo2E-09 [E52] **Inverting quantum flux parametron as adiabatic superconductor logic without transformers**

Kota Arai[1], Naoki Takeuchi[2,3], Yuki Yamanashi[1,2] and Nobuyuki Yoshikawa[1,2]

[1]Yokohama National University, Yokohama, Kanagawa, Japan, [2]Yokohama National University, Yokohama, Kanagawa, Japan, [3]Japan Science and Technology Agency, Kawagushi, Saitama, Japan

2EPo2E-10 [E53] **Demonstrated Readout of a QFP Logic Element with an RQL Josephson Transmission**

Timothy Manning[1], Alexander Marakov[1], Mark Nowakowski[1], Micah Stoutimore[1], Aaron Lee[1], Moe Khalil[1], James Medford[1] and Anthony Przybysz[1]

[1]Northrop Grumman Corporation, Linthicum, Maryland, US

2EPo2E-11 [E54] **Bit error rate characterization of superconducting nanowire cryotrons**

Kai Zheng[1], Qingyuan Zhao[1], Lingdong Kong[1], Jian Chen[1], Lin Kang[1] and Peiheng Wu[1]

[1]School of Electronic Science and Engineering, Nanjing University, Nanjing, China

2EPo2E-12 [E55] **HTS Digital Circuits with Helium Ion Beam Written Josephson Junctions**

Horst Rogalla[1,2] and Adam Weis[2,3]

[1]University of Colorado at Boulder, Boulder, Colorado, US, [2]NIST Boulder, Boulder, Colorado, US, [3]University of Colorado at Boulder, Boulder, Colorado, US

2EPo2E-13 [E56] **Ballistic reversible gates matched to bit storage: Plans for an efficient CNOT gate using fluxons**

Kevin Osborn[1] and Waltraut Wustmann[1]

[1]LPS at University of Maryland, College Park, Maryland, US

2LPo2A - Very High Field Magnets [P I]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Arnaud Badel, Tohoku University & Mark Bird, NHMFL-FSU

2LPo2A-01 [L1] **Operation of 25T cryogen-free superconducting magnet and 30T cryogen-free superconducting magnet plan at HFLSM, IMR, Tohoku University**

Satoshi Awaji[1], Tatsunori Okada[1], Kohki Takahashi[1], Hiroshi Miyazaki[2], Satoshi Hanai[2] and Shigeru Ioka[2]

[1]Tohoku University, Sendai, Japan, [2]Toshiba Energy System & Solutions Corporation, Yokohama, Japan

2LPo2A-02 [L2] **Fabrication of the Nb_3Sn/Cu CICC Coil and Cold Mass for the HFML 45 T Hybrid Magnet**

Iain Dixon[1], Todd Adkins[1], Mark Bird[1], Matthias Hoffmann[2], Jos Perenboom[2], Andries den Ouden[2] and Nigel Hussey[2]

[1]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [2]Radboud University, Nijmegen, Netherlands

2LPo2A-03 [L3] **Test Operation of the CHMFL Hybrid Magnet Superconducting Outsert**

Wenge Chen[1], Xinxing Qian[1,2], Yunfei Tan[1], Zhiyou Chen[1], Pengcheng Huang[1], Zhen Fang[1], Shili Jiang[1], Donghui Jiang[1] and Guangli Kuang[1]

[1]High Magnetic Field Laboratory of the Chinese Academy of Sciences, Hefei, China, [2]University of Science and Technology of China, Hefei, China

2LPo2A-04 [L4] **Strain-limited Bi-2223 coils for high-field NMR magnets**

William Marshall[1], Mark Bird[1], Iain Dixon[1], David Larbalestier[1] and Patrick Noyes[1]

[1]Florida State University, Tallahassee, Florida, US

2LPo2A-05 [L5] **Development of a REBCO Insert for a 30 T+ All-Superconducting User Magnet**

Xavier Chaud[1], Jungbin Song[1], Francois Debray[1], Benjamin Borgnic[1], Thibault Lécrevisse[2], Philippe Fazilleau[2], Arnaud Badel[3], Tara Benkel[3,1] and Pascal Tixador[3]

[1]LNCMI, CNRS, Université Grenoble Alpes, EMFL, Grenoble, France, [2]IRFU, CEA, Université Paris-Saclay, Gif-Sur-Yvette, France, [3]Institut Neel / G2Elab, CNRS, Université Grenoble Alpes, Grenoble, France

2LPo2A-06 [L6] **High Speed Spin Testing of Reinforced 2212 Coils for High Field NMR Magnets**

John Voccio[1] and Alex Otto[2]

[1]Wentworth Institute of Technology, Boston, Massachusetts, US, [2]Solid Materials Solutions, North Chelmsford, Massachusetts, US

2LPo2A-07 [L7] **Hoop Stress Dependence of Electrical Characteristic of the Bridge Joint Between HTS Coated Conductors for a HTS Insert Magnet**

Geonwoo Baek[1], Woo Seung Lee[2], Jiho Lee[4], Hyoungku Kang[3] and Tae Kuk Ko[1]

[1]Yonsei University, Seoul, Korea (the Republic of), [2]JH Engineering, Anyang, Korea (the Republic of), [3]Korea National University of Transportation, Chungju, Korea (the Republic of), [4]MIT, Cambridge, Massachusetts, US

2LPo2A-08 [L8] **Mechanical Behavior analysis of the 40-T hybrid magnet superconducting outsert**

Yunfei Tan[1], Donghui Jiang[1], Zhen Fang[1], Zhiyou Chen[1], Wenge Chen[1] and Guangli Kuang[1]

[1]The High Magnetic Field Laboratory of the Chinese Academy of Sciences, Hefei, Anhui, China

2LPo2B - Superconducting RF [P]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Lance Cooley, Applied Superconductivity Center, NHMFL & Enrico Silva, University Roma Tre

2LPo2B-01 [L9] **Performance Simulation of a Prototype of 1.5-GHz Superconducting Harmonic Cavity**

Zong-Kai Liu[1], Fu-Yu Chang[1], Lung-Hai Chang[1], Mei-Hsia Chang[1], Shian-Wen Chang[1], Ling-Jhen Chen[1], Fu-Tsai Chung[1], Ming-Chyuan Lin[1], Chih-Hung Lo[1], Meng-Shu Yeh[1] and Tsung-Chi Yu[1]

[1]NSRRC, Hsinchu, Taiwan

2LPo2B-02 [L10] **Elstoplastic Tuning on a Two-Cell SRF Cavity**

Meng-Kao Yeh[2], Yung-Chieh Hsu[2], Ming-Chyuan Lin[1], Chih-Hung Lo[1] and Zong-Kai Liu[1]

[1]National Synchrotron Radiation Research Center, Hsinchu, Taiwan, [2]National Tsing Hua University, Hsinchu, Taiwan

2LPo2B-03 [L11] **Direct observation of nanometer scale niobium hydride ($Nb_{1-x}H_x$) on SRF Nb cavity surface using cryogenic atomic force microscopy (AFM)**

Zuhawn Sung[1], Alexander Romanenko[1], Yulia Trenikhina[1] and Anna Grassellino[1]

[1]Fermi National Accelerator Laboratory, Batavia, Illinois, US

2LPo2B-04 [L12] **Direct evidence of weak surface pinning in SRF grade Nb after 800°C heat treatments**

Shreyas Balachandran[1], Anatolii Polyanskii[1], Santosh Chetri[1], Mingmin Wang[2], Pashupati Dhakal[3], Thomas Bieler[2], David Larbalestier[1] and Peter Lee[1]

[1]ASC/ NHMFL/FSU, Tallahassee, Florida, US, [2]Michigan State University, East Lansing, Michigan, US, [3]Jefferson Lab, Newport News, Virginia, US

2LPo2B-05 [L13] **Characterization of nitrogen-doped SRF grade Nb**

Pashupati Dhakal[1], Gianluigi Ciovati[1], Santosh Chetri[2], Shreyas Balachandran[2] and Peter Lee[2]

[1]Jefferson Lab, Newport News, Virginia, US, [2]National High Magnetic Field Laboratory, Tallahassee, Florida, US

2LPo2B-06 [L14] **Vertical Test on the 500-MHz Superconducting Radio-Frequency Cavity with a Close-Loop Liquid Helium Supply System**

Chih-Hung Lo[1], Chaoen Wang[1], Fu-Tsai Chung[1], Mei-Hsia Chang[1], Tsung-Chi Yu[1], Meng-Shu Yeh[1], Lung-Hai Chang[1], Ling-Jhen Chen[1], Shian-Wen Chang[1], Zong-Kai Liu[1], Fu-Yu Chang[1], Yi-Ta Li[2] and Ming-Chyuan Lin[1]

[1]National Synchrotron Radiation Research Center, Hsinchu, Taiwan, [2]National Synchrotron Radiation Research Center, HSINCHU, Taiwan

2LPo2B-07 [L15] **Monte Carlo simulation of the thermal conductivity of superconducting bulk and thin-film niobium**

Peng Xu[1], Thomas Bieler[2] and Neil Wright[1]

[1]Michigan State University, East Lansing, Michigan, US, [2]Michigan State University, East Lansing, Michigan, US

2LPo2B-08 [L16] **The impact of low temperature nitrogen exposure on the surface chemistry and superconducting properties of SRF grade high purity niobium**
student paper contestant

Santosh Chetri[1], Shreyas Balachandran[1], Pashupati Dhakal[2], David Larbalestier[1], Lance Cooley[1] and Peter Lee[1]

[1]NHMFL, FSU, Tallahassee, Florida, US, [2]Jefferson Lab, Newport News, Virginia, US

2LPo2C - Fusion Magnets: EAST, KSTAR, WEST, and JT60-SA
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Jinggang Qin, Institute of Plasma Physics, CAS & Michael Wolf, Karlsruhe Institute of Technology (KIT)

2LPo2C-01 [L17] **Investigation of Voltage Distribution Affected by ground insulation in JT-60SA CS modules**

Kazuya Nakamura[1], Keisuke Nasu[1], Hirotaka Meguro[1], Tomoaki Takao[1], Haruyuki Murakami[2], Kyohei Natsume[2], Kazuma Fukui[2], Koji Kamiya[2], Kaname Kizu[2] and Takaaki Isono[2]

[1]Sophia University, Tokyo, Japan, [2]National Institutes for Quantum and Radiological Science and Technology, Ibaraki, Japan

2LPo2C-02 [L18] **Final design and manufacturing progress of the current feeders and coil terminal boxes for JT-60SA**

Haruyuki Murakami[1], Katsuhiko Tsuchiya[1], Koji Kamiya[1], Kyohei Natsume[1], Kazuma Fukui[1], Katsumi Kawano[1], Takaaki Isono[1], Kaname Kizu[1] and Hiroyuki Horii[2]

[1]National Institutes for Quantum and Radiological Science and Technology, Naka, Ibaraki, Japan, [2]Mitsubishi Electric Corporation, Kobe, Hyogo, Japan

2LPo2C-03 [L19] **Thermal-hydraulic analysis of the JT-60SA Central Solenoid operation**

Laura Savoldi[1], Roberto Bonifetto[1] and Roberto Zanino[1]

[1]Politecnico di Torino, Torino, Italy

2LPo2C-04 [L20] **Thermal Analysis of Toroidal Field Coil During Plasma Discharges in EAST**

Xinghao Wen[1,2], Junjun Li[2], Dongquan Wang[2], Yong Ren[2], Xiaogang Liu[2], Zhaoliang Wang[2] and X. Gao[2]

[1]University of Science and Technology of China, Hefei, China, [2]Institute of Plasma Physics Chinese Academy of Sciences, Hefei, China

2LPo2C-05 [L21] **Experimental Evaluation of Quench Detection Circuits in Different Grounding Methods for the KSTAR Device**

Hirofumi Yonekawa[1], Jinsub Kim[1], Young-ok Kim[1], Kwang-pyo Kim[1] and Yong Chu[1]

[1]National Fusion Research Institute, Daejeon, Korea (the Republic of)

2LPo2C-06 [L22] **Analysis of Tore Supra/WEST Toroidal Field Coil Quench following a Plasma Disruption With Runaway Electrons**

Alexandre Torre[1], Daniel Ciazynski[1], Sylvain Girard[1], Manuel Tena[1] and Cedric Reux[1]

[1]CEA Cadarache, St-Paul lez Durance, France

2LPo2D - Test, Measurement, Techniques [P I]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Mitsuho Furuse, National Institute of Advanced Industrial Science and Technology & Satoshi Ito, Tohoku University

2LPo2D-01 [L23] **Structural Design and Analysis of a Cryogenic System for 3.5T High temperature superconducting magnetic separation**

Liang Guo[1], Huajun Liu[1], Hongjun Ma[1] and Qiudong Guo[2]

[1]Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, Anhui, China, [2]Chongqing Academy of Science and Technology, Chongqing, China

2LPo2D-02 [L24] **Investigate and Comparison of Voltage-current Curves on Magnetic and Non-magnetic substrate of HTS No-insulation Coil at Controlled Current Ramp Rate**

Jie Chen[1]

[1]Room 207, Electrical Engineering Building, Beijing Jiaotong University, Beijing, China, 100044, Beijing, China

2LPo2D-03 [L25] **Magnetic and mechanical design of HEPdipo, a large aperture Nb_3Sn dipole magnet for cable testing**

Paolo Ferracin[1], Luca Bottura[1], Lucas Brouwer[2], Pierluigi Bruzzone[3], Francesca Cau[4], Gijs de Rijk[1], Alfredo Portone[4], Soren Prestemon[2], Emmanuele Ravaioli[1], Etienne Rochepault[5], GianLuca Sabbi[2], Xabier Sarasola[3] and Pietro Testoni[4]

[1]CERN, Geneva, Switzerland, [2]LBNL, Berkeley, California, US, [3]EPFL-CRPP, Villigen, Switzerland, [4]F4E, Barcelona, Spain, [5]CEA, Saclay, France

2LPo2D-04 [L26] **Analysis of the validity of the pulsed current technique for determining the intrinsic E-J characteristics vs temperature of superconducting tapes**

Simon Richard[1], Frederic Sirois[1], Christian Lacroix[1], Jonathan Coulombe[1], Bertrand Dutoit[2] and Vincent Berseth[3]

[1]Polytechnique Montréal, Montréal, Quebec, Canada, [2]École Polytechnique fédérale de Lausanne, Lausanne, Switzerland, [3]Sci-Consulting, St-Sulpice, Switzerland

2LPo2D-05 [L27] **Rapid measurement of average I_c of HTS thin film samples using the scanning Hall probe system**

Hui Mu[1], Feng Feng[1], Linli Wang[1], Yubin Yue[2] and Timing Qu[3]

[1]Tsinghua University, Shenzhen, China, [2]Beijing Eastforce Superconducting Technology Co., Ltd., Beijing, China, [3]Tsinghua University, Beijing, China

2LPo2D-06 [L28] **Numerical and experimental quench propagation in HTS tapes at intermediate temperatures and under magnetic field**

Umberto Gambardella[1], Gerardo Iannone[1], Aniello Saggese[2,1] and Giuseppe Celentano[3]

[1]INFN Napoli, University of Salerno, Fisciano, Italy, [2]University of Salerno, Fisciano, Italy, [3]ENEA Frascati, Frascati, Italy

2LPo2D-07 [L29] **Reel-to-reel critical current testing of high performance REBCO tapes**

Siwei Chen[1], Xiao-Fen Li[1,2] and Venkat Selvamanickam[1]

[1]University of Houston, Houston, Texas, US, [2]Shanghai Jiao Tong University, Shanghai, China

2LPo2D-08 [L30] **Impact of Axial Tensile Strain on the Inhomogeneity of Critical Current for Bi-2212 Round Wire**

Xinsheng Yang[1] and Wei Chen[1]

[1]Southwest Jiaotong University, Chengdu, China

2LPo2D-09 [L31] **Compact cryogen free superconducting system for graphene Quantum Hall resistance (G-QHR) standard**

Ziad Melhem[1], Rodney Bateman[1], Roman Viznichenko[1], James Morgan[1], Jan-Theodoor Janssen[2], Sergiy Rozhko[2], Alexander Tzalenchuk[2], Vladimir Falko[3] and Sergey Kubatkin[4]

[1]Oxford Instruments NanoScience, Abingdon, United Kingdom, [2]NPL, Teddington, United Kingdom, [3]University of Manchester, Manchester, United Kingdom, [4]Chalmers University of Technology, Goteborg, Sweden

2LPo2D-10 [L32] **Current transfer in 2G HTS coated conductors with the current flow diverter architecture**

Jean-Hughes Fournier-Lupien[1], Patrick Del Vecchio[1], Christian Lacroix[1] and Frederic Sirois[1]

[1]Polytechnique Montreal, Montreal, Quebec, Canada

2LPo2E - Magnets for Medical Systems [P I]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Ghoncheh Amouzandeh, Florida State University & Jarek Wosik, University of Houston

2LPo2E-01 [L33] **Magnetic Field Design of a 240 MeV Synchrocyclotron for Proton Therapy**

Hyun Wook Kim[1] and Jong Seo Chai[2]

[1]National Fusion Research Institute, Daejeon, Korea (the Republic of), [2]SungKyunKwan University, Suwon, Gyeonggi-do, Korea (the Republic of)

2LPo2E-02 [L34] **Electromagnetic Design of 1.5 T Non-insulation REBCO Coil System for Portable Joint MRI**

Xueqing Wang[1], Wei Wang[1], Yong Lei[1], Shuqian Huang[1] and Yunfei Gao[1]

[1]Sichuan University, Chengdu, Sichuan Province, China

2LPo2E-03 [L35] **Magnetic design of a half-size 5-T high-temperature superconducting coil for MRI**

Hideaki Miura[1], Masayoshi Oya[1], Tetsuya Matsuda[1], Tatsuya Inoue[2], Yusuke Morita[2], Shunsuke Otake[2], Hajime Tanabe[2] and Shoichi Yokoyama[1]

[1]Mitsubishi Electric Corporation, Amagasaki, Japan, [2]Mitsubishi Electric Corporation, Ako, Japan

2LPo2E-04 [L36] **Numerical Evaluation on Reduction Methods of Screening-current Induced Magnetic Field in REBCO Multiple Coil System for 9.4-T Whole-body MRI**

Keita Ito[1], Atsushi Ishiyama[1], Hiroshi Ueda[2] and So Noguchi[3]

[1]Waseda University, Tokyo, Japan, [2]Okayama University, Okayama, Japan, [3]Hokkaido University, Sapporo, Japan

2LPo2E-05 [L37] **Cold Tests with a Closed Loop Cooling System of a Superconducting Magnet for a Compact Cyclotron for Radioisotope Production**

Javier Munilla[1], Pablo Abramian[1], Miguel Barcala[1], Jesus Calero[1], Manuel Dominguez[1], Antonio Estevez[1], Luis Garcia-Tabares[1], Jose Gutierrez[1], Daniel López[1], Diego Obradors[1], Fernando Toral[1], Rafael Iturbe[2], Jose Gomez[3], Fulvio Becheri[4], Josep Campmany[4] and Llibert Ribó[4]

[1]CIEMAT, Madrid, Spain, [2]ANTECSA, Portugalete, Spain, [3]The Vacuum Projects, Paterna, Spain, [4]ALBA, Cerdanyola, Spain

2LPo2E-06 [L38] **Design of a 3.0-T/900-mm Whole-body MgB_2 MRI Magnet with Partial Insulation Winding Technique**

Young-Gyun Kim[1], Jong Cheol Kim[1], Jihoon Lee[1], Seung Jae Hong[1], Uijong Bong[2], Seungyong Hahn[2] and Haigun Lee[1]

[1]Korea University, Seoul, Korea (the Republic of), [2]Seoul National University, Seoul, Korea (the Republic of)

2LPo2E-07 [L39] **Equivalent Circuit of HTS-MRI Magnet for Exciter Control Design**

Yasuyuki Shirai[1], Takeshi Kawashima[1], Satoshi Kitada[1], Masahiro Shiotsu[1] and Shoichi Yokoyama[2]

[1]Kyoto University, Kyoto, Japan, [2]Mitsubishi Electric, Amagasaki, Hyogo, Japan

2LPo2E-08 [L40] **A Tabletop Persistent-Mode, Liquid Helium-Free 1.5-T MgB_2 "Finger" MRI Magnet: Construction and Operation of a Small-Scale Prototype Magnet**

Yoon Hyuck Choi[1], Yi Li[1], Dongkeun Park[1], Jiho Lee[1], Philip Michael[1], Juan Bascunan[1], John Voccio[2], Yukikazu Iwasa[1] and Hideki Tanaka[3]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [2]Wentworth Institute of Technology, Boston, Massachusetts, US, [3] Hitachi, Ltd., Tokyo, Japan

2LPo2E-09 [L41] **Development of an MgB_2 Dipole Magnet with Conduction Cooling**

Yuhao Kang[1], Peng Song[1] and Timing Qu[1]

[1]Tsinghua University, Beijing, China

2LPo2F - Magnet Stability, Magnetization Effects, AC Losses and Protection [P II]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Rodney Badcock, Victoria University of Wellington & Ibrahim Kesgin, Argonne National Laboratory

2LPo2F-01 [L42]. **Measurement of quench propagation velocity at 4.3 K in commercial REBCO conductors**

Maxime Matras[1], Jerome Fleiter[1] and Amalia Ballarino[1]

[1]CERN, Geneva, Switzerland

2LPo2F-02 [L43] **AC loss measurement in stacks of HTS coil assemblies coupled with an iron core**

Zhenan Jiang[1], Yang Li[2], Yusuke Sogabe[2] and Naoyuki Amemiya[2]

[1]Victoria University of Wellington, Lower Hutt, New Zealand, [2]Kyoto University, Kyoto, Japan

2LPo2F-03 [L44] **Study on AC loss of superconducting windings of a superconducting induction motor with HTS armature**

Bin Liu[1], Rodney Badcock[2], Hang Shu[1] and Jin Fang[1]

[1]Beijing Jiaotong University, Beijing, China, [2]Victoria University of Wellington, Wellington, New Zealand

2LPo2F-04 [L45] **An Innovative Room-Temperature Shimming Approach to Effectively Mitigate Screening Current induced Field of an HTS NMR Magnet**

Jae Young Jang[1], Jun Hee Han[1], Young Jin Hwang[1], Yoonkee Paik[1], Jeseok Bang[2], Seungyong Hahn[2], Min Chul Ahn[3] and SangGap Lee[1]

[1]Korea Basic Science Institute, Daejeon, Korea (the Republic of), [2]Seoul National University, Seoul, Korea (the Republic of), [3]Kunsan National University, Gunsan, Korea (the Republic of)

2LPo2F-05 [L46] **Magnetization of HTS Stacks with Flux Pumping: Improved Performance with Shielding Techniques**

Heng Zhang[1], Jianzhao Geng[1], Jun Ma[1], Qihuan Dong[1], Boyang Shen[1], Chao Li[1], Xiuchang Zhang[1] and Tim Coombs[1]

[1]University of Cambridge, Cambridge, United Kingdom

2LPo2F-06 [L47] **Experimental study on quench protection conditions of copper-stabilized coated conductors using short sample pieces**

Xijie Luo[1], Satoru Inoue[1], Yusuke Sogabe[1] and Naoyuki Amemiya[1]

[1]Kyoto University, Kyoto, Japan

2LPo2F-07 [L48] **Quench Protection of Insulated HTS Magnets by inducing AC Losses within the Magnet Conductor**

Michael Green[1] and Xinglong Guo[2]

[1]Lawrence Berkeley Laboratory, Berkeley, California, US, [2]Jiangsu University, Zhenjiang, China

2LPo2F-08 [L49] **How to Computationally Determine the Maximum Stable Operation Current of an HTS Magnet**

Janne Ruuskanen[1], Antti Stenvall[1], Valtteri Lahtinen[1], Jeroen van Nugteren[2], Glyn Kirby[2] and Jaakko Murtomaeki[1]

[1]Tampere University of Technology, Tampere, Finland, [2]CERN, Geneva, Switzerland

2LPo2F-09 [L50] **The Effect of Temperature Field Distribution on the Screening Current-Induced Magnetic Field in a 4 T Conduction-Cooled REBCO HTS Magnet**

Lei Wang[1], Qiuliang Wang[1,2], Lang Qin[1,2] and Jianhua Liu[1]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China

2LPo2F-10 [L51] **Quench protection of HTS coil composed of multiple pancake-coils by use of auxiliary resistive shunt**

Hifumi Toriyama[1], Akihiro Nomoto[1], Akane Kojima[1], Yoshiki Fuchida[1], Tomoaki Takao[1], Kazuya Nakamura[1], Osami Tsukamoto[1] and Mitsuho Furuse[2]

[1]Sophia University, Tokyo, Japan, [2]National Institute of Advanced Industrial and Technology Lab, Tsukuba, Japan

2LPo2F-11 [L52] *student paper contestant* **3D Quench Modeling based on the T-A Formulation for (RE)$Ba_2Cu_3O_x$ Conductor on Round Core Cable**

Zixuan Zhu[1,2], Yawei Wang[2,1], Min Zhang[1,2] and Weijia Yuan[1,2]

[1]University of Bath, Bath, United Kingdom, [2]University of Strathclyde, Glasgow, United Kingdom

2LPo2F-12 [L53] **Numerical and Experimental Analysis of Thermal Stability of Superconducting Windings Using a YBCO Core Cable**

Huiming Zhang[1], Ming Qiu[1], Hongjie Zhang[1] and Shanshan Fu[1]

[1]China Electric Power Research Institute, Beijing, China

2LPo2G - HTS Power Cables [P II]: DC
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Brian Marchionini, IEA HTS TCP Operating Agent & Joao Murta-Pina, UNINOVA

2LPo2G-01 [L54] **[Invited] Development of Next Generation DC Railway System Using Superconducting Feeder Cables**

Masaru Tomita[1], Kenji Suzuki[1], Yusuke Fukumoto[1], Yuuki Arai[1], Atsushi Ishihara[1], Tomoyuki Akasaka[1], Yusuke Kobayashi[1], Taiki Onji[1], Hiroyuki Ohsaki[3], Takanobu Kiss[4], Takato Masuda[5] and Noriharu Tamada[2]

[1]Railway Technical Research Institute, Tokyo, Japan, [2]MAYEKAWA MFG. CO., LTD, Tokyo, Japan, [3]The University of Tokyo, Tokyo, Japan, [4]Kyushu University, Fukuoka, Japan, [5]Sumitomo Electric Industries, Ltd., Ohsaka, Japan

2LPo2G-02 [L55] **Transport Current Characteristics by DC Power Source for the REBCO Superconducting Wire Under Spray Cooling Method**

Ho-Ik Du[1], Sung-Chae Yang[1] and Hyun-Gi Jeong[1]

[1]Chonbuk National University, Jeonju, Korea (the Republic of)

2LPo2G-03 [L56] **A Study on the Design of a Stop Joint Box for Developing an HTS DC power Cable**

Hongseok Lee[1], Minkyung Jeong[1], Sangsu Jeon[1], Onyou Lee[1] and Hyoungku Kang[1]

[1]Korea National University of Transportation, Chungju-si, Chungbuk, Korea (the Republic of)

2LPo2G-04 [L57] **Design and Experimental Research on Self-shielding DC HTS Cable Model with Large Current Capacity**

Yinshun Wang[1]

[1]North China Electric Power University, Beijing, China

2LPo2G-05 [L58] **Conceptual Design and Test of an Energy Pipeline Prototype with DC Superconducting Cable and LNG**

Qingquan Qiu[1], Liye Xiao[1], GuoMin Zhang[1], Yuping Teng[1], Naihao Song[1], Zhiyuan Gao[1], Liwei Jing[1] and Jianlin Zhang[1]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China

12LPo2G-06 [L59] **Global Sensitivity Analysis of a HTS DC Cable**

Sam Yang[1,2], Juan Ordonez[1,2] and Jose Vargas[3,2]

[1]Florida State University, Tallahassee, Florida, US, [2]Florida State University, Tallahassee, Florida, US, [3]Universidade Federal do Paraná, Paraná, Curitiba, Brazil

2LPo2H - AC Losses in Superconducting Electrical Power Devices
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Jean Leveque, University of Lorraine & Joao Murta-Pina, UNINOVA

2LPo2H-01 [L60&61] **[Invited] Scaling Law of AC Loss in Stacked $REBa_2Cu_3O_y$ Superconducting Tapes with Multifilamentary Structure**

Hiromasa Sasa[1], Tetsuya Ito[1], Shun Miura[1], Masataka Iwakuma[1], Teruo Izumi[2], Takato Machi[2] and Akira Ibi[2]

[1]Kyushu University, Fukuoka, Japan, [2]Research Institute of Advanced Industrial Science and Technology, Ibaraki, Japan

2LPo2H-02 [L62] **First In-Situ A.C. Loss Measurements of HTS Stators for Power Applications**

Jay Patel[1], Min Zhang[1], Weijia Yuan[1], Jie Sheng[1] and Fred Eastham[1]

[1]University of Bath, Dunstable, United Kingdom

2LPo2H-03 [L63] **Study on AC Loss Characteristics of 3-phase HTS Coils With Iron Core and Its Reduction**

Satoshi Fukui[1], Jun Ogawa[1], Jun Takahashi[1], Yuta Kobu[1], Takao Sato[1] and Taketsune Nakamura[2]

[1]Niigata University, Niigata, Japan, [2]Kyoto University, Kyoto, Japan

2LPo2H-04 [L64] **Effect of AC Loss on 2G HTS Double Pancake Coils of 160kV/1kA DC SFCL with AC Ripple Current**

Zhe Jiang[1], Yinshun Wang[1] and Shaotao Dai[2]

[1]North China Electric Power University, Beijing, China, [2]Beijing Jiaotong University, Beijing, China

2LPo2H-05 [L65] **Experimental tests and analysis of AC loss in multi-filament MgB_2 wire**

Jiawen Xi[1], Xiaoze Pei[1], Jie Sheng[2], Hideki Tanaka[3] and Yota Ichiki[3]

[1]University of Bath, Bath, United Kingdom, [2]Shanghai Jiao Tong University, Shanghai, China, [3]Hitachi, Ltd, Ibaraki, Japan

2LPo2H-06 [L66] **Influence of wavy rotating magnetic field on AC loss characteristic in HTS tape**

Jun Ogawa[1], Satoshi Fukui[1], Kohei Seki[1] and Francesco Grilli[2]

[1]Niigata University, Niigata, Niigata, Japan, [2]Karlsruhe Institute of Technology, Karlsruhe, Germany

2LPo2H-07 [L67] **AC Loss Reduction of REBCO Coil for Wireless Power Transmission System**

Ryota Inoue[1], Kenta Igarashi[1], Daisuke Miyagi[1], Makoto Tsuda[1] and Hidetoshi Matsuki[1]

[1]Tohoku University, Sendai, Miyagi, Japan

2LPo2H-08 [L68] **A Novel 2D Modelling Method for Electromagnetic Property Analysis of HTS Power Transmission Cable Spiraled with Coated Conductors**

Pengfei Li[1], Yuejin Tang[1], Zuoshuai Wang[1], Ying Xu[1], Li Ren[1], Dongsheng Pu[1], Siyuan Liang[1], Zhongping Zhang[1], Sinian Yan[1] and Rongyu Su[1]

[1]State Key Lab of Advanced Electromagnetic Engineering and Technology, Wuhan, China

2LPo2H-09 [L69] **Experimental Study by Pick-Up Coil Method on Additional AC Loss of Two-Strand Parallel Conductors Composed of $REBa_2Cu_3O_y$ Superconducting Tapes**

Shun Miura[1], Soichiro Oki[1], Takuma Furukawa[1] and Masataka Iwakuma[1]

[1]Kyushu University, Fukuoka, Japan

2LPo2H-10 [L70] **AC Ripple Losses in Superconducting MgB_2 Pancake Coil**

Yasha Nikulshin[1], Shuki Wolfus[1], Vladimir Ginodman[1], Alex Friedman[1] and Yosef Yeshurun[1]

[1]Bar-Ilan University, Ramat-Gan, Israel

2LPo2H-11 [L71] **AC Loss Investigation on the High Temperature Superconducting (HTS) Coil Under the Action of AC Currents and AC Magnetic Fields**

Boyang Shen[1], Jianzhao Geng[1], Chao Li[1], Xiuchang Zhang[1], Qihuan Dong[1], Jun Ma[1], James Gawith[1] and Tim Coombs[1]

[1]University of Cambridge, Cambridge, United Kingdom

2LPo2H-12 [L72] **Experimental study on critical current and ac loss of YBCO coil with flux diverters**

Guole Liu[1,2], GuoMin Zhang[1], Liwei Jing[1], Liwang Ai[1] and Wanjie Li[1]

[1]the Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2] the University of Chinese Academy of Sciences, Beijing, China

2LPo2J - Cryogenics for Superconducting Devices [P II]

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.

Moderators: Valentina Corato, ENEA & Haizheng Dang, Shanghai Institute of Technical Physics, Chinese Academy of Sciences

2LPo2J-01 [L73] **Thermal Analysis of a Helical Superconducting Undulator Cryostat**

Yuko Shiroyanagi[1], Joel Fuerst[1], Quentin Hasse[1], Matthew Kasa[1], Ibrahim Kesgin[1] and Yury Ivanyushenkov[1]

[1]Argonne National Laboratory, Lemont, Illinois, US

2LPo2J-02 [L74] **Momentum preserved node for fusion magnet cryogenic network analysis and its implications**

Sangjun Oh[1], Hyunjung Lee[1], Dong-Keun Oh[1] and Laurent Jung[1]

[1]NFRI, Daejeon, Korea (the Republic of)

2LPo2J-03 [L75] **Operating characteristics of REBCO magnet for Maglev train using external cooling system and persistent current mode.**

Joengmin Mun[1], Seokho Kim[1], Kideok Sim[2], Ki Hwan Kim[1] and Chang Young Lee[3]

[1]changwon national univesity, Changwon-si, Korea (the Republic of), [2]supergenics, Changwon, Korea (the Republic of), [3]Korea Railroad Research Institute, Uiwang, Korea (the Republic of)

2LPo2J-04 [L76] **Development of a zero rate evaporation cryogenic system for superconducting cyclotron magnet**

Zou Chunlong[1]

[1]Institute of Plasma Physics Chinese Academy of Sciences, Hefei, China

2LPo2J-05 [L77] **Experimental Study on a Conduction Cooling System for a 400 MHz HTS NMR Magnet**

Sehwan In[1], Hankil Yeom[1], Yong-Ju Hong[1], Jiho Park[1], Hyobong Kim[1], Junseok Ko[1], Seong-Je Park[1], Jaemin Kim[2], Yungil Kim[2], Kang Hwan Shin[2], Jae Young Jang[3], Young Jin Hwang[3] and SangGap Lee[3]

[1]Korea Institute of Machinery and Materials, Daejeon, Korea (the Republic of), [2]SuNAM Co., Ltd., Anseong, Korea (the Republic of), [3]Korea Basic Science Institute, Cheongju, Korea (the Republic of)

2LPo2J-06 [L78] **Numerical and Experimental Analyses of Thermal and Electrical Characteristics of MgB_2 Magnet Cooled with Solid Cryogen**

Jihoon Lee[1], Jong Cheol Kim[1], Young-Gyun Kim[1], Hyun Hee Son[1], Yeon Suk Choi[2] and Haigun Lee[1]

[1]Korea University, Seoul, Korea (the Republic of), [2]Korea Basic Science Institute, Daejeon, Korea (the Republic of)

2LPo2J-07 [L79] **Modeling of thermo-fluid dynamic phenomena in superconducting cable cryostats with double annular duct in which different cryogenic fluids flow.**

Giuliano Angeli[1], Marco Bocchi[1] and Luciano Martini[1]

[1]Ricerca sul Sistema Energetico S.p.A., Milano, Italy

2LPo2J-08 [L80] **The cryogenic system and planned cryogenic tests for the future High Luminosity LHC IT magnet string**

Antonio Perin[1], Serge Claudet[1], Fahim Dhalla[1], Michele Sisti[1], Rob van Weelderen[1] and Marta Bajko[1]

[1]CERN, Geneva, Switzerland

2LPo2J-09 [L81] **Cryogenic design of a cryocooler cooled superconducting radio frequency cavity system for particle acceleration**

Ram Dhuley[1], Roman Kostin[2], Oleg Prokofiev[1], Michael Geelhoed[1], Sam Posen[1], Thomas Nicol[1], Jayakar Thangaraj[1], Thomas Kroc[1] and Robert Kephart[1]

[1]Fermi National Accelerator Laboratory, Batavia, Illinois, US, [2]Euclid Techlabs, Bolingbrook, Illinois, US

2LPo2K - Magnetic Measurements

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.

Moderators: Mitsuho Furuse, National Institute of Advanced Industrial Science and Technology & Laura Garcia Fajardo, CERN

2LPo2K-01 [L82] **[Invited] Magnetic Analysis of the first 11 T Nb_3Sn Prototype for HL-LHC**

Lucio Fiscarelli[1], Susana Izquierdo Bermudez[1], Stephan Russenschuck[1], Frederic Savary[1] and Gerard Willering[1]

[1]CERN, Geneva, Switzerland

2LPo2K-02 [L83&84] **[Invited] Magnetic Field Measurements of the First Full-Length Prototype Quadrupole Magnet for the LHC Hi-Lumi Upgrade**

Honghai Song[1], Joseph DiMarco[2], Animesh Jain[3], GianLuca Sabbi[4], Peter Wanderer[1] and Xiaorong Wang[4]

[1]Brookhaven National Laboratory, Upton, New York, US, [2]Fermi National Accelerator Laboratory, Batavia, Illinois, US, [3]Argonne National Laboratory, Lemont, Illinois, US, [4]Lawrence Berkeley National Laboratory, Berkeley, California, US

2LPo2K-03 [L85] **Electromagnetic Design of a 16 T cos θ Bending Dipole for the Future Circular Collider**

Riccardo Valente[1], Giovanni Bellomo[1], Pasquale Fabbricatore[2], Stefania Farinon[2], Vittorio Marinozzi[1], Samuele Mariotto[1], Alessandra Pampaloni[2], Alessandro Maria Ricci[2], Massimo Sorbi[1] and Marco Statera[3]

[1]INFN - LASA & Università degli studi di Milano, Milano, Italy, [2]INFN - Sezione di Genova, Genova, Italy, [3]INFN -LASA, Milano, Italy

2LPo2K-04 [L86] **A system to measure field errors during assembly of Nb_3Sn quadrupole magnets for the High-Luminosity LHC Accelerator Upgrade Project**

Xiaorong Wang[1], Daniel Cheng[1], William Ghiorso[1], Thomas Lipton[1], Scott Myers[1], Heng Pan[1], Soren Prestemon[1], GianLuca Sabbi[1], Giorgio Ambrosio[2], Guram Chlachidze[2] and Joseph DiMarco[1]

[1]LBNL, Berkeley, California, US, [2]Fermi National Accelerator Laboratory, Batavia, Illinois, US

2LPo2K-05 [L87] **Magnetic Field Measurement for Beam Separation Dipole Model Magnet with New Iron Cross Section towards the HL-HLC Upgrade**

Kento Suzuki[1], Yukiko Ikemoto[1], Hiroshi Kawamata[1], Tatsushi Nakamoto[1], Toru Ogitsu[1], Naoki Okada[1] and Michinaka Sugano[1]

[1]KEK, Tsukuba, Japan

2LPo2K-06 [L88] **Magnetic Measurements on the Prototypes Magnets of the High Order Correctors for HL-LHC**

Lucio Fiscarelli[1], Hugues Bajas[1], Franco Mangiarotti[1], Andrea Musso[1], Samuele Mariotto[2,3], Massimo Sorbi[2,3] and Marco Statera[3]

[1]CERN, Geneva, Switzerland, [2]UniMI, Milan, Italy, [3]INFN, Milan, Italy

2LPo2K-07 [L89] **Analysis for the Effects of magnetic field inhomogeneity on the beam trajectory in air-core HTS quadruple magnet.**

Junseong Kim[1], Geonwoo Baek[1], Sangjin Lee[3], Hyoungku Kang[2] and Tae Kuk Ko[1]

[1]Yonsei university, Seoul, Seodaemun-gu, Korea (the Republic of), [2]Korea National University of Transportation, Chungju-si, Korea (the Republic of), [3]Uiduk university, Gyeongju-si, Korea (the Republic of)

2LPo2K-08 [L90] **Field Compensation in Electron-Ion Collider Magnets with a Passive Superconducting Shield**

Ramesh Gupta[1], Shresht Joshi[1], Brett Parker[1], William Sampson[1], Shailendra Chouhan[2], Delbert Larson[2], Ronald Scanlan[2], Bob Weggel[2], Erich Willen[2] and James Kolonko[2]

[1]BNL, Upton, New York, US, [2]Particle Beam Lasers, Inc., Northridge, California, US

2LPo2K-09 [L91] **Field Quality of a 15 T Nb_3Sn Dipole Demonstrator**

Alexander Zlobin[1], Emanuela Barzi[1], Justin Carmichael[1], Joseph DiMarco[1], Vadim Kashikhin[1], Steven Krave[1], Igor Novitski[1], Stoyan Stoynev[1], Thomas Strauss[1], Daniele Turrioni[1] and Gueorgui Velev[1]

[1]Fermilab, Batavia, Illinois, US

2LPo2L - Flux Pumps

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Tim Coombs, Cambridge University & Jianzhao Geng, University of Cambridge

2LPo2L-01 [L92] **Characteristics of Flux Pumped HTS Magnet Subject to Traveling Magnetic Field**

Chao Wang[1,2], PengBo Zhou[1], Hangyu Qian[1,2] and Guangtong Ma[1]

[1]Southwest Jiaotong University, Chengdu, Sichuan, China, [2]Southwest Jiaotong University, Chengdu, Sichuan, China

2LPo2L-02 [L93] **Investigation on the Transformer-Rectifier Flux Pump for High Field Magnets**

Chao Li[1], Jianzhao Geng[1], James Gawith[1], Boyang Shen[1], Jun Ma[1] and Tim Coombs[1]

[1]University of Cambridge, Cambridge, United Kingdom

2LPo2L-03 [L94] **The construction of multiple HTS coils charging system based on the linear-type HTS flux pumps**

Shuqian Huang[1], Wei Wang[1], Yong Lei[1], Xueqing Wang[1] and Yunfei Gao[1]

[1]Sichuan University, Chengdu, Sichuan, China

2LPo2L-04 [L95] **Optimising rotor speed and design for an externally-mounted HTS dynamo**

James Storey[1], Andres Pantoja[1], Zhenan Jiang[1], Chris Bumby[1] and Rodney Badcock[1]

[1]Victoria University of Wellington, Lower Hutt, New Zealand

2LPo2L-05 [L96] **Fabrication and Preliminary Tests of an 1-kW-class HTS Rotating Machine with HTS Contactless Rotary Excitation Device**

Ji Hyung Kim[1], Chang Ju Hyeon[1], Huu Luong Quach[1], Jae Hyung Moon[1], Yoon Seok Chae[1], Do Jin Kim[1], Seung Jae Hong[2], Haigun Lee[2], Chang-Jin Boo[3], Yong Soo Yoon[4], Jeyull Lee[5], Haeryong Jeon[5], Seunghak Han[5] and Ho Min Kim[1]

[1]jeju National University, Jeju, Korea (the Republic of), [2]Korea University, Seoul, Korea (the Republic of), [3]Jeju International University, Jeju si, Korea (the Republic of), [4]Shin Ansan University, Ansan-si, Korea (the Republic of), [5]Yonsei University, Seoul, Korea (the Republic of)

2LPo2L-06 [L97] **Flux Pump for Bitter-like HTS Magnet with PCM**

Yidan Hu[1], Yinshun Wang[1], Xi Yuan[1], Hao Chen[1] and Wei Pi[1]

[1]North China Electric Power University, Beijing, China

2LPo2L-07 [L98] **Operation Characteristics of an AC Field Switch Based Transformer-Rectifier Flux Pump for a Cryogen-Free HTS Magnet**

Jingbo Lin[1], Wei Wu[1], Jie Sheng[1], Yunhao Pan[1], Zhiyong Hong[1] and Zhijian Jin[1]

[1]School of Electronic Information and Electrical Engineering, Shanghai Jiao Tong University, Shanghai, China

2LPo2L-08 [L99] **Test of a Stationary Flux Pump using Linear Moving Magnetic Fields for a Persistent Current Mode HTS Jointless Coil**

Seyeon Lee[1], Miyeon Yoon[1], Jisung Goo[1], Woo-Seok Kim[1], Ji-kwang Lee[2] and Kyeongdal Choi[1]

[1]Korea Polytechnic University, Siheung-si, Korea (the Republic of), [2]Woosuk University, Wanjoo, Korea (the Republic of)

2LPo2L-09 [L100] **Charging Experiment of Toroidal Series Type Rotary HTS Flux Pump using Rotating Magnetic Field**

Haeryong Jeon[1], Jeyull Lee[1], Seunghak Han[1], Ji Hyung Kim[2], Chang Ju Hyeon[2], Yoon Do Chung[4], Ho Min Kim[2], Tae Kuk Ko[1] and Yong Soo Yoon[3]

[1]Yonsei university, Seoul, Korea (the Republic of), [2]Jeju National University, Jeju, Korea (the Republic of), [3]Shin Ansan University, Ansan, Korea (the Republic of), [4]Suwon Science College, Hwaseong, Korea (the Republic of)

2LPo2L-10 [L101] **Experimental Analysis of a Rotating HTS Flux Pump Considering Bending Strain**

Seunghak Han[1], Jeyull Lee[1], Haeryong Jeon[1], Ji Hyung Kim[2], Chang Ju Hyeon[2], Ho Min Kim[2], Tae Kuk Ko[1], Yong Soo Yoon[3] and Dongkeun Park[4]

[1]Yonsei University, Seoul, Korea (the Republic of), [2]Jeju International University, Jeju-si, Jeju-do, Korea (the Republic of), [3]Shin Ansan University, Ansan-si, Gyeonggi-do, Korea (the Republic of), [4]MIT, Cambridge, Massachusetts, US

2LPo2L-11 [L102] **Contactless Power Supply for HTS Magnets: Circuit Topology Design and Cryogenic Testing**

Hangyu Qian[2,1], Chao Wang[2,1], PengBo Zhou[1] and Guangtong Ma[1]

[1]Southwest Jiaotong University, Chengdu, China, [2]Southwest Jiaotong University, Chengdu, China

2LPo2M - Various Magnetic Applications

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.

Moderators: Tomoaki Takao, Sophia University & Frank Werfel, Adelwitz Technologiezentrum GmbH (ATZ)

2LPo2M-01 [L103] **Updated Status of Cryogenic/Superconducting Components for Aircraft Electric Propulsion**

Timothy Haugan[1]

[1]The Air Force Research Laboratory, Wright-Patterson AFB, Ohio, US

2LPo2M-02 [L104] **Optimal Design of ICRH Antenna in Particle Acceleration System**

Menghan Wang[1], Yinshun Wang[1] and Xinning Hu[2]

[1]North China Electric Power University, Beijing, China, [2]Chinese Academy of Science, Beijing, China

2LPo2M-03 [L105] **Design and Analysis of a Special Lateral Suspension Coil for a Spherical Superconducting Rotor**

Hao Wang[1,2], Xinning Hu[1,2], Chunyan Cui[1], Hui Wang[1] and Qiuliang Wang[1,2]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China

2LPo2M-04 [L106] **Numerical Simulation of Pellet Injection System Using Superconducting Linear Acceleration**

Teruou Takayama[1], Takazumi Yamaguchi[1], Ayumu Saitoh[1] and Atsushi Kamitani[1]

[1]Yamagata University, Yonezawa, Japan

2LPo2M-05 [L107] **Quench Protection of a High temperature superconductor magnet with iron core for MW DC Induction Heater**

Ping Yang[2], Yawei Wang[1], Zhijian Jin[2] and Zhiyong Hong[2]

[1]University of Strathclyde, Bath, United Kingdom, [2]Shanghai Jiao Tong University, Shanghai, China

2LPo2M-06 [L108] **Development of Induction Heating for Aluminum Melting using HTS DC Split Coil**

Tomonori Watanabe[1], Shigeo Nagaya[1], Naoki Hirano[1], Satoshi Fukui[2] and Mitsuho Furuse[3]

[1]Chubu Electric Power Co., Inc., Nagoya, Japan, [2]Niigata University, Niigata, Japan, [3]National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan

2LPo2M-07 [L109] **Removal of Iron Scale from Boiler Feed-water in Thermal Power Plant by Magnetic Separation - Large-scale Experiment -**

Junya Yamamoto[1], Tatsuya Mori[1], Yoko Akiyama[1], Hidehiko Okada[2], Noriyuki Hirota[2], Hideki Matsuura[3], Seitoku Namba[3], Tomokazu Sekine[4], Fumihito Mishima[5] and Shigehiro Nishijima[5]

[1]Osaka University, Suita city, Osaka, Japan, [2]National Institute for Materials Science, Tsukuba, Japan, [3]Shikoku Research Institute Inc., Takamatsu, Japan, [4]Ebara Industrial Cleaning Co. Ltd., Kawasaki, Japan, [5]Fukui University of Technology, Fukui, Japan

2LPo2M-08 [L110] **CC tape arrangement in superconducting part of the magnetic cloak**

Mykola Solovyov[1], Martin Kucharovič[2], Ján Šouc[1] and Fedor Gömöry[1]

[1]IEE SAS, Bratislava, Slovakia, [2]STU in Bratislava, Bratislava, Slovakia

2LPo2M-09 [L111] **Power transfer efficiency of wireless power transfer system using spiral coil with double-side HTS wire**

Naoto Sekiya[1] and Shinya Kobayashi[1]

[1]University of Yamanashi, Kofu, Japan

2MPo2A - Magnetization and AC Loss [P II]

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.

Moderators: Fedor Gömöry, Institute of Electrical Engineering, Slovak Academy of Sciences & Mark Raine, Durham University

2MPo2A-01 [M1] **Improvement of trapped magnetic field characteristics by waveform control pulse magnetization**

Tetsuya Ida[1], Masahiro Watasaki[1,2], Motohiro Miki[1], Clement Bocquel[1] and Mitsuru Izumi[1]

[1]Tokyo University of Marine Science and Technology, Tokyo, Japan, [2]National Institute of Technology, Hiroshima College, Hiroshima, Japan

2MPo2A-02 [M2] **Improvement of trapped magnetic field of a REBCO bulk magnet activated by pulsed field magnetization in a high-cooling power dual-stage GM-type refrigerator**

Kazuya Yokoyama[1] and Tetsuo Oka[2]

[1]Ashikaga University, Ashikaga, Tochigi, Japan, [2]Niigata University, Niigata, Japan

2MPo2A-03 [M3] **Dc magnetic shielding by machinable MgB_2 bulks**

Laura Gozzelino[1,2], Roberto Gerbaldo[1,2], Gianluca Ghigo[1,2], Francesco Laviano[1,2], Daniele Torsello[1,2], Valentina Bonino[3], Marco Truccato[3,2], Mihail Burdusel[4], Mihai Grigoroscuta[4,5], Dan Batalu[5], Gheorghe Aldica[4] and Petre Badica[4]

[1]Politecnico di Torino, Turin, Italy, [2]Istituto Nazionale di Fisica Nucleare, Sezione di Torino, Turin, Italy, [3]Università di Torino, Turin, Italy, [4]National Institute of Materials Physics, Magurele, Romania, [5]University Politehnica of Bucharest, Bucharest, Romania

2MPo2A-04 [M4] **An explanation of observed flux creep in opposite direction to Lorentz force in partially magnetized bulk superconductors**

Mark Ainslie[1], Roy Weinstein[2,3] and Ravi-Persad Sawh[3]

[1]University of Cambridge, Cambridge, United Kingdom, [2]University of Houston, Houston, Texas, US, [3]Roxxyquest Magnetics, Houston, Texas, US

2MPo2A-05 [M5] **Pulsed field magnetization of RE-Ba-Cu-O bulk superconductor–metal composites**

Kai Yuan (Danny) Huang[1], Tomáš Hlásek[2], Difan Zhou[1], Yunhua Shi[1], Jan Srpčič[1], Mark Ainslie[1], Devendra Namburi[1], Antony Dennis[1], Martin Boll[3], David Cardwell[1] and John Durrell[1]

[1]University of Cambridge, Cambridge, United Kingdom, [2]CAN SUPERCONDUCTORS, S.R.O., Kamenice, Czechia, [3]Siemens AG, Corporate Technology, Munich, Germany

2MPo2A-06 [M6] **Macroscopic-scale magnetic coupling effect: the physical origination for high-temperature superconducting flux pump**

Wei Wang[1]

[1]Sichuan University, Chengdu, Sichuan, China

2MPo2A-07 [M7] **The actual impact of a Soft Ferromagnetic Material on the ac losses of type-II superconducting wires**

Muhammad Fareed[1], Harold Ruiz[1] and Bright Robert[1]

[1]University of Leicester, Leicester, Leicestershire, United Kingdom

2MPo2A-08 [M8] **Effects of Interfilamentary Bridging on Magnetic Properties of Bi2212 Strands**

Cory Myers[1], Mike Sumption[1] and Edward Collings[1]

[1]Ohio State University, Columbus, Ohio, US

2MPo2A-09 [M9] **Influence of number of filaments and twist pitch on losses in multifilamentary Nb-Ti strands**

Adel Nader[1] and Damian Hampshire[1]

[1]Durham University, Durham, United Kingdom

2MPo2A-10 [M10] **Magnetic characterisation of soft magnetic cores at cryogenic temperatures**

Xiaoze Pei[1], Alexander Smith[2], Lode Vandenbossche[3] and Jan Rens[3]

[1]University of Bath, Bath, United Kingdom, [2]University of Manchester, Manchester, United Kingdom, [3]OCAS N.V., Gent, Belgium

2MPo2B - Mechanical Properties and Strain Dependence [P II]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Hiroyuki Fujishiro, Iwate University & Damian Hampshire, Durham University

2MPo2B-02 [M11] **Effect of impregnation on the stiffness of Nb_3Sn coil segments and cable stacks**

Felix Wolf[1], Friedrich Lackner[1], Michael Hofmann[2], Christian Scheuerlein[1], Daniel Schoerling[1] and Davide Tommasini[1]

[1]CERN, Genève 23, Switzerland, [2]Technical University of Munich, Garching, Germany

2MPo2B-03 [M12] **Thermal expansion of Nb_3Sn conductors for accelerator magnets**

Matthias Michels[1], Friedrich Lackner[1], Christian Scheuerlein[1], Alejandro Carlon Zurita[1], Nicolas Bourcey[1], Frederic Savary[1] and Davide Tommasini[1]

[1]CERN, Geneva, Switzerland

2MPo2B-04 [M13] **Effect of cable insulation procedure on properties of epoxy-impregnated Nb3Sn cable pack composite**

Steven Krave[1], Pei Li[1] and Alexander Zlobin[1]

[1]Fermilab, Batavia, Illinois, US

2MPo2B-05 [M14] **X-ray residual stress measurement of Nb_3Sn filaments made by internal tin method and bronze method**

Shutaro Machiya[1], Kozo Osamura[2] and Najib Cheggour[3]

[1]Daido univ., Nagoya, Japan, [2]Research Institute for Applied Sciences, Kyoto, Kyoto, Japan, [3]NHMFL, Tallahassee, Florida, US

2MPo2B-06 [M15] **Mechanical evidence of Embrittlement in Low Temperature Treated RRP® Nb_3Sn Wire**

Takuya Maekawa[1], Shutaro Machiya[1], Kozo Osamura[2] and Najib Cheggour[3]

[1]Daido university, Nagoya, Aichi-pref., Japan, [2]Research Institute for Applied Sciences, Kyoto, Japan, [3]NHMFL, Tallahassee, Florida, US

2MPo2B-07 [M16] **Thermo-mechanical inspection of a superconducting coil using DIC down to 20 K**

Jorge Pelegrin[1] and Wendell Bailey[1]

[1]UNIVERSITY OF SOUTHAMPTON, SOUTHAMPTON, HAMPSHIRE, United Kingdom

2MPo2B-08 [M17] **Variations of the Strain Effect on Critical Current in REBCO Coated Conductor Tapes Depending on Adopted Probes**

Mark Angelo Diaz[1] and Hyung-Seop Shin[1]

[1]Andong National University, Andong City, Gyeongsangbuk, Korea (the Republic of)

2MPo2B-09 [M18] **The Biaxial Strain Dependence of the Critical Current in (RE)BCO Coated Conductors for Fusion Applications**

Jack Greenwood[1], Elizabeth Surrey[2] and Damian Hampshire[1]

[1]Superconductivity Group, Department of Physics , Durham, County Durham, United Kingdom, [2]Culham Centre for Fusion Energy, Abingdon, Oxfordshire, United Kingdom

2MPo2B-10 [M19] **Domain controlling by high-temperature bending process and strain dependence of critical current density of (Y,Gd) $Ba_2Cu_3O_{7-x}$ coated conductors**

Hidenori Misaizu[1], Tatsunori Okada[1] and Satoshi Awaji[1]

[1]Institute for Materials Reserch, Tohoku Univercity, Sendai, Japan

2MPo2B-11 [M20] **Characterization of filament damage on externally and internally etched $Bi_2Sr_2CaCu_2O_{8-x}$ (Bi-2212) superconducting wires after applying simulated Walters Spring strain**

Jordan Egner-Schnitzler[1], Luke Jarocki[2], Matthew Jewell[1] and Gabrielle Peterka[1]

[1]University of Wisconsin - Eau Claire, Eau Claire, Wisconsin, US, [2]University of Wisconsin - Eau Claire, Eau Claire, Wisconsin, US

12MPo2B-12 [M21] **Investigation of Minimum Tolerable Bending Strain of MgB_2 Wires with Various Sheath Materials**

Byeongha Yoo[1], Young-Gyun Kim[1], Junsub Kim[1], Jimin Kim[1], Duck Young Hwang[2] and Haigun Lee[1]

[1]Korea University, Seoul, Korea (the Republic of), [2]Kiswire Advanced Technology Co., Ltd., Daejeon, Korea (the Republic of)

2MPo2C - Pnictides, Fe-Chalcogenides and New Emerging Materials [P II]

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.

Moderators: Fumitake Kametani, National High Magnetic Field Laboratory, Florida State University & Tsuyoshi Tamegai, The University of Tokyo

2MPo2C-01 [M22] **Anisotropic effect of proton irradiation on pinning properties of Fe(Se,Te) thin films**

Antonio Leo[1,2], Giulia Sylva[3], Valeria Braccini[3], Emilio Bellingeri[3], Alberto Martinelli[3], Ilaria Pallecchi[3], Carlo Ferdeghini[3], Luca Pellegrino[3], Marina Putti[4,3], Gianluca Ghigo[5], Laura Gozzelino[5], Daniele Torsello[5], Sandro Pace[1,2], Angela Nigro[1,2] and Gaia Grimaldi[2]

[1]Università degli Studi di Salerno, Fisciano, Salerno, Italy, [2]CNR, Fisciano, Salerno, Italy, [3]CNR, Genova, Italy, [4] Università degli studi di Genova, Genova, Italy, [5]Politecnico di Torino and INFN Sezione di Torino, Torino, Italy

2MPo2C-02 [M23] **Enhancement of the Superconducting Transition Temperature in Electroplated Rhenium to 6 K**

David Pappas[1,2], Donald David[4], Russell Lake[1], Mustafa Bal[1,2], Ronald Goldfarb[1], Dustin Hite[1], Eunja Kiim[3], Hsiang-Sheng Ku[1,2], Junling Long[1,2], CoreyRae McRae[1,2], Lee Pappas[4], Alexana Roshko[1], J.G. Wen[5], Britton Plourde[6], Ilke Arslan[5] and Xian Wu[1,2]

[1]NIST, Boulder, Colorado, US, [2]University of Coloradow, Boulder, Colorado, US, [3]UNLV, Las Vegas, Nevada, US, [4]University of Colorado, Boulder, Colorado, US, [5]Argonne National Lab, Lemont, Illinois, US, [6]Syracuse University, Syracuse, New York, US

2MPo2C-03 [M24] **Fe(Se,Te) from melting routes: insight on phase separation**

Andrea Masi[1], Carlo Alvani[2], Mariangela Bellusci[2], Giuseppe Celentano[3], Gianluca De Marzi[3], Fabio Fabbri[2], Chiarasole Fiamozzi Zignani[3], Aurelio La Barbera[2], Franco Padella[2], Marzia Pentimalli[2], Enrico Silva[1], Angelo Vannozzi[3] and Francesca Varsano[2]

[1]Università degli Studi di Roma Tre, Rome, Rm, Italy, [2]ENEA, Rome, Italy, [3]ENEA, Frascati, Italy

2MPo2C-04 [M25] **Superconducting $FeSe_{0.1}Te_{0.9}$ Thin Films Integrated on Silicon and Flexible Mica Substrates**

Jijie Huang[1], Han Wang[1], Zhimin Qi[1], Xing Sun[1] and Haiyan Wang[1]

[1]Purdue University, West Lafayette, Indiana, US

2MPo2C-05 [M26] **Effects of high energy proton irradiation on the superconducting properties of Fe(Se,Te) thin films**

Giulia Sylva[1,2], Emilio Bellingeri[1], Carlo Ferdeghini[1], Alberto Martinelli[1], Ilaria Pallecchi[1], Luca Pellegrino[1], Marina Putti[2,1], Gianluca Ghigo[3], Laura Gozzelino[3], Daniele Torsello[3], Gaia Grimaldi[4], Antonio Leo[5,4], Angela Nigro[5,4] and Valeria Braccini[1]

[1]CNR-SPIN Genova, Genova, Italy, Italy, [2]Università degli studi di Genova, Genova, Italy, [3]Politecnico di Torino and INFN Sezione di Torino, Torino, Italy, [4]CNR-SPIN Salerno, Salerno, Italy, [5]University of Salerno, Salerno, Italy

2MPo2C-06 [M27] **Study of the Defect Structure on $M_{1-x}V_xB_2$-type superconducting compounds**

Sergio Renosto[1] and Durval Rodrigues Jr.[1]

[1]Escola de Engenharia de Lorena - University of São Paulo, Lorena, São Paulo, Brazil

2MPo2C-07 [M28] **Understanding the route for high intergranular current in 122 phase iron-based superconducting polycrystalline bulks through high energy milling**

Shinnosuke Tokuta[1] and Akiyasu Yamamoto[1]

[1]Tokyo University of Agriculture and Technology, Kawaguchi, Saitama, Japan

2MPo2C-08 [M29] **Critical current of iron-based superconductors at 10-25K and different magnetic fields**

Qian Dong[1] and Ying Xin[1]

[1]Tianjin University, Tianjin, Tianjin, China

2MPo2C-09 [M30] **High strength Cu-Nb-Ta-W composites**

Shreyas Balachandran[1], Robert Walsh[2], Peter Lee[1] and David Smathers[3]

[1]ASC/ NHMFL/FSU, Tallahassee, Florida, US, [2]NHMFL, Tallahassee, Florida, US, [3]HC Starck Inc, Newton, Massachusetts, US

2MPo2C-10 [M31] **Two-dimensional graphene superconducting and hot electron bolometer research based-on metal atoms surface modification**

Hengbin Zhang[1], Xiaomin Bei[1] and Qiang Chen[1]

[1]China Academy of Space technology, Beijing, China

2MPo2D - Bulk Conductors [P]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderator: Akiyasu Yamamoto, Tokyo University of Agriculture and Technology

2MPo2D-01 [M32] **Crystal growth and superconducting properties of Gd123 melt-solidified bulks synthesized from various cation compositions**

Shusuke Matsumaru[1], Yu Yanai[1], Takanori Motoki[1], Jun-ichi Shimoyama[1] and Satoshi Awaji[2]

[1]Aoyama Gakuin University, Sagamihara, Kanagawa, Japan, [2]Tohoku University, Sendai, Miyagi, Japan

2MPo2D-02 [M33]: **Enhanced mechanical properties of single-domain YBCO bulks via artificial holes**

Tomáš Hlásek[1], Kai Yuan (Danny) Huang[2], Judit Esnoz-Larraya[3], Vladimír Plecháček[1], John Durrell[2] and Ignacio Valiente-Blanco[3]

[1]CAN SUPERCONDUCTORS s.r.o., Kamenice, Czechia, [2] University of Cambridge, Cambridge, United Kingdom, [3]MAG SOAR SL, Valdemoro, Spain

2MPo2D-03 [M34] **How to Control the Gd211 Particles and Enhance the Levitation Force of Single Domain GdBCO Bulks Prepared by Gd+011 TSIG Method**

Wanmin Yang[1]

[1]Physical department, Xi'an, China

2MPo2D-04 [M35] **Comparison of the connectivity of MgB_2 bulks made with B powder purified by different methods**

Zili Zhang[1], Min Tian[3], Lin Ma[3], Min Liu[3], Hongli Suo[3], Eric Hellstrom[4] and Qiuliang Wang[1,2]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China, [3]Key Laboratory of Advanced Functional Materials, Ministry of Education, College of Materials Science and Engineering, Beijing University of Technology, Beijing, China, [4]Applied Superconductivity Center, National High Magnetic Field Laboratory, Florida State University, Tallahassee, Florida, US

2MPo2D-05 [M36] **Enhancement of Bc_2 by in situ oxygen doping in MgB_2 bulk materials**

Danlu Zhang[1], Mike Sumption[1], Edward Collings[1], Cj Thong[2] and Matthew Rindfleisch[2]

[1]The Ohio State University, Columbus, Ohio, US, [2]Hyper Tech Research, Columbus, Ohio, US

2MPo2D-06 [M37] **Refining effects of B powder on MgB_2 formation and vortex pinning properties in infiltration-reaction processed MgB_2 bulks**

Yuhei Takahashi[1], Tomoyuki Naito[1] and Hiroyuki Fujishiro[1]

[1]Iwate University, Morioka, Japan

2MPo2D-07 [M38] **Improved performance of silver added nano-diamond doped MgB_2**

Longji Dadiel[2], Muralidhar Miryala[1] and Masato Murakami[1]

[1]Shibaura Institute of Technology, Japan, Tokyo, Koto-ku, Japan, [2]Shibaura Institute of Technology, Japan, Koto-ku, Tokyo, Japan

2MPo2D-08 [M39] **Effect of Ag as dopant and co-dopant on superconducting properties of MgB_2**

Gianmarco Bovone[1,2], Marco Capra[1,4], Pietro Manfrinetti[3], Alessia Provino[3,1], Cristina Bernini[1], Federico Loria[1], Chiara Tarantini[2], Marina Putti[4,1], Carlo Ferdeghini[1], Antonio Siri[4,1], David Larbalestier[2] and Maurizio Vignolo[1]

[1]CNR - Spin Institute, Genova, GE, Italy, [2]Applied Superconductivity Center, Tallahassee, Florida, US, [3]University of Genova, Genova, Italy, [4]University of Genova, Genova, Italy

2MPo2D-09 [M40] **Study on Magnetic Flux Dissipation and Field-Trapping Performance of HTS Bulk-Shaped Magnesium Diboride in Pulse-Field Magnetizing Processes**

Tetsuo Oka[1], Jun Ogawa[1], Satoshi Fukui[1], Takao Sato[1], Wolfgang Hässler[2], Hayami Oki[1], Akira takeda[1] and Kazuya Yokoyama[3]

[1]Niigata University, Niigata, Japan, [2]IFW Dresden, Dresden, Germany, [3]Ashikaga Inst Tech, Ashikaga, Japan

2MPo2D-10 [M41] **Design optimization of a hybrid trapped field magnet lens (HTFML)**

Sora Namba[1], Hiroyuki Fujishiro[1], Mark Ainslie[2], Keita Takahashi[1], Devendra Namburi[2], Difan Zhou[2] and Tomoyuki Naito[1]

[1]Iwate University, Morioka, Iwate, Japan, [2]University of Cambridge, Cambridge, United Kingdom

2EOr2A - LTS Fabrication
602-604; 3:30 p.m. - 5:00 p.m.
Moderators: Anna Fox, NIST & John Spargo, IEEE Council of Superconductivity

3:30 p.m. - 4:00 p.m. **[invited] An advanced fabrication process for superconductor electronics with a new stack of superconducting layers**

Sergey Tolpygo[1], Vladimir Bolkhovsky[1], Ravi Rastogi[1], Scott Zarr[1], Alexandra Day[1], Evan Golden[1], Terence Weir[1], Alex Wynn[1] and Leonard Johnson[1]

[1]Massachusetts Institute of Technology, Lexington, Massachusetts, US

4:00 p.m. - 4:15 p.m. 2EOr2A-02: **Modular Planarized Fabrication Process**

Daniel Yohannes[1,2], John Vivalda[1,2], Mario Renzullo[1,2], Denis Amparo[1,2], Jason Walter[2], Alex Kirichenko[2], Igor Vernik[2] and Oleg Mukhanov[2,1]

[1]HYPRES, Inc., Elmsford, New York, US, [2]HYPRES, INC, ELMSFORD, New York, US

4:15 p.m. - 4:30 p.m. 2EOr2A-03: **Diagnosis of factors impacting yield in multilayer devices for superconducting electronics**

Nancy Missert[1], Paul Kotula[1], Lisa Lowery[1], Mark Jenkins[1], Paiboon Tangyunyong[1], Andrew Kent[2], Laura Rehm[2], Volker Sluka[2], Daniel Yohannes[3], Alex Kirichenko[3], Igor Vernik[3], Oleg Mukhanov[3], Vladimir Bolkhovsky[4], Alex Wynn[4] and Leonard Johnson[4]

[1]Sandia National Laboratories, Albuquerque, New Mexico, US, [2]New York University, New York, New York, US, [3]HYPRES, Elmsford, New York, US, [4]MIT Lincoln Laboratory, Lexington, Massachusetts, US

4:30 p.m. - 4:45 p.m. 2EOr2A-04: **Yield characterization of Reciprocal Quantum Logic (RQL) circuits in SFQ5ee process**

Anna Herr[1], Ryan Clarke[1], Miguel Alvarado[1], Andrew Urbanas[1] and Anton Sidorov[1]

[1]Northrop Grumman, Linthicum, Maryland, US

4:45 p.m. - 5:00 p.m. 2EOr2A-05: **Automated probing of Josephson Junctions to characterize junction Uniformity**

Ian Haygood[1], Eric Edwards[1], Anna Fox[1], David Olaya[1], William Rippard[1], Paul Dresselhaus[1] and Peter Hopkins[1]

[1]NIST, Boulder, Colorado, US

2EOr2B - TES Workshop: Applications of Microcalorimeters I
611-612; 3:30 p.m. - 5:00 p.m.
Moderators: Stephen Boyd, University of New Mexico & Shengcai Shi, Purple Mountain Observatory

3:30 p.m. - 3:45 p.m. 2EOr2B-01: **Realizing the promise of Transition Edge Sensors for X-ray Spectroscopy**

Charles Titus[1], Sang Jun Lee[2], Yanru Song[1], Hsiao-Mei Cho[3], Dale Li[3], Dan Becker[5], Douglas Bennett[4], W. Bertrand Doriese[4], Joseph Fowler[4], Johnathon Gard[5], Gene Hilton[4], Vincent Kotsubo[4], Galen O'Neil[5], Carl Reintsema[4], Daniel Schmidt[4], Daniel Swetz[4], Leila Vale[4], Joel Ullom[4,5], Dennis Nordlund[4] and Kent Irwin[1,3]

[1]Stanford, Palo Alto, California, US, [2]Slac National Accelerator Laboratory, Menlo Park, California, US, [3]Slac National Accelerator Laboratory, Menlo Park, California, US, [4]National Institute of Standards and Technology, Boulder, Colorado, US, [5]University of Colorado Boulder, Boulder, Colorado, US

3:45 p.m. - 4:00 p.m. 2EOr2B-02: **Superconducting TES Spectrometer at LCLS-II**

Dale Li[1], Bradley Alpert[2], Dan Becker[3], Douglas Bennett[2], David Brown[1], Hsiao-Mei Cho[1], John D'Ewart[1], W. Bertrand Doriese[2], John Dusatko[1], Joseph Fowler[2], Josef Frisch[1], Johnathon Gard[3], Serge Guillet[1], Gene Hilton[2], Kent Irwin[1,4], Vincent Kotsubo[2], Sang Jun Lee[1], John Mates[3], Mark McKelvey[1], Kelsey Morgan[2], Kazutaka Nakahara[1], Galen O'Neil[3], Carl Reintsema[2], Daniel Schmidt[2], Stephen Smith[1], Daniel Swetz[2], Jana Thayer[1], Charles Titus[4], Joel Ullom[2,3], Leila Vale[2], Daniel Van Winkle[1], Paul Welander[1], Abigail Wessels[3] and Lin Zhang[1]

[1]SLAC National Accelerator Laboratory, Menlo Park, California, US, [2]NIST, Boulder, Colorado, US, [3]CU Boulder, Boulder, Colorado, US, [4]Stanford University, Stanford, California, US

4:00 p.m. - 4:15 p.m. 2EOr2B-03: **Using transition models to guide design of high performance soft x-ray TESs**

Kelsey Morgan[1,2], Dan Becker[1,2], Douglas Bennett[2], Hsiao-Mei Cho[3], Johnathon Gard[1,2], Kent Irwin[4,3], Sang Jun Lee[3], Dale Li[3], John Mates[1,2], Christine Pappas[2], Carl Reintsema[2], Daniel Schmidt[2], Charles Titus[4], Joel Ullom[1,2], Abigail Wessels[1] and Daniel Swetz[2]

[1]University of Colorado Boulder, Boulder, Colorado, US, [2]National Institute of Standards and Technology, Boulder, Colorado, US, [3]SLAC National Accelerator Laboratory, Menlo Park, California, US, [4]Stanford University, Stanford, California, US

4:15 p.m. - 4:30 p.m. 2EOr2B-04: **Resonant x-ray scattering study of LBCO with transition edge sensors**

Young Il Joe[1], Daniel Swetz[1], Kelsey Morgan[1], Joseph Fowler[1], Galen O'Neil[1], Gene Hilton[1], Carl Reintsema[1], Daniel Schmidt[1], W. Bertrand Doriese[1], Joel Ullom[1], Yizhi Fang[2], Sangjun Lee[2], Stella Sun[2], Peter Abbamonte[2], Sang Jun Lee[3], Jun-Sik Lee[3], Fanny Rodolakis[4] and Jessica McChesney[4]

[1]National Institute of Standards and Technology, Boulder, Colorado, US, [2]University of Illinois, Urbana, Illinois, US, [3]SLAC National Accelerator Laboratory, Menlo Park, California, US, [4]Argonne National Laboratory, Argonne, Illinois, US

4:30 p.m. - 4:45 p.m. 2EOr2B-05: **Optimizing kilo-pixel arrays of transition edge sensors for x-ray astronomy applications**

Stephen Smith[1,2], Joseph Adams[1,2], Simon Bandler[2], James Chervenak[2], Aaron Datesman[3,2], Megan Eckart[2], Fred Finkbeiner[4,2], Ruslan Hummatov[1,2], R. Kelley[2], Caroline Kilbourne[2], Antoine Miniussi[1,2], F. Porter[2], John Sadleir[2], Kazuhiro Sakai[1,2], Nicholas Wakeham[5,2] and Edward Wassell[3,2]

[1]University of Maryland Baltimore County, Baltimore, Washington, US, [2]NASA GSFC, Greenbelt, Maryland, US, [3]Stinger-Ghaffarian Technologies, Greenbelt, Maryland, US, [4]Sigma Space Corp., Lanham, Maryland, US, [5]NASA NPP / USRA, Columbi, Maryland, US

4:45 p.m. - 5:00 p.m. 2EOr2B-06: **Kaonic-Atom X-ray Spectroscopy with Transition-Edge Sensors**

Shinji Okada[1,2]

[1]RIKEN, Wako, Japan, [2]on behalf of the HEATES Collaboration (INFN-LNF, JAEA, KEK, Lund Univ., NIST, PoliMi, RCNP, RIKEN, SMI, TITech, TMU, Tohoku Univ., Univ. of Zagreb, UTokyo), Wako, Japan

2EOr2C - SNSPD Device Physics and Theory

606-607; 3:30 p.m. - 5:00 p.m.

Moderators: Matthew Shaw, Jet Propulsion Laboratory & Lixing You, Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences

3:30 p.m. - 3:45 p.m. 2EOr2C-01: **Disordered superconducting NbN thin film as a material of choice for single-photon detector for linear optical quantum computing**

Gregory Goltsman[1], Simone Ferrari[2], Oliver Kahl[2], Vadim Kovalyuk[1], Alexander Korneev[1] and Wolfram Hans Peter Pernice[2]

[1]Moscow State Pedagogical University, Moscow, Russian Federation, [2]University of Münster, Munster, Germany

3:45 p.m. - 4:00 p.m. 2EOr2C-02: **Fractal superconducting nanowire single-photon detectors with reduced polarization sensitivity**

Chao Gu[1], Xiaoming Chi[1], Yuhao Cheng[1], Julien Zichi[2], Kai Zou[1], Nan Hu[1], Xiaojian Lan[1], Shufan Chen[1], Zuzeng Lin[1,2], Val Zwiller[2] and Xiaolong Hu[1]

[1]Tianjin University, Tianjin, China, [2]Royal Institute of Technology (KTH), Stockholm, Sweden

4:00 p.m. - 4:15 p.m. 2EOr2C-03: **Physical mechanisms of timing jitter in photon detection by current carrying superconducting nanowires**

Mariia Sidorova[1], Alexei Semenov[1], Heinz-Wilhelm Huebers[1], Ilya Charaev[2], Artem Kuzmin[2], Steffen Doerner[2] and Michael Siegel[2]

[1]DLR, Institute of Optical Sensor Systems, Berlin, Germany, [2]Institut für Mikro- und Nanoelektronische Systeme (IMS), Karlsruher Institut für Technologie, Karlsruhe, Germany

4:15 p.m. - 4:30 p.m. 2EOr2C-04: **Voltage spikes induced in parallel superconducting NbTiN nanowires by a critical current pulse**

Khalil Harrabi[2], Abdelkarim Mekki[2], Khaled Gasmi[2] and Jean Paul Maneval[1]

[1]LPA, Paris, France, [2]KFUPM, Dhahran, Saudi Arabia

4:30 p.m. - 4:45 p.m. 2EOr2C-05: **Measurement and modeling of intrinsic detection latency and timing jitter in superconducting nanowire single photon detectors**

Jason Allmaras[2,1], Boris Korzh[2], Qingyuan Zhao[3], Simone Frasca[2], Edward Ramirez[2], Eric Bersin[3], Marco Colangelo[3], Di Zhu[3], Andrew Dane[3], Emma Wollman[2], Francesco Marsili[2], Matthew Shaw[2], Karl Berggren[3] and Alexander Kozorezov[4]

[1]California Institute of Technology, Pasadena, California, US, [2]Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California, US, [3]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [4]Lancaster University, Lancaster, United Kingdom

4:45 p.m. - 5:00 p.m. 2EOr2C-06: **Timing jitter characterization of a superconducting photon coincidence counter**

Shigehito Miki[1,2], Shigeyuki Miyajima[1], Masahiro Yabuno[1], Taro Yamashita[3,4], Takashi Yamamoto[5], Nobuyuki Imoto[5], Rikizo Ikuta[5], Robert Kirkwood[6], Robert Hadfield[7] and Hirotaka Terai[1]

[1]NICT, Kobe, Japan, [2]Kobe University, Kobe, Japan, [3]Nagoya University, Nagoya, Japan, [4]JST, Kawaguchi, Japan, [5]Osaka University, Toyonaka, Japan, [6]National Physics Laboratory, Teddington, United Kingdom, [7]University of Glasgow, Glasgow, United Kingdom

2LOr2A - HTS Magnets I

6C; 3:30 p.m. - 5:00 p.m.

Moderators: Nicholas Long, Victoria University of Wellington & Danko van der Laan, Advanced Conductor Technologies

3:30 p.m. - 4:00 p.m. 2LOr2A-01: **[Invited] Overview of HTS application developments in JST/Strategic Innovation Program**

Kenichi Sato[1]

[1]Japan Sciene and Technology Agency, SUITA, OSAKA, Japan

4:00 p.m. - 4:15 p.m. 2LOr2A-02: **A method to significantly shorten the magnetic field delay of a no-insulation layer-wound REBCO coil**

Yu Suetomi[4,1], Shunji Takahashi[3,1], Tomoaki Takao[3], Hideaki Maeda[2,1] and Yoshinori Yanagisawa[1]

[1]RIKEN, Yokohama, Kanagawa, Japan, [2]Japan Science and Technology Agency, Kawaguchi, Japan, [3]Sophia university, Yotsuya, Tokyo, Japan, [4]Chiba University, Chiba, Chiba, Japan

4:15 p.m. - 4:30 p.m. 2LOr2A-03: **Experiment and Simulation of Post-Quench Behaviors of a No-Insulation 4.7 T 40 mm REBCO Magnet.**

student paper contestant

Kabindra Bhattarai[1], Kwang Lok Kim[1], Kwangmin Kim[1], David Larbalestier[1] and Seungyong Hahn[1,2]

[1]Florida State University, Tallahassee, Florida, US, [2]Seoul National University, Seoul, Korea (the Republic of)

4:30 p.m. - 4:45 p.m. 2LOr2A-04: **Construction and Test of a 7 T Metal-as-Insulation HTS Insert under a 20 T High Background Magnetic Fields at 4.2 K**

Jungbin Song[1], Xavier Chaud[1], Benjamin Borgnic[1], Francois Debray[1], Philippe Fazilleau[2] and Thibault Lécrevisse[2]

[1] Laboratoire National des Champs Magnétiques Intenses, Grenoble, France, [2]Université Paris-Saclay, F-91191 Gif-Sur-Yvette, France

4:45 p.m. - 5:00 p.m. 2LOr2A-05: **High-field magnets wound from CORC® cables and wires**

Danko van der Laan[1,2], Jeremy Weiss[1,2], Dustin McRae[2,1], Hubertus Weijers[3], Dmytro Abraimov[3], David Larbalestier[3], Xiaorong Wang[4], Hugh Higley[4], Soren Prestemon[4], Tim Mulder[5,6], Herman ten Kate[5,6] and Ramesh Gupta[7]

[1]Advanced Conductor Technologies, Boulder, Colorado, US, [2]University of Colorado, Boulder, Colorado, US, [3]NHMFL, Tallahassee, Florida, US, [4]LNBL, Berkeley, California, US, [5]University of Twente, Enschede, Netherlands, [6]CERN, Geneva, Switzerland, [7]Brookhaven National Laboratory, Upton, New York, US

2LOr2B - Special Session: 50th Anniversary of the BNL Summer Study – sponsored by Supercon, Inc.
6B; 3:30 p.m. - 5:00 p.m.
Moderators: Michael Green, FRIB / MSU & Bruce Strauss, US Department of Energy

Presentations will recollect the ground-breaking studies that led to modern particle accelerators, MRI and other applications using superconducting components. Speakers will also describe how original themes continue to relevant for present-day applications and envisioned uses into the future.

Featured speakers include:

Alan Schwetman, Stanford University – Superconducting RF
Michael Green, LBNL – Cryogenics
David Sutter, University of Maryland – Accelerator Magnets through the Tevatron
Lucio Rossi, CERN – Accelerator Magnets from the LHC onward
David Larbalestier, Florida State University – Conductor Materials Promises and Successes

2LOr2C - Magnetic Levitation
613-614; 3:30 p.m. - 5:00 p.m.
Moderators: Devendra Namburi, University of Cambridge & Nicholas Strickland, Victoria University of Wellington

3:30 p.m. - 3:45 p.m. 2LOr2C-01: **Obtaining Low-Earth Orbit Using Orbital Maglev Rings**
John Hull[1], Mark Clemen-Jr.[1], Dejan Nikic[1] and James Grossnickle[1]
[1]The Boeing Company, Seattle, Washington, US

3:45 p.m. - 4:00 p.m. 2LOr2C-02: **Highlights of the Brazilian Maglev-Cobra Vehicle results after four years operational tests**
Elkin Rodriguez[2], Guilherme Sotelo[1], Felipe Costa[2], Rubens de Andrade Jr.[2] and RIchard Stephan[2]
[1]Fluminense Federal University, Niteroi, Rio de Janeiro, Brazil, [2]Federal University of Rio de Janeiro, Rio de Janeiro, Rio de Janeiro, Brazil

4:00 p.m. - 4:15 p.m. 2LOr2C-03: **3-D Analysis of High-T_c Superconductor for Magnetic levitation under High-Speed Movement with A Strongly Thermo-electromagnetic Coupling Model**
Chang-Qing Ye[1], Guangtong Ma[1,2], Tianyong Gong[1,2] and Wenjiao Yang[1]
[1]Southwest Jiaotong University, Chengdu, Sichuan, China, [2]Southwest Jiaotong University, Chengdu, Sichuan, China

4:15 p.m. - 4:30 p.m. 2LOr2C-04: **Development of New Magnetic Levitation System with an Increased Levitation Force**
Pierre Bernstein[1] and Jacques Noudem[1]
[1]Normandie Université, Caen, France

4:30 p.m. - 4:45 p.m. 2LOr2C-05: **Magnetic Levitation between large-size MgB_2 bulks and a permanent magnet**
Antonio Morandi[1], Pierre Bernstein[2], Jacques Noudem[2] and Pier Luigi Ribani[1]
[1]University of Bologna, Bologna, Italy, [2]Normandie Université, Caen, France

4:45 p.m. - 5:00 p.m. 2LOr2C-06: **Effect of Periodic Excitation on Dynamics of a Rotating Body with a Non-uniform Magnetization Distribution Supported by a Superconducting Magnetic Bearing**
Koki Ochiai[2], Hirotaka Ishii[2] and Toshihiko Sugiura[1]
[1]Keio University, Yokohama-shi, Kanagawa, Japan, [2]Keio University, Yokohama-shi, Japan

2MOr2A - Coated Conductors II: Synthesis & Characterization I
608-609; 3:30 p.m. - 5:00 p.m.
Moderators: Chuanbing Cai, Shanghai University & Vyacheslav Solovyov, Brookhaven Technology Group

3:30 p.m. - 3:45 p.m. 2MOr2A-01: **Influence of granularity on the local current transport in YBCO films grown by pulsed laser deposition on technical templates**
Patrick Pahlke[1], Max Sieger[1], Mayraluna Lao[2,3], Michael Eisterer[2], Paul Chekhonin[4], Werner Skrotzki[4], Ludwig Schultz[1,4], Kornelius Nielsch[1] and Ruben Hühne[1]
[1]IFW Dresden, Dresden, Germany, [2]TU Wien, Vienna, Austria, [3]Karlsruhe Institute for Technology, Karlsruhe, Germany, [4]TU Dresden, Dresden, Germany

3:45 p.m. - 4:00 p.m. 2MOr2A-02: **Fabrication of $YBa_2Cu_3O_7$ Superconducting Film on Conductive Sr(Ti, Nb)O_3-buffered {100}<001> Textured Cu Tape.**

Toshiya Doi[1,2], Tsuyoshi Hamada[1], Takeo Morimura[1], Shigeru Horii[1,2] and Ataru Ichinose[3,2]

[1]Kyoto University, Kyoto, Kyoto-fu, Japan, [2]JST-ALCA, Tokyo, Japan, [3]Central Research Institute of Electric Power Industry, Tokyo, Japan

4:00 p.m. - 4:15 p.m. 2MOr2A-03: **Gaining engineering critical current density in ABAD-PLD processed HTS coated conductors via reduction of substrate thickness: Progress within ARIES project**

Alexander Usoskin[1], Ulrich Betz[1], Sonja Noll-Baumann[1], Alexander Rutt[1] and Klaus Schlenga[1]

[1]Bruker HTS GmbH (Bruker EST Group), Alzenau, Germany

4:15 p.m. - 4:30 p.m. 2MOr2A-04: **Superconducting characteristics of REBCO coated conductors with different Zr content**

Meysam Heydari Gharahcheshmeh[2,1], Goran Majkic[2], Eduard Galstyan[2], Aixia Xu[2], Mehdi Kochat[2], Xiao-Fen Li[2] and Venkat Selvamanickam[2]

[1]Massachusetts Institute of Technology (MIT), Cambridge, Massachusetts, US, [2]University of Houston, Houston, Texas, US

4:30 p.m. - 4:45 p.m. 2MOr2A-05: **Magneto-Optic and SEM study of slitting edge damage in coated conductors**

Anatolii Polyanskii[2], Vyacheslav Solovyov[1], Dmytro Abraimov[2], Paul Farrell[1], Saad Rabbani[1] and David Larbalestier[2]

[1]Brookhaven Technology Group, Advanced Energy Research and Technology Center, Stony Brook, New York, US, [2]National High Magnetic Field Laboratory Florida State University, Tallahassee, Florida, US

4:45 p.m. - 5:00 p.m. 2MOr2A-06: **Current distribution in coated conductor based multi-path conductors**

Xiao-Fen Li[2,1], Wenbo Luo[2], Soumen Kar[2,3], Mehdi Kochat[2], Jan Jaroszynski[4], Dmytro Abraimov[4] and Venkat Selvamanickam[2]

[1]Shanghai Jiao Tong University, Shanghai, China, [2]University of Houston, Houston, Texas, US, [3]AMPeers LLC, Houston, Texas, US, [4]Florida State University, Tallahassee, Florida, US

2MOr2B - Bulk Conductors

615-617; 3:30 p.m. - 5:00 p.m.

Moderators: Gianmarco Bovone, CNR - Spin Institute & Meysam Heydari Gharahcheshmeh, Massachusetts Institute of Technology (MIT)

3:30 p.m. - 4:00 p.m. 2MOr2B-01: **[Invited] Exploring the potential of MgB_2 superconducting bulk magnet**

Akiyasu Yamamoto[1,2], Yu Sanogawa[1], Kouya Ishikawa[1], Masataka Michishita[1] and Nanami Shimazaki[1]

[1]Tokyo University of Agriculture and Technology, Tokyo , Japan, [2]Tokyo Institute of Technology, Tokyo, Japan

4:00 p.m. - 4:15 p.m. 2MOr2B-02: **Microstructural development of ex-situ MgB_2 bulk superconductors optimised for operation in liquid neon at 27 K**

Guillaume Matthews[1], Sajjad Amirkhanlou[1], Guma Yeli[1], Michael Moody[1], Chris Grovenor[1] and Susannah Speller[1]

[1]University of Oxford, Oxford, Oxfordshire, United Kingdom

4:15 p.m. - 4:30 p.m. 2MOr2B-03: **Manufacture of large MgB_2 bulk superconductors by an ultra-high pressure ex-situ process**

Sajjad Amirkhanlou[1], Guillaume Matthews[1], Timothy Davies[1], Edwin Eardley[2], Chris Wort[2], Chris Grovenor[1] and Susannah Speller[1]

[1]University of Oxford, Oxford, Oxon, United Kingdom, [2]Element Six, Didcot, United Kingdom

4:30 p.m. - 4:45 p.m. 2MOr2B-04: **The effect of the size and aspect ratio of single grain Y-Ba-Cu-O on superconducting properties, trapped field and total flux**

Yunhua Shi[1], Antony Dennis[1], John Durrell[1] and David Cardwell[1]

[1]University of Cambridge, Cambridge, United Kingdom

4:45 p.m. - 5:00 p.m. 2MOr2B-05: **Pinning in MgB_2- and MT-YBaCuO bulk superconducting materials manufactured under pressure**

Artem Kozyrev[1], Tetiana Prikhna[1], Michael Eisterer[4], Vladimir Sokolovsky[3], Vitaliy Romaka[2] and Viktor Moshchil[1]

[1]Institute for Superhard Materials of the National Academy of Sciences of Ukraine, Kiev, Ukraine, [2]Lviv Polytechnic National University, Lviv, Ukraine, [3]Ben-Gurion University of the Negev, Beer-Sheva, Israel, [4]Atominstitut, Technische Universität Wien, Vienna, Austria

2EOr3A - Low Field MRI

602-604; 5:15 p.m. - 6:30 p.m.

Moderators: Saburo Tanaka, Toyohashi University of Technology & Jarek Wosik, University of Houston

5:15 p.m. - 5:30 p.m. 2EOr3A-01: **Ultra-low-field MRI: the next generation**

Koos Zevenhoven[1]

[1]Aalto University, Espoo, Finland

5:30 p.m. - 5:45 p.m. 2EOr3A-02: **SQUID current sensor with nanometer-sized Nb-AlOx-Nb Josephson junctions for application in ultra-low field MR**

Jan-Hendrik Storm[1], Oliver Kieler[2], Nora Höfner[1], Peter Hömmen[1] and Rainer Körber[1]

[1]Physikalisch-Technische Bundesanstalt, Berlin, Germany, [2]Physikalisch-Technische Bundesanstalt, Braunschweig, Germany

5:45 p.m. - 6:00 p.m. 2EOr3A-03: **T_1 Weighted-Image by Ultra Low Field SQUID-MRI**

Saburo Tanaka[1], Kazuma Demachi[1], Taiga Tanaka[1], Seiji Adachi[2] and Keiichi Tanabe[2]

[1]Toyohashi University of Technology, Toyohashi, Aichi, Japan, [2]Sustera, Yokohama, Kanagawa, Japan

6:00 p.m. - 6:15 p.m. 2EOr3A-04: **Adaptive suppression of power line interference in ultra-low field magnetic resonance imaging in an unshielded environment**

Hui Dong[1], Xiaolei Huang[1], Yang Qiu[1], Gaowei Xu[1], Le Luo[1], Wei Zhang[1], Yi Zhang[2] and Hans-Joachim Krause[2]

[1]Shanghai Institute of Microsystem and Information Technology, Chinese Academy of, Shanghai, Shanghai, China, [2]Institute of Complex Systems (ICS-8), Forschungzentrum Jülich, Jülich, Germany

6:15 p.m. - 6:30 p.m. 2EOr3A-05: **A 7-channel high-Tc SQUID-based MEG system**

Christoph Pfeiffer[1], Silvia Ruffieux[1], Maxim Chukharkin[1], Alexei Kalaboukhov[1], Dag Winkler[1] and Justin Schneiderman[2]

[1]Chalmers University of Technology, Göteborg, Sweden, [2]MedTech West, and the Institute of Neuroscience and Physiology, Sahlgrenska Academy and University of Gothenburg, Gothenburg, Sweden

2EOr3B - TES Workshop: Applications of Microcalorimeters II

606-607; 5:15 p.m. - 6:45 p.m.

Moderators: Megan Eckart, Lawrence Livermore National Laboratory & Warren Holmes, JPL/Caltech

5:15 p.m. - 5:30 p.m. 2EOr3B-01: **Applications of microwave SQUID multiplexing to large-format TES arrays**

Daniel Becker[2], John Mates[2], Kelsey Morgan[2], Johnathon Gard[2], Abigail Wessels[2], Joel Ullom[2,1], Jason Austermann[1], Douglas Bennett[1], Bradley Dober[1], Shannon Duff[1], Joseph Fowler[1], Gene Hilton[1], Johannes Hubmayr[1], Carl Reintsema[1], Mark Croce[3], Andrew Hoover[3], Katrina Koehler[3] and Michael Rabin[3]

[1]NIST, Boulder, Colorado, US, [2]University of Colorado, Boulder, Colorado, US, [3]Los Alamos National Laboratory, Los Alamos, New Mexico, US

5:30 p.m. - 5:45 p.m. 2EOr3B-02: **TES based particle detector for X-Ray space telescopes.**

Flavio Gatti[1], Michele Biasotti[1], Valentina Ceriale[1], Daniele Grosso[1], Claudio Macculi[2] and Matteo D'Andrea[2]

[1]University of Genova, Genoa, Italy, [2]IAPS-INAF ROMMA, Roma, Italy

5:45 p.m. - 6:00 p.m. 2EOr3B-03: **Application of Metallic Magnetic Calorimeters to Neutrinoless Double Beta Decay**

Inwook Kim[1,2], Jin-A Jeon[1], Hyelim Kim[1], Chang Lee[1], Hyejin Lee[1], Sung-Hun Lee[1], Do-Hyung Kwon[1], Seung-Yoon Oh[1], Jung Ho So[1], So-Ra Kim[1], Chan Seok Kang[1], Yong-Hamb Kim[1], Sung Won Lee[1], Kyeong Rae Woo[1], SeungCheon Kim[1], Sang Goon Kim[1], Hyon-Suk Jo[3] and Minkyu Lee[2]

[1]Institute for Basic Science, Daejeon, Yuseong Gu, Korea (the Republic of), [2]Korea Research Institute of Standards and Science, Daejeon, Korea (the Republic of), [3]Kyungpook National University, Daejeon, Korea (the Republic of)

6:00 p.m. - 6:15 p.m. 2EOr3B-04: **Development of MMC gamma-ray spectroscopy for nuclear safeguards**

Stephen Boyd[1], Geon-Bo Kim[2], Ruslan Hummatov[1], John Hall[3], Robin Cantor[3] and Stephan Friedrich[2]

[1]University of New Mexico, Albuquerque, New Mexico, US, [2]Lawrence Livermore National Laboratory, Livermore, California, US, [3]STAR Cryoelectronics, Santa Fe, New Mexico, US

6:15 p.m. - 6:30 p.m. 2EOr3B-05: **Graphene-based Josephson junction single photon detector**

Kin Chung Fong[1], Evan Walsh[3], Gil-ho Lee[2], Leonardo Ranzani[1], Dmitri Efetov[4], Thomas Ohki[1], Philip Kim[5] and Dirk Englund[3]

[1]Raytheon BBN Technologies, Cambridge, Massachusetts, US, [2]Pohang University of Science and Technology, Pohang, Korea (the Republic of), [3]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [4]ICFO – The Institute of Photonic Sciences, Barcelona, Spain, [5]Harvard University, Cambridge, Massachusetts, US

6:30 p.m. - 6:45 p.m. 2EOr3B-06: **Fast-response superconducting titanium bolometric detectors**

JiaQiang Zhong[1], Wen Zhang[1], Wei Miao[1], Dong Liu[1], Zheng Wang[1], Wen-Ying Duan[1], Feng Wu[1], Kun Zhang[1], Qijun Yao[1], Shengcai Shi[1], Ming-Jye Wang[2] and Francois Pajot[3]

[1]Purple Mountain Observatory, Nanjing, China, [2]Institute of Astronomy and Astrophysics, Academia Sinica, Taipei, Taiwan, [3]Institut de Recherche en Astrophysique et Planétologie, Toulouse, France

2EOr3C - SQIFs, Nano SQUIDs and SQUID Arrays
613-614; 5:15 p.m. - 7:15 p.m.
Moderators: Shane Cybart, UC Riverside & Pascal Febvre, University of Savoie

5:15 p.m. - 5:45 p.m. 2EOr3C-01: **[Invited] Analysis of ultra-sensitive $YBa_2Cu_3O_{7-\delta}$ SQUIDs fabricated by focused helium ion beam direct-writing and implantation at the nanoscale**

Hao Li[1], Ethan Cho[1] and Shane Cybart[1]

[1]University of California, Riverside, California, US

5:45 p.m. - 6:00 p.m. 2EOr3C-02: **Series arrays of long Josephson junctions for high dynamic range**

Ji Wang[1], Ethan Cho[1], Hao Li[1] and Shane Cybart[1]

[1]University of California, Riverside, Riverside, California, US

6:00 p.m. - 6:15 p.m. 2EOr3C-03: **$YBa_2Cu_3O_{7-\delta}$ Micro Superconducting Quantum Interference Devices Fabricated with Focused Helium Ion Irradiation**

Jay LeFebvre[1], Ethan Cho[2], Hao Li[2] and Shane Cybart[2]

[1]University of California Riverside, Riverside, California, US, [2]University of California Riverside, Riverside, California, US

6:15 p.m. - 6:30 p.m. 2EOr3C-04: **Flux-coherent large series SQUID array magnetometers operating above 77K**

Boris Chesca[2], Daniel John[2] and Robin Cantor[1]

[1]STAR Cryoelectronics, Santa Fe, New Mexico, US, [2]Loughborough University, Loughborough, United Kingdom

6:30 p.m. - 6:45 p.m. 2EOr3C-05: **Nondestructive loading of bi-SQUID arrays**

Victor Kornev[1], Nikolay Kolotinskiy[1], Daniil Bazulin[1], Anna Levochkina[1] and Oleg Mukhanov[2]

[1]Lomonosov Moscow State University, Moscow, Russian Federation, [2]Hypres, Inc., Emsford, New York, US

6:45 p.m. - 7:00 p.m. 2EOr3C-06: **Temperature and field dependence of 2D HTS SQIF arrays**

Shane Keenan[1], Wendy Purches[1], Emma Mitchell[1], Karl Wilson[1], William Vasilevski[1], Chris Lewis[1], Alex Grancea[1], Cathy Foley[1] and Jeina Lazar[1]

[1]CSIRO, Sydney, New South Wales, Australia

7:00 p.m. - 7:15 p.m. 2EOr3C-07: **SQIF measurement of absolute magnetic field and uniformity of a superconductor IC test fixture using passive shields**

Cougar Garcia[1], Henry Luo[1], Vladimir Talanov[1], Nicholas Rizzo[1], Joshua Osborne[1], Quentin Herr[1] and Anna Herr[1]

[1]Northrop Grumman Corporation, Baltimore, Maryland, US

2LOr3A - HTS Accelerator Magnets
6B; 5:15 p.m. - 6:45 p.m.
Moderators: Daniel Schoerling, CERN & Xiaorong Wang, LBNL

5:15 p.m. - 5:45 p.m. 2LOr3A-01: **[Invited] State of the art Bi-2212 accelerator magnet technology**

Tengming Shen[1], Laura Garcia Fajardo[1], Soren Prestemon[1], Daniel Davis[1,2], Ernesto Bosque[2], Jianyi Jiang[2], David Larbalestier[2], Yibing Huang[3], Aixia Xu[4], Andrew Hunt[4] and Suvankar Sengupta[5]

[1]Lawrence Berkeley National Laboratory, Berkeley, California, US, [2]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [3]Bruker OST LLC (Bruker EST Group), Carteret, New Jersey, US, [4]nGimat LLC, Lexington, Kentucky, US, [5]MetaMateria, Columbus, Arizona, US

5:45 p.m. - 6:00 p.m. 2LOr3A-02: **Finite element analysis of the strain distribution due to bending in a REBCO coated conductor in a Canted Cosine Theta dipole configuration**

Federica Pierro[1], Luisa Chiesa[1], Xiaorong Wang[2] and Soren Prestemon[2]

[1]Tufts University, Medford, Massachusetts, US, [2]LBNL, Berkeley, California, US

6:00 p.m. - 6:15 p.m. 2LOr3A-03: **Progress of S-Innovation project on cryocooler-cooled HTS accelerator magnets and test of an HTS magnet on HIMAC beam line**

Naoyuki Amemiya[1], Shigeki Takayama[2], Yusuke Ishii[2], Toru Ogitsu[3], Yoshiyuki Iwata[4], Koji Noda[4] and Masahiro Yoshimoto[5]

[1]Kyoto University, Kyoto, Japan, [2]Toshiba Energy Systems & Solutions Corporation, Yokohama, Japan, [3]High Energy Accelerator Research Organization, Tsukuba, Japan, [4]National Institute of Radiological Sciences, Chiba, Japan, [5]Japan Atomic Energy Agency, Tokai, Japan

6:15 p.m. - 6:30 p.m. 2LOr3A-04: **Development of REBCO dipole magnets using CORC® wires**

Xiaorong Wang[1], Diego Arbelaez[1], Lucas Brouwer[1], Shlomo Caspi[1], Daniel Dietderich[1], Stephen Gourlay[1], Laura Garcia Fajardo[1], Hugh Higley[1], Thomas Lipton[1], Maxim Marchevsky[1], Soren Prestemon[1], Tengming Shen[1], Jordan Taylor[1], Marcos Turqueti[1], Danko van der Laan[2], Jeremy Weiss[2], Dustin McRae[2] and Joseph DiMarco[3]

[1]LBNL, Berkeley, California, US, [2]Advanced Conductor Technologies, Boulder, Colorado, US, [3]Fermi National Accelerator Laboratory, Batavia, Illinois, US

6:30 p.m. - 6:45 p.m. 2LOr3A-05: **Theoretical study on mitigation of shielding-current-induced fields in cosine-theta dipole magnets wound with coated conductors by using HTS correction coils**

Yusuke Sogabe[1], Naoyuki Amemiya[1] and Yoshiyuki Iwata[2]

[1]Kyoto University, Kyoto, Japan, [2]National Institute of Radiological Sciences, Chiba, Japan

2LOr3B - Magnet Stability, Magnetization Effects, AC Losses and Protection I
6C; 5:15 p.m. - 6:45 p.m.
Moderators: Zhenan Jiang, Victoria University of Wellington & Yue Zhao, Shanghai Jiao Tong University

5:15 p.m. - 5:30 p.m. 2LOr3B-01: **Evaluating the suitability of CLIQ for protecting different Bi-2212 magnet geometries after a quench**

Daniel Davis[1,2], Lucas Brouwer[2], Emmanuele Ravaioli[3], Shlomo Caspi[2], Youngjae Kim[1], Ernesto Bosque[1], Ulf Trociewitz[1], Tengming Shen[2] and David Larbalestier[1]

[1]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [2]Lawrence Berkeley National Laboratory, Berkeley, California, US, [3]CERN, Geneva, Switzerland

5:30 p.m. - 5:45 p.m. 2LOr3B-02: **First CLIQ test on the High Luminosity LHC 11 T Nb_3Sn dipole magnet**

Matthias Mentink[1], Lorenzo Bortot[1], Alejandro Fernandez Navarro[3], Susana Izquierdo Bermudez[2], Emmanuele Ravaioli[1], Frederic Savary[2], Arjan Verweij[1] and Gerard Willering[2]

[1]CERN, Geneva, Geneva, Switzerland, [2]CERN, Geneva, Geneva, Switzerland, [3]CIEMAT, Madrid, Spain

5:45 p.m. - 6:00 p.m. 2LOr3B-03: **Temporal and spatial effects of the screening currents on the field profile of a 4 T REBCO insert coil in background fields of up to 19 T.**

Christian Barth[1], Piotr Komorowski[2], Riccardo Tediosi[2], Robert Herzog[2], Patrik Vonlanthen[2], Matteo Alessandrini[2] and Carmine Senatore[1]

[1]University of Geneva, Geneva, Switzerland, [2]Bruker BioSpin AG, Fällanden, Switzerland

6:00 p.m. - 6:15 p.m. 2LOr3B-04: **Study on Mutual-Inductance-Based Quench Detector Dedicated to Corrector Magnets of SIS100**

Piotr Szwangruber[1], Walter Freisleben[1], Kei Sugita[1], Vladimir Datskov[1] and Christian Roux[1]

[1]GSI Helmholtzzentrum fuer Schwerionenforschung GmbH, Darmstadt, Hessen, Germany

6:15 p.m. - 6:30 p.m. 2LOr3B-05: **A Numerical Study of Quench in the NHMFL 32 T Magnet**

Lorenzo Cavallucci[1], Marco Breschi[1], Pier Luigi Ribani[1], Andrey Gavrilin[2], Hubertus Weijers[2] and Patrick Noyes[2]

[1]University of Bologna, Bologna, Italy, [2]NHMFL, Florida State University, Tallahassee, Florida, US

6:30 p.m. - 6:45 p.m. 2LOr3B-06: **32T Protection Design and Results**

Patrick Noyes[1], William Coniglio[1], Scott Hannahs[1], Brent Jarvis[1], William Markiewicz[1], James Powell[1], William Sheppard[1], Eric Stiers[1], Adam Voran[1] and Hubertus Weijers[1]

[1]NHMFL, Tallassee, Florida, US

2LOr3C - Special Session: High Temperature Superconductor-based Technologies as Enabler for Efficient and Resilient Energy Systems

6A; 5:15 p.m. - 6:45 p.m.

Moderator: Brian Marchionini, IEA HTS TCP Operating Agent

5:15 p.m. - 5:30 p.m. 2LOr3C-01: **High Temperature Superconductor-based Technologies as an Enabler for Efficient and Resilient Energy Systems**

Brian Marchionini[1], Luciano Martini[2], Hiroyuki Ohsaki[3]

[1]IEA HTS TCP Operating Agent, Washington, District of Columbia, US, [2]RSE, Milan, Italy, [3]University of Tokyo, Tokyo, Japan

5:30 p.m. - 5:45 p.m. 2LOr3C-02: **Improving Grid Resiliency with HTS – Part 1**

Jean Maxime Saugrain[1]

[1]Paris La Défense Cedex, France

5:45 p.m. - 6:00 p.m. 2LOr3C-03: **Improving Grid Resiliency with HTS – Part 2**

Speaker to be determined

6:00 p.m. - 6:15 p.m. 2LOr3C-04: **Higher Efficiency in the Transportation and Industry Sector**

Speaker to be determined

6:15 p.m. - 6:45 p.m. **Roundtable Discussion**

Facilitated Q&A Session with panelists from the Special Session and Audience

2MOr3A - MgB_2 Wires and Tapes

615-617; 5:15 p.m. - 6:45 p.m.

Moderators: Lucas Da Silva, Escola de Engenharia de Lorena & Tetiana Prikhna, Institute for Superhard Materials of the National Academy of Sciences of Ukraine

5:15 p.m. - 5:30 p.m. 2MOr3A-01: **Improving the Transport and Magnetic Properties of Powder-In-Tube in-situ MgB_2 Wire via Dy_2O_3/C Co-doping**

Fang Wan[1], Mike Sumption[1], Edward Collings[1], Matthew Rindfleisch[2], Cj Thong[2] and Michael Tomsic[2]

[1]The Ohio State University, Columbus, Ohio, US, [2]Hyper Tech Research, Columbus, Ohio, US

5:30 p.m. - 5:45 p.m. 2MOr3A-02: **A Design of Experiment to Tune B_{c2} up to Record-High Values in C-Doped MgB_2 by a Rapid Synthesis Process**

Davide Matera[1], Marco Bonura[1], Enrico Giannini[1] and Carmine Senatore[1]

[1]University of Geneva, Genève, Switzerland

5:45 p.m. - 6:00 p.m. 2MOr3A-03: **Transport properties of IMD-processed MgB_2 100 m long wires and solenoid coils**

Dongliang Wang[1], Yanwei Ma[1] and Satoshi Awaji[2]

[1]Institute of Electrical Engineering, BEIJING, China, [2]Tohoku University, SENDAI, Japan

6:00 p.m. - 6:15 p.m. 2MOr3A-04: **High Densification of the Superconductors Wire Cores Obtained by New High Pressure Continuous HIP Processes Applicable for the Production of MgB_2 and Fe-122 and HTc based devices**

Andrzej Morawski[1], Tomasz Cetner[1], Daniel Gajda[2], Grzegorz Gajda[3], Andrzej Zaleski[2], Ryszard Diduszko[4], Michael Tomsic[5], Matthew Rindfleisch[5], Wolfgang Hässler[6], Konstantin Nenkov[6] and Piotr Przyslupski[7]

[1]Institute of High Pressure Physics, Warsaw, Mazovia, Poland, [2]Institute of Low Temperature and Structure Research PAS, Wroclaw, Poland, [3]Frakoterm, Torun, Poland, [4]Tele and Radio Research Institute, Warsaw, Poland, [5]Hyper TechResearch,Inc, Columbus, Ohio, US, [6]Institute for Solid State and Materials Research Dresden, Dresden, Germany, [7]Institute of Physics PAS, Warsaw, Poland

6:15 p.m. - 6:30 p.m. 2MOr3A-05: **MgB_2 round wires and cables for the high-power superconducting demonstrator in the Best Paths project**

Matteo Tropeano[1], Amalia Ballarino[2], Christian-Eric Bruzek[4], Amadou Mieville[3], Konstantina Konstantopoulou[2], Frédéric Lesur[4], Adela Marian[5], Guillaume Escamez[4] and Giovanni Grasso[1]

[1]Columbus Superconductors, Genova, Italy, [2]CERN, Geneve, Switzerland, [3]Nexans CH, Cortaillod, Switzerland, [4]Nexans FR, Paris, France, [5]IASS, Potsdam, Germany

6:30 p.m. - 6:45 p.m. 2MOr3A-06: **Influence of Cabling on Superconducting Properties of MgB_2 Wires with Different Design**

Alexander Nosov[1], Liudmila Potanina[1], Constantin Marinin[1], Sergey Fetisov[1] and Vitaly Vysotsky[1,2]

[1]Russian Scientific R&D Cable Institute, Moscow, Russian Federation, [2]National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), Moscow, Russian Federation

2MOr3B - Critical Current and Flux Pinning III: Iron Based Superconductors
608-609; 5:15 p.m. - 6:45 p.m.
Moderators: Takanobu Kiss, Kyushu University & Haigun Lee, Korea University

5:15 p.m. - 5:45 p.m. 2MOr3B-01: **[Invited] High critical current densities and the effect of granularity of an optimally-doped iron-based superconductor, $CaKFe_4As_4$**

Shiv Singh[1], M. Bristow[1], William Meier[2,3], P. Canfield[2,3], S. Clarke[4] and A. Coldea[1]

[1]University of Oxford, Oxford, Oxfordshire, United Kingdom, [2]The Ames Laboratory U.S. DOE Iowa State University, Ames, Iowa, US, [3]Department of Physics & Astronomy, Iowa State University, Ames, Iowa, US, [4]University of Oxford, Oxford, Oxfordshire, United Kingdom

5:45 p.m. - 6:15 p.m. 2MOr3B-02: **[Invited] Flux pinning and critical current densities in (Li,Fe)OHFeSe thin films**

Jens Hänisch[1], Yulong Huang[2,3], J. Tian[2,3], Jie Yuan[2,4], Fang Zhou[2,3], Kui Jin[2,4], Xiaoli Dong[2,4], Bernhard Holzapfel[1] and Zhongxian Zhao[2,4]

[1]Karlsruhe Institute for Technology, Eggenstein-Leopoldshafen, Germany, [2]Chinese Academy of Sciences, Beijing, China, [3]University of Chinese Academy of Sciences, Beijing, China, [4]University of Chinese Academy of Sciences, Beijing, China

6:15 p.m. - 6:30 p.m. 2MOr3B-03: **In-field Magnetic Microscopy for Ag-sheathed (Ba, K)Fe_2As_2 Tapes: Comparison between Hot-press and Flat-rolling Process**

Wu Zeyu[1], Koki Tamae[1], Shyam Mohan[1], Kohei Higashikawa[1], Masayoshi Inoue[1], He Huang[2], Chao Yao[2], Yanwei Ma[2] and Takanobu Kiss[1]

[1]Kyushu University, Itoshima, Japan, [2]Chinese Academy of Sciences, Beijing, China

6:30 p.m. - 6:45 p.m. 2MOr3B-04: **Demonstration of excellent J_c performance in (AE,Na)Fe_2As_2 (AE: Sr, Ba) PIT wires**

Tsuyoshi Tamegai[1], Takahiro Suwa[1], Daisuke Miyawaki[1], Sunseng Pyon[1], Katsutoshi Takano[2], Hideki Kajitani[2], Norikiyo Koizumi[2] and Satoshi Awaji[3]

[1]The University of Tokyo, Hongo, Tokyo, Japan, [2]National Institutes for Quantum and Radiological Science and Technology, Naka, Ibaraki, Japan, [3]Tohoku University, Sendai, Miyagi, Japan

Diversity in Science & Engineering Event – sponsored by Commonwealth Scientific and Industrial Research Organisation (CSIRO) and Northrop Grumman
3AB; 7:00 p.m. - 8:30 p.m.

Wednesday, October 31, 2018

3PL1A - Plenary Session – sponsored by Bruker Energy & Supercon Technologies, Inc. (Bruker EST / BEST)
Ballroom 6ABC; 8:00 a.m. - 8:45 a.m.
Moderators: Andrea Augieri, ENEA & Charlie Sanabria, Lawrence Berkeley Laboratory

3PL1A-01: Microstructure-Property Correlations in Superconducting Wires
Dr. Peter Lee[1]
[1]*Florida State University, Tallahassee, Florida, US*

3PL1B - HTS Magnets at the Frontier of Science and Technology: A Roundtable Discussion
Ballroom 6ABC; 8:45 a.m. - 9:30 a.m.
Moderator: Joseph Minervini, Massachusetts Institute of Technology

Seungyong Hahn[1], Tengming Shen[2] and Zachary Hartwig[3]
[1]*Seoul National University, Seoul, Korea (the Republic of),* [2]*Lawrence Berkeley National Laboratory, Berkeley, California, US,* [3]*Plasma Science and Fusion Center, MIT, Cambridge, Massachusetts, US*

3PL1C - Young Scientist Plenary Session Inaugural ASC Event – sponsored by The Pennsylvania State University, College of Engineering
Ballroom 6ABC; 9:30 a.m. - 10:00 a.m.
Moderators: Luisa Chiesa, Tufts University & Sasha Ishmael, Lupine Materials and Technology Inc.

9:30 a.m. – 9:35 a.m.	*3PL1C-01:* ***Prospects of Canted-Cosine-Theta Magnets based on HTS Technology for High Field Accelerator Dipoles***
	Laura Garcia Fajardo, Lawrence Berkeley National Laboratory, Berkeley, California, US (Large Scale)
9:35 a.m. – 9:40 a.m.	*3PL1C-02:* ***Technology Development towards a DC Wind Generator with No-Insulation Superconducting Coil***
	Yingzhen Liu, Institute for Technical Physics, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany (Large Scale)
9:40 a.m. – 9:45 a.m.	*3PL1C-03:* ***High Temperature Superconductors for Space Science Applications***
	Daniel Cunnane, California Institute of Technology/Jet Propulsion Laboratory, Pasadena, California, US (Electronics)
9:45 a.m. – 9:50 a.m.	*3PL1C-04:* ***Extremely Energy-efficient Deep Learning Hardware using Adiabatic-flux-quantum Technology***
	Qiuyun "Olivia" Xu, Institute of Advanced Sciences, Yokohama National University, Japan, Yokohama, Kanagawa, Japan (Electronics)
9:50 a.m. – 9:55 a.m.	*3PL1C-05:* ***HTS for Fusion - Fusion for HTS?***
	David Fischer, Atominsitut Technology University Wien, Wien, Austria (Materials)
9:55 a.m. – 10:00 a.m.	*3PL1C-06:* ***Challenges and Advances in thick film REBCO tapes***
	Rudra Pratap, University of Houston, Houston, Texas, US (Materials)

Coffee Break
Exhibit Hall; 10:30 a.m. - 11:00 a.m.

3EPo1A - Nanowire High-Speed Response and Readout
Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.
Moderators: Narendra Acharya, Chalmers University of Technology & Matthias Schmelz, Leibniz Institute of Photonic Technology

3EPo1A-01 [E1]	**[Invited] Two mechanisms of device timing jitter of superconducting nanowire single-photon detectors**
	Xiaolong Hu[1], Hao Wu[1], Chao Gu[1] and Yuhao Cheng[1]
	[1]*Tianjin University, Tianjin, China*

3EPo1A-03 [E2] **Characterizing intrinsic timing jitter in superconducting nanowire single photon detectors**

Boris Korzh[2], Qingyuan Zhao[3], Simone Frasca[2], Edward Ramirez[2], Eric Bersin[3,2], Thomas Gerrits[4], Martin Stevens[4], Travis Autry[4], Galan Moody[4], Paul Hale[4], Marco Colangelo[3], Di Zhu[3], Andrew Dane[3], Emma Wollman[2], Garrison Crouch[2], Jason Allmaras[2,1], Kevin Silverman[4], Richard Mirin[4], Sae Woo Nam[4], Francesco Marsili[2], Matthew Shaw[2] and Karl Berggren[3]

[1]California Institute of Technology, Pasadena, California, US, [2]Jet Propulsion Laboratory, California Institute of Technlogy, Pasadena, California, US, [3]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [4]National Institute of Standards and Technology, Boulder, Colorado, US

3EPo1A-05 [E3] **High Speed Superconducting Nanowire Single-Photon Detector with the Capability of Photon-Number-Resolving**

Xu Tao[1], Shi Chen[1], Yajun Chen[1], Libo Wang[1], Lin Kang[1] and Peiheng Wu[1]

[1]Nanjing University, Nanjing, Jiangsu, China

3EPo1A-06 [E4] **High speed superconducting nanowire single-photon detector with nine interleaved nanowires**

Jia Huang[1], Weijun Zhang[1], Lixing You[1], Chenjun Zhang[1], Hao Li[1], Chaolin Lv[1], Yong Wang[1], Xiaoyu Liu[1] and Zhen Wang[1]

[1]Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences (SIMIT, CAS), Shanghai, Shanghai, China

3EPo1A-07 [E5] **Increasing the output signal of superconducting nanowire single-photon detectors with impedance-matching tapers**

Di Zhu[1], Boris Korzh[2], Qingyuan Zhao[1], Marco Colangelo[1], Simone Frasca[2], Edward Ramirez[2], Andrew Dane[1], Angel Velasco[2], Andrew Beyer[2], Daniel Santavicca[3], Matthew Shaw[2] and Karl Berggren[1]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [2]Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California, US, [3]University of North Florida, Jacksonville, Florida, US

3EPo1A-08 [E6] **Progress Towards Nanowire Single-Photon Detector Readout Using Microwave Interferometry**

Marco Colangelo[1], Di Zhu[1], Joshua Bienfang[3], Karl Berggren[1] and Daniel Santavicca[2]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [2]University of North Florida, Jacksonville, Florida, US, [3]National Institute of Standards and Technology, Gaithersburg, Maryland, US

3EPo1A-09 [E7] *student paper contestant* **Advantages of Microwave-Biased Superconducting Nanowire Single-Photon Detectors**

Steffen Doerner[1], Artem Kuzmin[1], Stefan Wuensch[1] and Michael Siegel[1]

[1]Karlsruhe Institute of Technology, Karlsruhe, Germany

3EPo1A-10 [E8] **Timing jitter of RF-SNSPDs with different resonance frequencies**

Artem Kuzmin[1], Steffen Doerner[1], Hana Chehade[1], Konstantin Ilin[1], Stefan Wuensch[1] and Michael Siegel[1]

[1]Karlsruhe Institute of Technology, Karlsruhe, Germany

3EPo1B - TES Workshop: Enabling Technologies [P I]
Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.
Moderators: Thomas Cecil, Argonne National Laboratory & Elie Track, IEEE CSC

3EPo1B-01 [E9&10] **[Invited] A high-throughput automated test system for dc parametric evaluation and quality assurance of TDM and CDM SQUID multiplexers**

Carl Reintsema[1], Douglas Bennett[1], Ed Denison[1], Malcolm Durkin[1], W. Bertrand Doriese[1], Joseph Fowler[1], Johnathon Gard[1], Arpi Grigorian[1,2], Gene Hilton[1], Johannes Hubmayr[1], Galen O'Neil[1], John Mates[1], Kelsey Morgan[1], Daniel Schmidt[1], Robert Stevens[1,2], Daniel Swetz[1], Leila Vale[1], Joel Ullom[1], Kent Irwin[3], Saptarshi Chaudhuri[3], Charles Titus[3] and Carl Dawson[3]

[1]NIST, Boulder, Colorado, US, [2]University of Colorado, Boulder, Colorado, US, [3]Stanford University, Palo Alto, California, US

3EPo1B-02 [E11] **A digital flux-locked loop System for dc superconducting quantum interference device controller**

Huanqian Zhang[1]

[1]chinese academic of science, Shanghai, China

3EPo1B-03 [E12] **Development of integrated stabilization heater on metallic magnetic calorimeters**

Seung-Yoon Oh[3,1], Yong-Hamb Kim[1,2], Minkyu Lee[2], Inwook Kim[1], Do-Hyung Kwon[1], So-Ra Kim[1], Hyejin Lee[1], Hyelim Kim[1] and Jin-A Jeon[1]

[1]Institute for Basic Science, Daejeon, Korea (the Republic of), [2]Korea Research Institute of Standards and Science, Daejeon, Korea (the Republic of), [3]Sejong University, Seoul, Korea (the Republic of)

3EPo1B-05 [E13] **Critical temperature switch development for high resolution metallic magnetic calorimeters**

So-Ra Kim[1,2], Jin-A Jeon[1], Chan Seok Kang[1], Hyelim Kim[1], Inwook Kim[1,2], Sang Goon Kim[1], Chang Lee[1], Hyejin Lee[1], Minkyu Lee[2], Seung-Yoon Oh[1] and Yong-Hamb Kim[1,2]

[1]Institute for Basic Science, Daejeon, Korea (the Republic of), [2]Korea Research Institute of Standards and Science, Daejeon, Korea (the Republic of)

3EPo1B-06 [E14] **Miniature monolithic SQUID-based paramagnetic thermometer**

Stephen Boyd[1], John Hall[2] and Robin Cantor[2]

[1]University of New Mexico, Albuquerque, New Mexico, US, [2]STAR Cryoelectronics, Santa Fe, New Mexico, US

3EPo1B-07 [E15] **A 960-pixel X-ray-TES readout platform for Athena X-IFU development**

W. Bertrand Doriese[1,2]

[1]NIST, Boulder, Colorado, US, [2]on behalf of the U.S. Athena X-IFU collaboration (NIST, NASA, Stanford U.), Boulder, CO; Greenbelt, MD; Palo Alto, California, US

3EPo1B-08 [E16] **Study of cryotron-type superconducting switches for the readout of TES**

Jianguo Chen[1], Yue Lyu[1], Wentao Wu[1], Bo Gao[1] and Zhen Wang[1]

[1]Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, China

3EPo1B-09 [E17] **Quiet drive electronics for pulse-tube refrigerator rotary valves**

Stephen Boyd[1], Ruslan Hummatov[1] and Stephan Friedrich[2]

[1]University of New Mexico, Albuquerque, New Mexico, US, [2]Lawrence Livermore National Laboratory, Livermore, California, US

3EPo1C - TES Workshop: Enabling Technologies [P II]
Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.
Moderators: Thomas Cecil, Argonne National Laboratory & Elie Track, IEEE CSC

3EPo1C-01 [E18] **[Invited] Fast Microwave Readout Electronics for X-ray TES Calorimeters at LCLS-II**

Hsiao-Mei Cho[1], Zeeshan Ahmed[1], Dan Becker[2], Douglas Bennett[3], David Brown[1], John D'Ewart[1], John Dusatko[1], Josef Frisch[1], Johnathon Gard[2], Shawn Henderson[1], Sang Jun Lee[1], Dale Li[1], John Mates[2], Stephen Smith[1], Daniel Swetz[3], Charles Titus[4], Daniel Van Winkle[1], Cyndia Yu[4], Joel Ullom[3,2] and Kent Irwin[4,1]

[1]SLAC National Accelerator Laboratory, Menlo Park, California, US, [2]CU-Boulder, Boulder, Colorado, US, [3]NIST-Boulder, Boulder, Colorado, US, [4]Stanford University, Stanford, California, US

3EPo1C-02 [E19] **[Invited] Degradation of quality factor of superconducting resonators by remained Pd film and improved fabrication process with caldera planarization**

Tomoya Irimatsugawa[2,3], Hirotake Yamamori[3], Fuminori Hirayama[3], Shuichi Nagasawa[3], Go Fujii[3], Satoshi Kohjiro[3], Akira Sato[3], Daiji Fukuda[3], Mutsuo Hidaka[3], Yasushi Sato[3], Masashi Ohno[2] and Hiroyuki Takahashi[1]

[1]The University of Tokyo., Tokyo, Japan, [2]The University of Tokyo, Tokyo, Japan, [3]National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan

3EPo1C-03 [E20] **[Invited] Development of frequency domain multiplexing for the X-ray Integral Field Unit (X-IFU)**

Hiroki Akamatsu[1], Luciano Gottardi[1], Jan van der Kuur[1], Cor de Vries[1], Kevin Ravensberg[1], Marcel Bruijn[1], James Chervenak[2], Mikko Kiviranta[3], A. van der Linden[1], Brian Jackson[1], Antoine Miniussi[2], Kazuhiro Sakai[2], Stephen Smith[2], Nicholas Wakeham[2] and Simon Bandler[2]

[1]SRON Netherlands, Utrecht, Netherlands, [2]GSFC/NASA, Greenbelt, Maryland, US, [3]VTT, Espoo, Finland

3EPo1C-04 [E21&22] **[Invited] Active resonance frequency tuning of the TES bias circuits for the X-IFU**

Jan van der Kuur[1], Luciano Gottardi[1], Ad Nieuwenhuizen[1], Patrick van Winden[1], Hiroki Akamatsu[1], R. den Hartog[1] and Brian Jackson[1]

[1]SRON Netherlands institute for space research, Utrecht, Netherlands

3EPo1C-05 [E23] **Optimizing Sensor Integration and Microwave Interconnects for Microwave SQUID Multiplexers**

Douglas Bennett[1], Dan Becker[2], Johnathon Gard[2], Gene Hilton[1], John Mates[2], Kelsey Morgan[1], Carl Reintsema[1], Daniel Schmidt[1], Daniel Swetz[1], Leila Vale[1], Abigail Wessels[2] and Joel Ullom[2,1]

[1]National Institute of Standards and Technology, Boulder, Colorado, US, [2]University of Colorado, Boulder, Colorado, US

3EPo1C-06 [E24] **The 16-channel FDM readout system for the TES arrays aboard the LSPE/SWIPE CMB balloon-borne experiment**

Andrea Tartari[1], Alessandro Baldini[1], Fabrizio Cei[1,2], Luca Galli[1], Marco Grassi[1], Donato Nicolò[1,2], Marco Piendibene[1], Franco Spinella[1], Davide Vaccaro[1,3] and Giovanni Signorelli[1]

[1]INFN - Sezione di Pisa, Pisa, Italy, [2]Università di Pisa, Pisa, Italy, [3]Università di Siena, Siena, Italy

3EPo1C-07 [E25] **Investigation of Large Coupling between TES X-ray Microcalorimeter and Microwave Multiplexer Based on Microstrip SQUID**

Yuki Nakashima[1,2], Fuminori Hirayama[2], Satoshi Kohjiro[2], Hirotake Yamamori[2], Shuichi Nagasawa[2], Akira Sato[2], Tasuku Hayashi[1], Haruka Muramatsu[1], Noriko Yamasaki[1] and Kazuhisa Mitsuda[1]

[1]ISAS/JAXA, Sagamihara, Kanagawa, Japan, [2]AIST, Tsukuba, Ibaraki, Japan

3EPo1C-08 [E26] **Frequency-Domain Cascading Microwave Multiplexer; Concept, Advantage & Basic Operation**

Satoshi Kohjiro[1], Fuminori Hirayama[1], Hirotake Yamamori[1], Shinya Yamada[2], Tomoya Irimatsugawa[3,1], Yuki Nakashima[4,1], Daiji Fukuda[1] and Masashi Ohno[3]

[1]AIST, Tsukuba, Japan, [2]Tokyo Metropolitan University, Hachioji, Japan, [3]The University of Tokyo, Tokyo, Japan, [4]Institute of Space & Astronautical Science (ISAS), Japan Aerospace Exploration Agency (JAXA), Sagamihara, Japan

3EPo1C-09 [E27] **Development of a compact and scalable detector package for next-generation x-ray TES spectrometers**

Abigail Wessels[1], Dan Becker[1], Douglas Bennett[2], Hsiao-Mei Cho[4], Johnathon Gard[1], Kent Irwin[3,4], Vincent Kotsubo[1], Sang Jun Lee[2], Dale Li[4], John Mates[1], Kelsey Morgan[1], Charles Titus[3], Daniel Swetz[2] and Joel Ullom[2,1]

[1]University of Colorado, Boulder, Boulder, Colorado, US, [2]National Institute of Standards and Technology, Boulder, Colorado, US, [3]Stanford University, Stanford, California, US, [4]SLAC National Accelerator Laboratory, Menlo Park, California, US

3EPo1C-10 [E28] **Novel dc-SQUID readout scheme with high dynamic range and intrinsic MHz frequency-domain multiplexing capability**

Daniel Richter[1], Andreas Fleischmann[1], Christian Enss[1] and Sebastian Kempf[1]

[1]Kirchhoff-Institute for Physics, Heidelberg, Germany

3EPo1D - SQUID Applications [P II]: NanoSQUID, Microscopy and Biology

Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.

Moderators: Narendra Acharya, Chalmers University of Techonology & Matthias Schmelz, Leibniz Institute of Photonic Technology

3EPo1D-01 [E29] **Nano-SQUID based on niobium Dayem bridges and direct injection of flux biasing current**

Ekaterina Kostyurina[1,2], Michael Faley[3], Lyudmila Filippenko[2], Olga Skryabina[1], Vasily Stolyarov[1], Valery Koshelets[2] and Rafal Dunin-Borkovski[4]

[1]Moscow Institute of Physics and Technology (State University), Dolgoprudny (Moscow region), Russian Federation, [2]Kotel'nikov Institute of Radio Engineering & Electronics RAS, Moscow, Russian Federation, [3]Forschungszentrum Jülich GmbH, Jülich, Germany, [4]Forschungszentrum Jülich GmbH, Jülich, Germany

3EPo1D-02 [E30] **The development of 3D Nb and NbN nano-SQUIDs**

Lei Chen[1], Zhen Wang[1], Hao Wang[1] and Xiaohan Chen[1]

[1]SIMIT CAS, Shanghai, China

3EPo1D-03 [E31] **Spin Measurement Based on Nano-SQUID Detected Electron Spin Resonance**

Long Wu[1,2], Lei Chen[1], Hao Wang[1,2], Xiaoyu Liu[1], Xiaolei Wu[1,2], Xiaohan Chen[1,2] and Zhen Wang[1,2]

[1]Shanghai Institute of Microsystem and Information Technology, Shanghai, China, [2]University of Chinese Academy of Sciences, Beijing, China

3EPo1D-04 [E32] **Magnetometer Utilizing Inductance Modulation of HTS coil for Measurement of Low-frequency Fields in the Presence of Excitation Fields**

Keiji Enpuku[1], Masaaki Matsuo[1], Yujiro Yoshida[1], Shigeya Yamashita[1], Teruyoshi Sasayama[1] and Takashi Yoshida[1]

[1]Kyushu University, Fukuoka, Japan

3EPo1D-05 [E33] **Sensor Fabrication for Scanning SQUID Microscopy**

Daniel Yohannes[1,2], John Vivalda[1,2], Mario Renzullo[1,2], Denis Amparo[1,2], Alex Kirichenko[2], Oleg Mukhanov[2], John Kirtley[3], Ilya Sochnikov[4], Katja Nowack[5], David Low[5], Anna Kremen[6], Beena Kalisky[6] and Mark Ketchen[7]

[1]HYPRES, Inc., Elmsford, New York, US, [2]HYPRES Inc., Elmsford, New York, US, [3]Geballe for Advanced Materials, Stanford, California, US, [4]University of Connecticut, Storrs, Connecticut, US, [5]Cornell University, Ithaca, New York, US, [6]Bar-Ilan University, Ramat-Gan, Israel, [7]OcteVue LLC, Hadley, Massachusetts, US

3EPo1D-06 [E34] **High-T_c SQUID magnetometers for on-scalp MEG**

Silvia Ruffieux[1], Alexei Kalaboukhov[1], Minshu Xie[1], Maxim Chukharkin[1], Christoph Pfeiffer[1], Justin Schneiderman[2] and Dag Winkler[1]

[1]Chalmers University of Technology, Gothenburg, Sweden, [2]University of Gothenburg, Gothenburg, Sweden

3EPo1D-07 [E35] **Liquid-cooled prepolarization coil with Litz wire and ceramic AlN cooling disks for ultra-low field magnetic resonance systems**

Seong-min Hwang[1], Jeong Hyun Shim[1], Ingo Hilschenz[1], Seong-Joo Lee[1] and Kiwoong Kim[1]

[1]Korea Research Institute of Standards and Science, Daejeon, Korea (the Republic of)

3EPo1D-08 [E36] **Ultrasound-Induced Magnetic Imaging of Tumors Targeted by Biofunctional Magnetic Nanoparticles**

Jen-Jie Chieh[1], Kai-Wen Huang[2], Shu-Hsien Liao[1] and Herng-Er Horng[1]

[1]Institute of Electro-Optical Science and Technology, Taipei, Taiwan, [2]Department of Surgery and Hepatitis Research Center, Taipei, Taiwan

3EPo1D-09 [E37] **The step edge type HTS rf SQUID directly coupled with a LC circuit in Ultra low field NMR system**

Kehuan Linghu[1], Zhengshan Guo[1], Yulong Li[1], Tiequan Xu[1], Yirong Jin[2], Dongning Zheng[2], Furen Wang[1] and Zizhao Gan[1]

[1]Peking University, Beijing, China, [2]Chinese Academy of Science, Beijing, China

3EPo1D-10 [E38] **SQUID detected low-field NMR for breast tumor discrimination in hospital environment**

Herng-Er Horng[1], Shu-Hsien Liao[1], Yan-Cheng Chen[1], Jen-Jie Chieh[1] and Kai-Wen Huang[2]

[1]National Taiwan Normal University, Taipei, Taiwan, [2]National Taiwan University Hospital, Taipei, Taiwan

3EPo1E - Kinetic Inductance Detectors and Components

Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.

Moderators: Narendra Acharya, Chalmers University of Techonology & Matthias Schmelz, Leibniz Institute of Photonic Technology

3EPo1E-01 [E39] **Coupled nanoscale kinetic-inductive transmission lines**

Di Zhu[1], Marco Colangelo[1], Daniel Santavicca[2], Joshua Bienfang[3] and Karl Berggren[1]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [2]University of North Florida, Jacksonville, Florida, US, [3]National Institute of Standards and Technology, Gaithersburg, Maryland, US

3EPo1E-02 [E40] **High temperature operation of YBCO kinetic-inductance bolometers (KIBs) for outer solar system missions**

Ayan Chakrabarty[1], Mark Lindeman[1], Bruce Bumble[1], Alan Kleinsasser[1] and Warren Holmes[1]

[1]JPL, Caltech, Pasadena, California, US

3EPo1E-03 [E41] **The ebeam irradiation effect on the performance of superconducting films and nanowires**

Xuecou Tu[1], Ruiying Xu[1], Xu Tao[1], Libo Wang[1], Xiaoqing Jia[1], Labao Zhang[1], Lin Kang[1], Jian Chen[1] and Peiheng Wu[1]

[1]Nanjing University, Nanjing, Jiangsu, China

3EPo1E-04 [E42] **High quality factor MgB_2 lumped element kinetic inductance detectors for THz detection**

Can Yang[1]

[1]Peking University, Beijing, Beijing, China

3EPo1E-06 [E43] **Nanoscale gap engineering in superconducting Nb kinetic inductance detectors**

Andrew Dane[1], Omid Noroozian[2,3], Emily Barrentine[3], Di Zhu[1], Samuel Moseley[3] and Karl Berggren[1]

[1]MIT, Cambridge, Massachusetts, US, [2]National Radio Astronomy Observatory, Charlottesville, Virginia, US, [3]NASA Goddard Space Flight Center, Greenbelt, Maryland, US

3EPo1E-07 [E44] **Microwave Kinetic Inductance Detectors for Sub-Millimeter and Millimeter-Wave Polarimetry**

Jason Austermann[1], James Beall[1], Bradley Dober[1], Shannon Duff[1], Jiansong Gao[1], Gene Hilton[1], Johannes Hubmayr[1], Christopher McKenney[1], Joel Ullom[1], Jeff Van Lanen[1] and Michael Vissers[1]

[1]National Institute of Standards and Technology, Boulder, Colorado, US

3EPo1E-11 [E45] **Development of arrays of antenna-coupled lumped-element kinetic inductance detectors**

Peter Barry[1], Amber Hornsby[2], Qing Yang Tang[1], Simon Doyle[2] and Erik Shirokoff[1]

[1]University of Chicago, Chicago, Illinois, US, [2]Cardiff University, Cardiff, United Kingdom

3EPo1E-12 [E46] **Reduction of electromagnetic cross-coupling in arrays of kinetic inductance detectors**

Peter Barry[1,2], Jochem Baselmans[3] and Simon Doyle[2]

[1]University of Chicago, Chicago, Illinois, US, [2]Cardiff University, Cardiff, United Kingdom, [3]SRON, Utrecht, Netherlands

3LPo1A - HTS Power Cables [P III]

Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.

Moderators: Wescley Tiago Batista de Sousa, Karlsruher Institut für Technologie & Anna Kario, KIT, ITEP

3LPo1A-01 [L1] **[Invited] Superconducting Transmission Systems: Review, Classification, Metrics and Technology Readiness Assessment**

Dimitrios Doukas[1]

[1]Aristotle University of Thessaloniki, Thessaloniki, Greece

3LPo1A-02 [L2] **Overcurrent Characteristics on a 22 kV/12 kA HTS model Cable.**

Toshiya Morimura[1], Tadahiko Minamino[1], Takahiro Saito[1], Yuichi Ashibe[1], Takato Masuda[1], Hirohito Yamaguchi[2], Masayuki Tanazawa[2] and Tomoo Mimura[2]

[1]SUMITOMO ELECTRIC INDUSTRIES, LTD., Osaka, Osaka, Japan, [2]Tokyo Electric Power Company Holdings, Inc., Yokohama, Japan

3LPo1A-03 [L3] **Investigation of HTS power transmission lines stability conditions in short-circuit mode**

Sergey Kopylov[1], Nikolay Balashov[1], Pavel Degtyarenko[1,2], Sergey Ivanov[1], Sergey Samoilenkov[1,2], Alexey Soldatenko[1,2], Vitaly Vysotsky[3] and Vladimir Zheltov[1]

[1]Joint Institute for High Temperatures of RAS, Moscow, Russian Federation, [2]CJSC SuperOx, Nauchnyi proezd 20/2, Moscow, Russia 117246, Moscow, Russian Federation, [3]Russian Scientific R&D Cable Institute, Moscow, 111024, Russia, Moscow, Russian Federation

3LPo1A-04 [L4] **Configuration Method of Tri-axial REBCO Cable Suitable for Long Distance Power Transmission**

Natsumi Endo[1], Yuki Shinozaki[1], Daisuke Miyagi[1] and Makoto Tsuda[1]

[1]Tohoku University, Sendai, Miyagi, Japan

3LPo1A-05 [L5] **Study on the Partial Discharge Characteristics of Superconducting Cable under Cryogenics Temperature**

Yuping Teng[1]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China

3LPo1A-06 [L6] **Study on Fault Current Limiting Performance of the REBCO Superconducting Wire with Different Specific Resistance Properties**

Ho-Ik Du[1], Sung-Chae Yang[1] and Hyun-Gi Jeong[1]

[1]Chonbuk National University, Jeonju, Korea (the Republic of)

3LPo1A-07 [L7] **A Study on the Electrical Insulation Design of a Core for Developing a Tri-Axial HTS Power Cable**

Sangsu Jeon[1], Minkyung Jeong[1], Onyou Lee[1], Hongseok Lee[1] and Hyoungku Kang[1]

[1]Korea National University of Transportation, Chungju-si, Chungbuk, Korea (the Republic of)

3LPo1A-08 [L8] **Modeling of High Temperature Superconducting Cable via Time Domain Reflectometry and General Regression Neural Network**

Gu-Young Kwon[1], Su Sik Bang[1], Yeong Ho Lee[1], Geon Seok Lee[1] and Yong-June Shin[1]

[1]Yonsei University, Seoul, Republic of Korea, Korea (the Republic of)

3LPo1A-09 [L9] **Insulation Characteristics and Defect Analysis of HTS cable via Stepped Frequency Waveform Reflectometry**

Chun-Kwon Lee[1], Gu-Young Kwon[1], Su Sik Bang[1], Yeong Ho Lee[1], Geon Seok Lee[1] and Yong-June Shin[1]

[1]Yonsei University, Seoul, Korea (the Republic of)

3LPo1A-10 [L10] **[Invited] A study on the optimal design of fault current limiting superconducting cable former according to cable length and load impedance**

Yojong Choi[1], Seunghyun Song[1], Seunghak Han[1], Haeryong Jeon[1] and Tae Kuk Ko[1]

[1]Yonsei university, Seoul, Korea (the Republic of)

3LPo1A-11 [L11] **Design and RTDS Test for Thermal Protection in Icheon Substation HTS Distribution System**

Hansang Lee[1], Jaehyeong Lee[2], Sung-Kwan Joo[2] and Gilsoo Jang[2]

[1]Semyung University, Seoul, Seoul, Korea (the Republic of), [2]Korea University, Seoul, Korea (the Republic of)

3LPo1B - Magnet Stability, Magnetization Effects, AC Losses and Protection [P IV]: No-Insulation and Metal-Insulation HTS Coils

Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.
Moderators: Roland Gyuraki, Karlsruhe Institute of Technology & Zixuan Zhu, University of Bath

3LPo1B-01 [L12] **Reduction of hot-spot temperature of REBCO coil by use of copper strip co-wound with REBCO wire**

Akihiro Nomoto[1], Hifumi Toriyama[1], Yoshiki Fuchida[1], Akane Kojima[1], Tomoaki Takao[1], Kazuya Nakamura[1], Mitsuho Furuse[2] and Osami Tsukamoto[1]

[1]Sophia university, Tokyo, Japan, [2]National Institute of Advanced Industrial and Technology Lab, Tsukuba, Japan

3LPo1B-02 [L13] **The Preliminary Research on Quench Analysis of YBCO Insulated and Non-insulated Racetrack Double Pancake Coils**

Xuyang Liu[1,2], Ning Feipeng[1,2] and Zian Zhu[1,2]

[1]Institute of High Energy Physics, Chinese Academy of Sciences, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China

3LPo1B-03 [L14] **Effect of Metal Strips used for Outer Diameter Adjustment on the Quench Behavior of a No-Insulation REBCO Coil**

Kwangmin Kim[1], Kwang Lok Kim[1], Kabindra Bhattarai[1], Jaemin Kim[2,3], Jae Young Jang[4], Young Jin Hwang[4], Mincheol Cho[3], Hunju Lee[2], SangGap Lee[4], David Larbalestier[1] and Seungyong Hahn[1,3]

[1]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [2]SuNAM, Anseong-si, Gyeonggi-do, Korea (the Republic of), [3]Seoul National University, Seoul, Korea (the Republic of), [4]Korea Basic Science Institute, Daejeon, Korea (the Republic of)

3LPo1B-04 [L15] **Evaluation on Electromagnetic Behavior of No-Insulation REBCO Pancake Coil with Multiple Defects**

Yuta Kakimoto[1], Qiyi Zheng[1], Tetsuri Ichikawa[1], Haruka Onoshita[1], Tetsuro Kinpara[1], Atsushi Ishiyama[1] and So Noguchi[2]

[1]Waseda University, Shinjuku, Tokyo, Japan, [2]Hokkaido University, Supporo, Japan

3LPo1B-05 [L16] **Experiments on Local Normal Transition Occurrence in Multi-Stacked No-Insulation REBCO Pancake Coils**

Tetsuri Ichikawa[1], Qiyi Zheng[1], Yuta Kakimoto[1], Tetsuro Kinpara[1], Haruka Onoshita[1], Atsushi Ishiyama[1], So Noguchi[2], Tomonori Watanabe[3] and Shigeo Nagaya[3]

[1]Waseda University, Shinjuku, Tokyo, Japan, [2]Hokkaido University, Sapporo, Hokkaido, Japan, [3]Chubu Electric Power Co., Inc., Nagoya, Aichi, Japan

3LPo1B-06 [L17] **Study on the electrical transient stability of no-insulation HTS coil with metal protection ring**

Haruyoshi Okusa[1], SeokBeom Kim[1], Takahiro Tatsuta[1] and Hiroshi Ueda[1]

[1]Okayama University, Okayama, Japan

3LPo1B-07 [L18] **Study on stability of REBCO coil wound with metal stitched coated conductor**

Rock-Kil Ko[1], DongWoo Ha[1], Seog-Whan Kim[1] and Young-Sik Jo[1]

[1]Korea Electrotechnology Research Institute, Changwon, Korea (the Republic of)

3LPo1B-08 [L19] **A critical quench simulation model of No-insulation high temperature superconducting coils with defects**

Lang Qin[1,2], Qiuliang Wang[1,2], Lei Wang[1], Jianhua Liu[1], Hongyi Qu[1,2] and Juan Ying[1,2]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China

3LPo1B-09 [L20] **Effect of no-insulation (NI) method on stabilizing the REBCO coil containing a conductor defect**

Shunji Takahashi[1,2], Yu Suetomi[3,2], Tomoaki Takao[1], Yoshinori Yanagisawa[2] and Hideaki Maeda[2,4]

[1]Sophia University, Chiyoda, Tokyo, Japan, [2]RIKEN, Yokohama, Kanagawa, Japan, [3]Chiba University, Chiba, Chiba, Japan, [4]Japan Science and Technology Agency, Kawaguchi, Saitama, Japan

3LPo1B-10 [L21]: **Measurement and Analysis of Transport Current Characteristics of HTS Coil Wound by Bundle Conductor Composed of No-insulation Multiple REBCO Tapes**

Satoshi Fukui[1], Jun Ogawa[1], Yuma Saito[1], Junpei Takebe[1], Takao Sato[1], Tomonori Watanabe[2], Shigeo Nagaya[2] and Naoki Hirano[2]

[1]Niigata University, Niigata, Japan, [2]Chubu Electric Power Co., Inc., Nagoya, Japan

3LPo1C - HTS Power Cables [P IV]: Cooling
Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.
Moderators: Thomas Strauss, Fermilab & Frederic Trillaud, Instituto de Ingeniería, UNAM

3LPo1C-01 [L22] **[Invited] Simulations of Temperature and Pressure of Liquid Nitrogen coolant in 66kV 40m model HTS Power Cable systems with Short-circuit Current Accidents Compared with Experimental Results**

Daichi Horita[1], Koh Agatsuma[1], Atsushi Ishiyama[1], Toshiya Morimura[2], Takato Masuda[2] and Tomoo Mimura[3]

[1]Waseda University, Shinjuku, Tokyo, Japan, [2]Sumitomo Electric Industries, Ltd, Osaka, Osaka, Japan, [3]Tokyo Electric Power Company Holdings, Inc, Yokohama, Kanagawa, Japan

3LPo1C-02 [L23] **Solid Nitrogen as Cryogenic Thermal Storage in Helium Gas Cooled Superconducting Cable Applications**

Zhenyu Zhang[1], Nick Suttell[1], Thomas Nes[2], Davon Valverde[3], Chul Kim[1] and Sastry Pamidi[1]

[1]Florida State University, Tallahassee, Florida, US, [2]University of Twente, Enschede, Netherlands, [3]Florida State University, Tallahassee, Florida, US

3LPo1C-03 [L24] **Novel Design of Superconducting Power Cable Termination Incorporating Solid Nitrogen Cryogenic Thermal Storage**

Chul Kim[1], Juan Ordonez[1,2] and Sastry Pamidi[1,3]

[1]Florida State University, Tallahassee, Florida, US, [2]Florida State University, Tallahassee, Florida, US, [3]Florida State University, Tallahassee, Florida, US

3LPo1C-05 [L25] **The experimental validation of a dimensionless gaseous helium (GHe) cooled high temperature superconducting (HTS) DC cable mathematical model**

Nick Suttell[2], Jose Viriato Coelho Vargas[1], Juan Ordonez[2], Sam Yang[2], Sastry Pamidi[2] and Chul Kim[2]

[1]UFPR, Curitiba, Parana, Brazil, [2]CAPS/FSU, Tallahassee, Florida, US

3LPo1C-06 [L26] **The design of the flow path in the tri-axial superconducting cable.**

Hideo Sugane[1], Kazuhisa Adachi[1], Tasuku Kitamura[1], Yuji Aoki[1], Kei Shiohara[1] and Takayo Hasegawa[1]

[1]SWCC Showa Cable Systems co., ltd., Sagamihara-shi, Kanagawa-ken, Japan

3LPo1C-07 [L27] **Research on Optimization of High Temperature Superconducting Cables in Multi-Temperature Zones**

Qiujun Li[1,2], Dong Zhang[1,2] and Shuang Liang[1,2]

[1]Institute of Electrical Engineering, CAS, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China

3LPo1C-08 [L28] **Thermal design of HTS power cable with fault current limiting function**

Dongmin Kim[1], Ki Hwan Kim[1], Sung-Kyu Kim[2], Jeon Wook Cho[2] and Seokho Kim[1]

[1]CHANGWON NATIONAL UNIVERSITY, Changwon, Korea (the Republic of), [2]Korea Electrotechnology Research Institute (KERI), Changwon, Korea (the Republic of)

3LPo1C-09 [L29] **Thermo-hydraulic analysis on long coaxial HTS power cable of several kilometers**

Changhyung Lee[1,2], Dongmin Kim[1], Seokho Kim[1], Du Yean Won[3] and Hyung Suk Yang[3]

[1]Changwon National University, Changwon, Korea (the Republic of), [2]Supergenics, Changwon, Korea (the Republic of), [3]KEPCO Research Institute, Taejeon, Korea (the Republic of)

3LPo1D - Cables (HTS, LTS), CICC and Current Leads [P II]

Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.

Moderators: Xinbo Hu, Applied Superconductivity Center, NHMFL, Florida State University & Simonetta Turtu', ENEA/ICAS

3LPo1D-01 [L30] **Test Results of the ITER 68 kA HTS Current Lead Prototypes**

Chenglian Liu[1], Kaizhong Ding[1], Kun Lu[1], Yuntao Song[1], Tingzhi Zhou[1], Qingqing Du[1], Yujun Dong[1], Quan Han[1], Erwu Niu[2] and Pierre Bauer[3]

[1]Institute of Plasma Physics Chinese Academy of Sciences, Hefei, China, [2]Domestic Agency Ministry of Science and Technology of ITER China, Beijing, China, [3]Magnet Division of ITER Organization, Cadarache, France

3LPo1D-02 [L31] **Manufacturing and Testing of the ITER TF HTS Current Lead Prototypes**

Pierre Bauer[1], Kaizhong Ding[2], Tingzhi Zhou[2], Xiongyi Huang[2], Chenglian Liu[2], Kun Lu[2], Yuntao Song[2], Arnaud Devred[1], Xinjie Wen[2], Erwu Niu[3] and Quan Han[2]

[1]ITER Organization, St Paul lez Durance, France, [2]Institute of Plasma Physics of the Chinese Academy of Sciences, Hefei, China, [3]China Fusion Domestic Agency, Beijing, China

3LPo1D-03 [L32] **Optimization of Conduction-Cooled Binary Current Leads Used in HTS Coil for Magnetoplasmadynamic Thrusters**

Wenjiang Yang[1], Lu Yao[1] and Bo Liu[1]

[1]Beihang University, Beijing, China

3LPo1D-04 [L33] **A Study on the Design of Current Leads for a 154 kV Superconducting Apparatus**

Onyou Lee[1], Minkyung Jeong[1], Sangsu Jeon[1], Hongseok Lee[1] and Hyoungku Kang[1]

[1]Korea National University of Transportation, Chungju-si, Chungbuk, Korea (the Republic of)

3LPo1D-05 [L34] **Experimental Study on 1 kA-class Peltier Current Lead for DC Superconducting Devices**

Mingchuang Liu[1], Yinshun Wang[1] and Shaotao Dai[2]

[1]State Key Lab. of New Energy Renewable Power System, North China Electric Power University, Beijing, China, [2]School of Electrical Engineering, Beijing Jiaotong University, Beijing, China

3LPo1D-06 [L35] **[Invited] Electrical characterization of different types of splices between MgB_2 cables for the SC-Link project at CERN**

Jerome Fleiter[1], Julien Hurte[1] and Amalia Ballarino[1]

[1]CERN, Switzerland, Switzerland

3LPo1D-07 [L36] **Low loss cables for high field magnets made with strong Bi2212 superconductor wire**

Alex Otto[1], Gerry Pothier III[1], Julio Colque[1] and Linda Saraco[1]

[1]Solid Material Solutions, LLC, N. Chelmsford, Massachusetts, US

3LPo1D-08 [L37] **Investigation on I_C degradation of MgB_2 Rutherford cables by deformation during cabling process.**

Mana Jimbo[1], Masahiro Kamibayashi[1], Yusuke Kuwahara[1], Tomoaki Takao[1], Tsuyoshi Yagai[1], Takakazu Shintomi[2], Yasuhiro Makida[2], Toshihiro Komagome[3], Kenichi Tsukada[3], Naoki Hirano[4], Masaru Tomita[5], Taiki Onji[5], Akihiro Kikuchi[6] and Takataro Hamajima[7]

[1]Sophia Univercity, Yokohama-shi, KANAGAWA, Japan, [2]KEK, Tsukuba, Japan, [3]Mayekawa MFG, Moriya, Japan, [4]Chubu Electric Power, Nagoya, Japan, [5]Railway Technical Research Institute, Kunitachi, Japan, [6]NIMS, Tsukuba, Japan, [7]Tohoku University, Sendai, Japan

3LPo1D-09 [L38] **Transverse pressure dependence of critical current in RRP and PIT type Nb_3Sn Rutherford cables for use in future accelerator magnets**

Peng Gao[1], Marc M. J. Dhalle[1], Sander Wessel[1], Ruben Lubkemann[1], Cris Vermeer[1], J. J. Kosse[1], Eric Krooshoop[1], Bernardo Bordini[2], Davide Tommasini[2], Amalia Ballarino[2], Luca Bottura[2] and Herman ten Kate[1,2]

[1]University of Twente, Enschede, Netherlands, [2]CERN, Geneva, Switzerland

3LPo1D-10 [L39] **Maximum allowed transverse stress on Hi-Lumi Nb_3Sn Rutherford cables**

Jerome Fleiter[1], Patrick Ebermann[1], Giuseppe Peiro[1], Felix Wolf[1], Friedrich Lackner[1] and Amalia Ballarino[1]

[1]CERN, Switzerland, Switzerland

3LPo1D-11 [L40] **Nb_3Sn wire diameter QC during respooling for QXF cables and its acceptance/rejection criterion**

Ian Pong[1], Charlie Sanabria[1], Andy Lin[1], Hugh Higley[1] and Lance Cooley[2]

[1]LBNL, Berkeley, California, US, [2]ASC, Tallahassee, Florida, US

3LPo1E - Fault Current Limiters [P III]
Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.
Moderators: Jianzhao Geng, University of Cambridge & Jie Sheng, Shanghai Jiao Tong University

3LPo1E-01 [L41] **Analysis of the effects of different types of faults in three-phase saturated cores SFCL**

Nuno Vilhena[1], Joao Murta-Pina[1] and Anabela Pronto[1]

[1]UNINOVA, Quinta da Torre, Portugal

3LPo1E-02 [L42] **Current Limiting and Interrupting Characteristics of Flux-Lock Type SFCL with Mechanical Switch driven by Self Driving Coil**

Min-Ki Park[1], Sang-Jae Choi[1] and Sung-Hun Lim[1]

[1]Soongsil University, Seoul, Korea (the Republic of)

3LPo1E-03 [L43] **Impact of shell vs. core-type magnetic circuits in the performance of inductive superconducting fault current limiters under asymmetric faults**

Joao Murta-Pina[1,2], Nuno Vilhena[1,2], Pedro Arsenio[3] and Anabela Pronto[1,2]

[1]UNINOVA, Caparica, Setubal, Portugal, [2]Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Caparica, Portugal, [3]EDP Labelec, Sacavem, Portugal

3LPo1E-04 [L44] **Study on hysteretic characteristics of a flux-coupling type superconducting fault current limiter**

Sinian Yan[1], Yuejin Tang[1], Li Ren[1], Zuoshuai Wang[1], Ying Xu[1], Chi Zhang[1] and Siyuan Liang[1]

[1]Huazhong University of Science and Technology, Wuhan, Hubei, China

3LPo1E-05 [L45] **AC Loss Analysis of a Flux-coupling type Superconducting Fault Current Limiter**

Sinian Yan[1], Yuejin Tang[1], Li Ren[1], Zuoshuai Wang[1] and Ying Xu[1]

[1]Huazhong University of Science and Technology, Wuhan, Hubei, China

3LPo1E-06 [L46] **Development of a sigle-phase 500kV/3.15kA saturated iron-core high-temperature superconducting fault current limiter**

Song Meng[1], Lianhong Zhong[2], Duan Xinhui[2], Mei Guihua[1] and Xia Yajun[1]

[1]Electric Power Research Institute of Guangdong Power Grid Corporation, Guangzhou, Guangdong, China, [2]Guangdong Power Grid Corporation, Guangzhou, Guangdong, China

3LPo1E-07 [L47] **Magnetizing Characteristics of a Flux-Coupling Type SFCL with Two Magnetic Paths Using Its Third Winding**

Seok-Cheol Ko[1], Tae-Hee Han[2] and Sung-Hun Lim[3]

[1]Kongju National University, Gongju, Chungnam, Korea (the Republic of), [2]Jungwon University, Goysan, , Chungbuk, Korea (the Republic of), [3]Soongsil University, Seoul, Korea (the Republic of)

3LPo1E-09 [L48] **Design and evaluation of a novel non-inductive magnet for a hybrid high temperature superconducting fault current limiter (SFCL)**

Jiahui Zhu[1], Yidong Zhu[2], Defu Wei[2], Hongjie Zhang[1], Panpan Chen[1], Huiming Zhang[1], Yongqing Zhao[1] and Weijia Yuan[3]

[1]China Electric Power Research Institute, Beijing, China, [2]State Grid Liaoning Electric Power Co., Ltd. Electric Power Research Institute, Shenyang, China, [3]University of Bath, Bath, United Kingdom

3LPo1E-10 [L49] **Optimization of the design and manufacture of short-circuited multi-turn, single junction high-temperature superconducting windings for inductive fault current limiters**

Joao Murta-Pina[1,2], Jaime Teyller[2], Anabela Pronto[1,2], Nuno Vilhena[1,2] and Alfredo Álvarez[3]

[1]UNINOVA, Caparica, Setubal, Portugal, [2]Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Caparica, Portugal, [3]University of Extremadura, Badajoz, Spain

3LPo1F - Fault Current Limiters [P IV]

Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.

Moderators: Guillaume Escamez, NEXANS/SUPERGRID & Jianzhao Geng, University of Cambridge

3LPo1F-01 [L50] **Current limiting performance of SFCL under unbalanced faults in a Lab-scale power system**

Takuya Sakamoto[1], Yasuyuki Shirai[1], Mariko Mukai[1], Daiki Sakamoto[1] and Jumpei Baba[2]

[1]Kyoto University, Kyoto, Kyoto-hu, Japan, [2]Tokyo univercity, Bunkyo-ku, Tokyo, Japan

3LPo1F-02 [L51] **Development of integration on line test system for a 10 kV hybrid SFCL applied in the Chinese distribution power grid**

Kaizhong Ding[1], Jiahui Zhu[2], Yu Zhu[3], Yujun Dong[1], Panpan Chen[2], Qingqing Du[1], Chenglian Liu[1], Kun Lu[1] and Timing Qu[4]

[1]Institute of Plasma Physics, CAS, Hefei, China, [2]China Electric Power Research Institute, Beijing, China, [3]State Grid Liaoning Electric Power Co., Ltd. Electric Power Research Institute, Liaoning, China, [4]Tsinghua University, Beijing, China

3LPo1F-03 [L52] **Study of Resistive-Type Superconducting Fault Current Limiters for Protection of a Hybrid HVDC Transmission System Including LCC and VSC Stations**

Lei Chen[1], Guocheng Li[1], Hongkun Chen[1], Ying Xu[2] and Li Ren[2]

[1]Wuhan University, Wuhan, Hubei, China, [2]Huazhong University of Science and Technology, Wuhan, Hubei, China

3LPo1F-04 [L53] **Application of the Superconducting Fault Current Limiter in a Wind Power System**

Qingqing Yang[1], Fei Liang[1] and Jianwei Li[2]

[1]University of Bath, Bath, United Kingdom, [2] Beijing Institute of Technology, Beijing, Beijing, China

3LPo1F-05 [L54] **Optimal Location of Resistive SFCL for Indian Power Grid**

Abhay Gour[1] and V. Rao[1]

[1]IIT Kharagpur, Kharagpur, West Bengal, India

3LPo1F-06 [L55] **Improvement of Voltage Quality and Transient Recovery Voltage by using a SFCL Device**

Qihuan Dong[1] and Tim Coombs[1]

[1]UNIVERSITY OF CAMBRIDGE, Cambridge, England, United Kingdom

3LPo1F-07 [L56] **Influence of superconducting fault current limiters on traveling wave based protection**

Hangtian Lei[1], Jianzhao Geng[2] and Brian Johnson[1]

[1]University of Idaho, Moscow, Idaho, US, [2]University of Cambridge, Cambridge, United Kingdom

3LPo1F-08 [L57] **Superconducting fault current limiter application for induction motor starting current reduction**

Abdulwahab Aljabrine[1], Hangtian Lei[1] and Jianzhao Geng[2]

[1]University of Idaho, Moscow, Idaho, US, [2]University of Cambridge, Cambridge, United Kingdom

3LPo1F-09 [L58] **Experimental test of superconducting fault-current switchgear using liquid nitrogen as the insulation and arc-quenching medium**

Muhammad Junaid[1], Bin Xiang[1], Zhiyuan Liu[1], Yingsan Geng[1] and Jianhua Wang[1]

[1]Xi'an Jiaotong University, Xi'an, Shaanxi, China

3LPo1G - Transformers

Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.
Moderators: Nicholas Long, Victoria University of Wellington & Harold Ruiz, University of Leicester

3LPo1G-01 [L59] **Informed wire selection for an HTS traction transformer**

Stuart Wimbush[1], Nicholas Strickland[1], Mike Staines[1], Zhenan Jiang[1], Ratu Mataira[1], Nicholas Long[1] and Rodney Badcock[1]

[1]Victoria University of Wellington, Wellington, New Zealand

3LPo1G-02 [L60] **Electromagnetic design of high temperature superconducting traction transformer for high-speed railway train**

Xiaohang Li[1], Jingyin Zhang[1], Kaite Huang[1] and Jin Fang[2]

[1]Innova Superconductor Technology Co.,Ltd., Beijing, China, [2]Beijing Jiaotong University, Beijing, China

3LPo1G-03 [L61] **Quantitative comparison of wireless power transfer using HTS and copper coils**

Wenlong Li[1], T. W. Ching[2], Tao Wang[3] and Le Sun[4]

[1]The University of Hong Kong, Hong Kong, Hong Kong, [2]University of Macau, Macao, Macao, [3]Nanjing University of Science and Technology, Nanjing, China, [4]McMaster University, Hamilton, Ontario, Canada

3LPo1G-04 [L62] **Study on the current limiting cooperation of superconducting transformers and cables**

Fumiya Nakamura[1], Masataka Iwakuma[1], Koichi Yoshida[1], Shun Miura[1], Takayuki Tokuchi[1], Akira Tomioka[2], Masayuki Konno[2] and Kazuhisa Adachi[3]

[1]Kyushu University, Fukuoka, Japan, [2]Fuji Electric Co. Ltd., Tokyo, Japan, [3]SWCC Showa Cable Systems Co.ltd, Kanagawa, Japan

3LPo1G-05 [L63] **Preliminary design and experimental analysis of 6.6 MVA high-temperature superconducting traction transformer coil**

Xin Zhao[1], Jin Fang[1], Wei Zhou[1] and Yueming Sun[1]

[1]Beijing jiaotong university, Beijing, Beijing, China

3LPo1G-06 [L64] **Design, Manufacture and Test of a Superconducting Transformer for CICC Test Facility**

Yunfei Tan[1]

[1]High Magnetic Field Laboratory, Chinese Academy of Sciences, Hefei, China

3LPo1G-07 [L65] **Influence of Misalignment Installation on Electromagnetic Performance of Superconducting Transformer for CICC Test Facility**

Yunfei Tan[1]

[1]High Magnetic Field Laboratory, Chinese Academy of Sciences, Hefei, China

3LPo1H - Energy Storage [P II]

Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.

Moderators: Seungyong Hahn, Seoul National University & Dongkeun Park, Massachusetts Institute of Technology

3LPo1H-01 [L66] **Excitation Test of Solenoid MgB_2 Coil under External Magnetic Field Immersed in Liquid Hydrogen**

Taito Matsumoto[1], Katsuyuki Fujita[1], Yoshiki Iwami[1], Yasuyuki Shirai[1], Masahiro Shiotsu[1], Hiroaki Kobayashi[2], Yoshihiro Naruo[2], Yoshihumi Inatani[2], Satoshi Nonaka[2], Hideki Tanaka[3], Motomune Kodama[3] and Takaaki Suzuki[3]

[1]Kyoto University, Sakyo-ku Kyoto-shi, Kyoto, Japan, [2]JAXA, Sagamihara, Japan, [3]Hitachi, Ltd., Hitachinaka, Japan

3LPo1H-02 [L67] **ANN Prediction Model for AC loss of a HTS SMES Based on Real-time State Parameters and Power Demand**

Zhongping Zhang[1]

[1]State Key Laboratory of Advanced Electromagnetic Engineering and Technology, Huazhong University of Science and Technology, Wuhan, Hubei, China

3LPo1H-03 [L68] **Fabrication and Excitation of MgB_2 Coils Wound by Rutherford Cables Using R&W and W&R Methods.**

Toshihiro Komagome[1], Kenichi Tsukada[1], Takataro Hamajima[1], Yasuhiro Makida[2], Takakazu Shintomi[2], Tsuyoshi Yagai[3], Tomoaki Takao[3], Naoki Hirano[5], Taiki Onji[4] and Masaru Tomita[4]

[1]Mayekawa MFG., Moriya, Japan, [2]KEK, Tsukuba, Japan, [3]Sophia University, Tokyo, Japan, [4]Railway Technical Research Institute, Kunitachi, Japan, [5]Chubu Electric Power, Nagoya, Japan

3LPo1H-04 [L69] **Dynamic modular model of a field regulated reluctance flywheel energy storage system utilizing a superconductor levitation bearing**

David Arnett[1], Dillon Morehouse[2], Christine Berven[2] and Herbert Hess[1]

[1]University of Idaho, Moscow, Idaho, US, [2]University of Idaho, Moscow, Idaho, US

3LPo1H-05 [L70] **Superconducting Current leads under Pulsed Conditions**

Tyler Hanzlik[1], John Pfotenhauer[1], Franklin Miller[1] and Evan Sheehan[1]

[1]University of Wisconsin-Madison, Madison, Wisconsin, US

3LPo1H-06 [L71] **Electro-magnetic design of a 3MJ YBCO Toroidal Magnet**

Song Meng[1], Xia Yajun[1], Lianhong Zhong[2], Nan Hu[1] and Mei Guihua[1]

[1]Electric Power Research Institute of Guangdong Power Grid Corporation, China, Guangzhou, Guangdong, China, [2]Guangdong Power Grid Corporation, Guangzhou, Guangdong, China

3LPo1H-07 [L72] **Experimental investigation of a REBCO pancake consisted of high temperature superconducting composite cable for MJ class superconducting magnetic energy storage system (SMES)**

Jiahui Zhu[1], Panpan Chen[1], Ming Qiu[1], Juan Hu[1], Kaizhong Ding[2], Shanshan Fu[1] and Wenjiang Yang[3]

[1]China Electric Power Research Institute, Beijing, China, [2]Hefei Institute of Physical Science, Hefei, China, [3]Beihang University, Beijing, China

3LPo1H-08 [L73] **Application of SMES-FCL in Electric Aircrafts for Stability Improvement**

Hamoud Alafnan[1,2] and Shadan Altouq[1]

[1]University of Bath, Bath, Somerest, United Kingdom, [2]University of Hail, Hail, Saudi Arabia

3LPo1H-09 [L74] **Inductance of high temperature superconducting coils**

Siwei Chen[1,2], Chen Gu[3], Yi Li[4], Lingfeng Lai[1], Timing Qu[5], Nan Hu[6], Meng Song[6] and Yubin Yue[1]

[1]Beijing Eastforce Superconducting Technology Co., Ltd., Beijing, China, [2]University of Houston, Houston, Texas, US, [3]Tsinghua University, Beijing, China, [4]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [5]Tsinghua University, Beijing, China, [6]Power Research Institute of Guangdong Power Grid Co., Ltd., Guangzhou, Guangdong, China

3LPo1J - HTS Magnets [P]

Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.
Moderators: Arnaud Badel, Tohoku University & Yoshinori Yanagisawa, RIKEN

3LPo1J-01 [L75&76] **[Invited] Design, Construction and Test of a Double-Pancake Coil wound with Kilometer Long REBCO Spool for Feasibility Study of Ultra High Field User Magnet**

Jaemin Kim[1,2], Yungil Kim[2], Mincheol Cho[1], Jeseok Bang[1], Young Jin Hwang[3], Jae Young Jang[3], Kwangmin Kim[4], Kwang Lok Kim[4], Hunju Lee[2], SangGap Lee[3] and Seungyong Hahn[1,4]

[1]Seoul National University, Seoul, Korea (the Republic of), [2]SuNAM Co., Ltd., Anseong-si, Gyeonggi-do, Korea (the Republic of), [3]Korea Basic Science Institute, Daejeon, Korea (the Republic of), [4]National High Magnetic Field Laboratory, Tallahassee, Florida, US

3LPo1J-02 [L77] **Development of a 5 T Class Insert Coil Using YBCO Coated Conductors**

Xintao Zhang[1,2], Huajun Liu[1], Shi Yi[1], Fang Liu[1], Hongjun Ma[1,2] and Huang Chen[1,2]

[1]Institute of Plasma Physics, Chinese Academy of Science, Hefei, China, [2]University of Science and Technology of China, Hefei, China

3LPo1J-03 [L78] **Experimental Studies of Mechanical Reinforcement for Bi-2212 Solenoid Coils**

Youngjae Kim[1], Ulf Trociewitz[1], Ernesto Bosque[1], Michael Brown[1], Daniel Davis[1], Jianyi Jiang[1], Eric Hellstrom[1] and David Larbalestier[1]

[1]National High Magnetic Field Laboratory, Tallahasse, Florida, US

3LPo1J-04 [L79] **Experimental and Numerical Analysis on Temporal Stability of a Full HTS Magnet with Persistent Current Mode**

Xi Yuan[1], Yinshun Wang[1], Yidan Hu[1], Hao Chen[1] and Wei Pi[1]

[1]North China Electric Power University, Beijing, China

3LPo1J-05 [L80] **Development of Mineral-insulated REBCO Magnet for High Radiation Environment**

Masami Iio[1], Makoto Yoshida[1], Tatsushi Nakamoto[1], Yang Ye[2], Kento Suzuki[1], Michinaka Sugano[1], Toru Ogitsu[1] and Ryutaro Okada[1]

[1]High Energy Accelerator Research Organization (KEK), Tsukuba, Japan, [2]Kyushu University, Fukuoka, Japan

3LPo1J-06 [L81] **Properties of two-tapes co-winding $GdBa_2Cu_3O_{7-x}$ pancake coil**

Yuto Imai[1], Tatsunori Okada[1], Satoshi Awaji[1], Hiroshi Miyazaki[2], Sadanori Iwai[2], Shigeru Ioka[2], Shinji Fujita[3], Masanori Daibo[3] and Yasuhiro Iijima[3]

[1]Institute for Materials Research, Sendai, Japan, [2]Toshiba Energy System & Solutions Corporation, Kawasaki, Japan, [3]Fujikura.Lid., Chiba, Japan

3LPo1J-07 [L82] **The Study on YBCO Winding Process**

Xuyang Liu[1,2], Ning Feipeng[1,2] and Zian Zhu[1,2]

[1]Institute of High Energy Physics, Chinese Academy of Sciences, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China

3LPo1J-08 [L83] **Investigation of Current-sharing properties of parallel conductors composed of $REBa_2Cu_3O_y$ superconducting tapes for NMR**

Shintaro Sagawa[1], Shun Miura[1], Yusuke Fukumoto[2], Koichi Yoshida[1], Seiki Sato[1], Teruo Izumi[3] and Masataka Iwakuma[1]

[1]Kyushu-University, Fukuoka, Fukuoka, Japan, [2]Railway Technical Research Institute, Tokyo, Japan, [3]National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan

3LPo1J-09 [L84] **Simulation comparison of trapping fields of high-temperature superconducting stacks with various substrates using pulsed field magnetization technique**

Dong Xing[1]

[1]The University of Bath, BATH, United Kingdom

3LPo1J-10 [L85] **An improved model for predicting the critical current of a HTS magnet**

Shuqiang Guo[1]

[1]Huazhong University of Science And Technology, Wuhan, Hubei, China

3LPo1J-11 [L86] **Development of a bypass circuit for REBCO coils using flux-flow resistance**

Sadanori Iwai[1], Hiroshi Miyazaki[1], Yasumi Otani[1], Taizo Tosaka[1], Shunji Nomura[1] and Yusuke Ishii[1]

[1]Toshiba Energy Systems & Solutions Corporation, Yokohama, Japan

3LPo1K - Magnetic Levitation [P]

Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.
Moderators: Timothy Haugan, The Air Force Research Laboratory & Yawei Wang, University of Strathclyde

3LPo1K-01 [L87] **Levitation properties of HTS bulk in high magnetic fields: fundamental measurement and numerical prediction**

Zhaoying Yan[1], Kun Liu[1], Wenjiao Yang[1] and Guangtong Ma[1]

[1]Southwest Jiaotong University, Chengdu, China

3LPo1K-02 [L88] **A Simple Method to Estimate Current Density within High-Temperature Superconductor Bulks**

Joshua Le Mon[1], Craig Baguley[1], Gilbert Foo[1] and Tek Lie[1]

[1]Auckland University of Technology, Auckland, Auckland, New Zealand

3LPo1K-03 [L89] **Comparison between superconducting bulks and coated conductor coils for magnetic levitation applications**

Pilar Suárez[1], Alfredo Álvarez[2] and Belén Pérez[2]

[1]Industrial Engineering School. University of Extremadura, Badajoz, Spain, [2]Engineering School. University of Extremadura, Badajoz, Spain

3LPo1K-04 [L90] **Study on the AC losses of high temperature superconducting bulks levitating above a varying external magnetic field**

Liwei Jin[1], Zigang Deng[1], Zhichuan Huang[1], Shuai Zhang[1], Yixing Du[1], Jun Zheng[1] and Wuyang Lei[1]

[1]Southwest Jiaotong University, Chengdu, China

3LPo1K-05 [L91] **Increase in Levitation Properties due to Multifaceted Arrangement of a Magnetic Levitation System with Magnetic Shielding Effect of HTS Bulk**

Tomoaki Takao[1], Yuki Fujita[1], Yasuhito Kaneko[1] and Hiroki Kamijo[2]

[1]Sophia University, Tokyo, Japan, [2]Railway Technical Research Institute, Tokyo, Japan

3LPo1K-06 [L92]: **HTS bulk experiments for and under space conditions**

Frank Werfel[1], Uta Floegel-Delor[1], Thomas Riedel[1], Peter Schirrmeister[1], Rene Koenig[1] and Viktor Kandarbar[1]

[1]Adelwitz Technologiezentrum GmbH (ATZ), Torgau, Germany

3LPo1K-07 [L93] **Experiments and simulation of electromagnetic properties in an HTS knitted tape stack**

Wenjiang Yang[1], Xiaodong Li[1], Dongping Liao[1], Lu Yao[1], Yu Ji[1] and Rujing Liu[1]

[1]Beihang University, Beijing, China

3LPo1K-09 [L94] **Study on Superconducting Levitation System for Gravity Measurement**

Xinning Hu[1,2], Chunyan Cui[1], Hui Wang[1], Hao Wang[1,2], Huajun Su[1,2], Zhongming He[1,2], Xinghua Hao[3], Houze Xu[3] and Qiuliang Wang[1,2]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China, [3]Institute of Geodesy and Geophysics, Chinese Academy of Sciences, Wuhan, China

3LPo1K-10 [L95] **Experimental Study on Amplitude Reduction by Electromagnetic Shunt Damper Using Flux Change Caused by Oscillation of a Floating Magnet above a Superconductor**

Keisuke Uchino[2] and Toshihiko Sugiura[1]

[1]Keio University, Yokohama-shi, Japan, [2]Keio University, Yokohama-shi, Japan

3LPo1K-11 [L96] **Enhancement of magnetic force by the effective arrangement of ferromagnetic cylinders in high magnetic fields**

Osuke Miura[1]

[1]Tokyo metroplolitan university, Hachioji, Tokyo, Japan

3LPo1K-12 [L97] **Simulation and Validation on Dynamic Properties of Superconducting Flux-Pinned Interface in Spacecraft Docking Process**

Dongping Liao[1], Wenjiang Yang[1], Xiaodong Li[1] and Lu Yao[1]

[1]Beihang University, Beijing, Beijing, China

3MPo1A - Artificial Structures, Thin Films, and Multilayers [P II]
Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.
Moderators: Qiang Li, Brookhaven National Lab & Francesco Rizzo, ENEA

3MPo1A-01 [M1] **Growth and Superconductivity of ε-NbN Ultrathin Epitaxial Films**

Ming-Jye Wang[1,2], Hsiao-Wen Chang[1], Tse-Jun Chen[1] and Hsun Hsieh[1]

[1]Academia Sinica, Taipei, Taiwan, [2]Academia Sinica, Taipei, Taiwan

3MPo1A-02 [M2] **Imaging flux avalanches in V_3Si superconducting thin films**

Maycon Motta[1], Fabiano Colauto[1], Lincoln Pinheiro[1,3], Tom Johansen[2], Emilio Bellingeri[4], Shrikant Kawale[4], Cristina Bernini[4], Carlo Ferdeghini[4] and Wilson Ortiz[1]

[1]Universidade Federal de Sao Carlos, São Carlos, Sao Paulo, Brazil, [2]University of Oslo, Oslo, Norway, [3] Instituto Federal de Educação Ciência e Tenologia de São Paulo, Sao Carlos, Brazil, [4]CNR - SPIN, Genoa, Italy

3MPo1A-03 [M3] **Experimental flux pinning model for Nb3Sn using 3D lithography**

Emanuela Barzi[1,2], Daniele Turrioni[1], Akihiro Kikuchi[3] and Valentyn Novosad[4]

[1]Fermilab, Batavia, Illinois, US, [2]OSU, Columbus, Ohio, US, [3]NIMS, Tsukuba, Japan, [4]ANL, Lemont, Illinois, US

3MPo1A-04 [M4] **Thickness dependence of superconducting properties in epitaxial NbN thin films**

Qiyu Zhang[1,3], Huiwu Wang[1,2], Xin Tang[1,3], Wei Peng[1,2] and Zhen Wang[1,3]

[1]Shanghai Institute of Microsystem and Information Technology, Shanghai, China, [2]Chinese Academy of Sciences Center for Excellence in Superconducting Electronics, Shanghai, China, [3]University of Chinese Academy of Sciences, Beijing, China

3MPo1A-05 [M5] **Superconducting thin films for quantum devices**

Harry Orchard[1], Natalia Ares[1], Susannah Speller[1] and Chris Grovenor[1]

[1]University of Oxford, Oxford, United Kingdom

3MPo1A-06 [M6] **Superconducting properties of Nb thin films prepared by DC magnetron sputtering**

Tengteng Li[1], Liang Zheng[1], Ming Lei[1], Yong Zhang[1] and Yong Zhao[1]

[1]Southwest Jiaotong University, Chengdu, Sichuan, China

3MPo1A-07 [M7] **Thin-Film Nb/Polyimide Superconducting Stripline Flexible Cables**

Vaibhav Gupta[1], Bhargav Yelamanchili[1], Simin Zou[1], Tamara Isaacs-Smith[1], John Sellers[1], David Tuckerman[2] and Michael Hamilton[1]

[1]Auburn University, Auburn, Alabama, US, [2]Microsoft Research, Redmond, Washington, US

3MPo1A-08 [M8] **Control of pyrolysis process to obtain a high Jc performance in the BaZrO3 and BaTiO3 co-doped YBCO thin film**

Fazhu Ding[1], Hongwei Gu[1], Wenjun Xu[1] and Yuping Teng[1]

[1]Institute of Electrical Engineering,Chinese Academy of Sciences, Beijing, China

3MPo1A-09 [M9] **High quality large-area uniform REBCO film growth by TFA-MOD method and its application for filter fabrication**

Sansheng Wang[1], Z.L. Zhang[1], B. Wet[2] and L.K. Gao[3]

[1]Beihang University, Beijing, Beijing, China, [2]Tsinghua University, Beijing , China, [3]Beijing Dingchen Superconducting Technology Co., Ltd., Beijing, China

3MPo1A-10 [M10] **Synthesis of superconductive TaN films using DC reactive sputtering deposition**

Amanda Nieto Sanchez[1,3], Agustín Conde-Gallardo[2] and Oscar Edel Contreras[3]

[1]Centro de Investigacion y Educacion Superior de Ensenada- CICESE, Ensenada, Baja California, Mexico, [2]Centro de Investigación y Estudios Avanzados del Instituto Politécnico Nacional, CINVESTAV-IPN, México., Ciudad de MExico, MExico, Mexico, [3]Centro de Nanociencias y Nanotecnologia UNAM, Ensenada, Baja California, Mexico

3MPo1B - Coated Conductors III: Synthesis & Characterization [P I]
Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.
Moderators: Luisa Chiesa, Tufts University & Michael Parizh, GE - Global Research Center

3MPo1B-01 [M11] **Current Sharing Temperature and Quench Characteristics of REBCO Quasi-isotropic Superconducting Strands in Different Sheaths**

Wei Pi[1], Yinshun Wang[1], Jin Dong[1] and Qingmei Shi[1]

[1]Electrical & Electronic Engineering School, North China Electric Power University, Beijing, China

3MPo1B-02 [M12] **Optimization of MOCVD hardware configurations and process conditions for the growth of high quality (Gd,Y)BCO superconducting tapes based on CFD modeling**

Shudong Zhang[1], Shiwei Xu[1], Ziming Fan[1], Ping Jiang[1], Zhichen Han[1], Gang Yang[1] and Yimin Chen[1]

[1]Northeastern University, Shenyang, China

3MPo1B-03 [M13] **Experimental Study of DC Over-Current Characteristics for YBCO Coated Conductors**

Panpan Chen[1], Jiahui Zhu[1], Hongjie Zhang[1], Huiming Zhang[1] and Ming Qiu[1]

[1]China Electric Power Research Institute, Beijing, China

3MPo1B-04 [M14] **Magnetic field-angular dependence of critical current and n-values in 2G HTS tapes**

Xiuchang Zhang[1], Jianzhao Geng[1], Boyang Shen[1], Chao Li[1], Jun Ma[1], Heng Zhang[1], Qihuan Dong[1], Kaihe Zhang[1], James Gawith[1] and Tim Coombs[1]

[1]University of Cambridge, Cambridge, United Kingdom

3MPo1B-05 [M15] **Development of a scalable process for producing striated 2G tapes for low ac loss applications**

Joseph Prestigiacomo[1], Raymond Auyeung[1], John Claassen[2], Martin Rupich[3], Sastry Pamidi[4], Jozef Kvitkovic[4] and Michael Osofsky[1]

[1]US Naval Research Laboratory, Washington, District of Columbia, US, [2]NOVA Research, Inc., Alexandria, Virginia, US, [3]American Superconductor, Inc., Devens, Massachusetts, US, [4]Florida State University, Tallahassee, Florida, US

3MPo1B-06 [M16] **Investigation of layer composition and topography of REBCO superconducting tape using Auger Electron Spectroscopy**

Tanner Olson[1], Brynn Dallmann[1], Chris Hopp[1], Yifei Zhang[2] and Matthew Jewell[1]

[1]University of Wisconsin - Eau Claire, Eau Claire, Wisconsin, US, [2]SuperPower, Inc., Schenectady, New York, US

3MPo1B-07 [M17] **Recent Status and Progress on HTS Strand with Quasi-isotropic Critical Current**

Yinshun Wang[1] and Han Zhang[1]

[1]North China Electric Power University, Beijing, China

3MPo1B-08 [M18] **Effect of REBCO/silver interface on the current sharing between REBCO layer and stabilizer in coated conductors**

Hitoshi Kitaguchi[1] and Toshiya Doi[2]

[1]National Institute for Materials Science, Tsukuba, Ibaraki, Japan, [2]Kyoto University, Kyoto, Japan

3MPo1B-09 [M19] **Lift Factor Analysis of Multifilamentary Coated Conductor Produced Using Two Level Undercut-Profile Substrates**

Andrea Insinga[1], Mykola Solovyov[2], Alexander Usoskin[3], Alexander Rutt[3], Ulrich Betz[3], Jesper Lundeman[4], Victor Zermeno[5], Asger Abrahamsen[6], Jean Claude Grivel[1], Fedor Gömöry[2] and Anders Wulff[1]

[1]Technical University of Denmark - DTU, København, Denmark, [2]Slovak Academy of Sciences, Bratislava, Slovakia, [3]Bruker HTS GmbH (Bruker EST Group), Alzenau, Germany, [4]SUBRA Substrates A/S, Smørum, Denmark, [5]Karlsruhe Institute of Technology, Karlsruhe, Germany, [6]Technical University of Denmark - DTU, Roskilde, Denmark

3MPo1B-10 [M20] **Characterization of REBCO Superconducting Tape Damage Induced by Various Sample Preparation Methods**

William Hartnett[1]

[1]University of Wisconsin - Eau Claire, Saint Paul, Minnesota, US

3MPo1C - Critical Current and Flux Pinning [P IV]
Exhibit Hall & Poster Sessions; 10:00 a.m. - 12:00 p.m.
Moderators: Takanobu Kiss, Kyushu University & Haigun Lee, Korea University

3MPo1C-01 [M22&23] **[Invited] Correlation between Microstructure and In-Field Performance of Zr-added REBCO Coated Conductors made by Advanced MOCVD**

Eduard Galstyan[1], Rudra Pratap[1], Goran Majkic[1], Mehdi Kochat[1], Vasish Narayan Mohan[1] and Venkat Selvamanickam[1]

[1]University of Houston, Houston, Texas, US

3MPo1C-02 [M21] **In-Plane Anisotropy of Transport Property in $BaTbO_3$-doped $SmBa_2Cu_3O_y$ Films**

Hiroki Kato[1], Yuji Tsuchiya[1], Yusuke Ichino[1], Ataru Ichinose[2] and Yutaka Yoshida[1]

[1]Nagoya University, Nagoya, Nagoya, Japan, [2]Central Research Institute of Electric Power Industry, Yokosuka, Kanagawa, Japan

3MPo1C-03 [M24] *student paper contestant* **Measurement of Critical Current of REBCO Tapes as a Function of Strain, Magnetic field (10-15 T) and Temperature (4.2-50 K)**

Federica Pierro[1], Luisa Chiesa[1], Xiaorong Wang[2] and Soren Prestemon[2]

[1]Tufts University, Medford, Massachusetts, US, [2]LBNL, Berkeley, California, US

3MPo1C-04 [M25] **Temperature dependence of critical current properties of Y123/Y211 superconducting nanocomposite films**

Alok Jha[1], Kaname Matsumoto[1], Tomoya Horide[1], Shrikant Saini[1], Paolo Mele[2], Ataru Ichinose[3], Yutaka Yoshida[4] and Satoshi Awaji[5]

[1]Kyushu Institute of Technology, Kitakyushu, Japan, [2]Shibaura Institute of Technology, Tokyo, Japan, [3]CRIEPI, Tokyo, Japan, [4]Nagoyo University, Nagoya, Japan, [5]Tohoku University, Tohoku, Japan

3MPo1C-05 [M26] **$YBa_2Cu_3O_7$ thin films with large, congruent, columnar Y_2BaCuO_5 pinning centers: Magnetization creep and decay**

Cory Myers[4], Mary Ann Sebastian[1], Timothy Haugan[1], Haiyan Wang[2], Judy Wu[3], Mike Sumption[4] and Michael Susner[1]

[1]Air Force Research Laboratory, Kettering, Ohio, US, [2]Purdue University, West Lafayette, Indiana, US, [3]University of Kansas, Lawrence, Kansas, US, [4]The Ohio State University, Columbus, Ohio, US

3MPo1C-06 [M27] **Comparison Study of the Flux Pinning Enhancement of $YBa_2Cu_3O_{7-\delta}$ Thin Films with $BaHfO_3$ + Y_2O_3 Single and Mixed Phase Additions**

Mary Ann Sebastian[1,2], Bibek Gautam[3], Charles Ebbing[1], Michael Susner[2,4], George Panasyuk[4], Wenrui Zhang[5], Jijie Huang[5], Haiyan Wang[5], Shihong Chen[3,6], Judy Wu[3] and Timothy Haugan[2]

[1]University of Dayton Research Institute, Dayton, Ohio, US, [2]Air Force Research Laboratory, Wright Patterson AFB, Ohio, US, [3]University of Kansas, Lawrence, Kansas, US, [4]UES, Inc., Dayton, Ohio, US, [5]Purdue University, West Lafayette, Indiana, US, [6]Nanjing University, Nanjing, Jiangsu, China

3MPo1C-08 [M28] **$BaHfO_3$-doped GdBCO superconducting thin films: influence of the dopant amount and growth temperature on transport properties.**

Ruslan Popov[1], Jens Hänisch[1] and Bernhard Holzapfel[1]

[1]Karlsruhe Institute for Technology, Karlsruhe, Baden-Würtemberg, Germany

3MPo1C-09 [M29] **Flux pinning properties of Y_2O_3-doped $REBa_2Cu_3O_{7-\delta}$ (RE: Eu, Gd) superconducting films prepared by PLD**

Won-Jae Oh[1], Insung Park[1], Yujin Park[1], Kiran Shinde[2], Kook-Chae Chung[2] and Sang-Im Yoo[1]

[1]Seoul National University, Seoul, Korea (the Republic of), [2]Korea Institute of Materials Science, Changwon, Korea (the Republic of)

3MPo1C-10 [M30] **Flux pinning properties of $BaHfO_3$-doped EuBCO coated conductors fabricated by hot-wall PLD**

Shinji Fujita[1,2], Shogo Muto[1], Wataru Hirata[1], Tomo Yoshida[1], Kazuomi Kakimoto[1], Yasuhiro Iijima[1], Masanori Daibo[1], Tatsunori Okada[2] and Satoshi Awaji[2]

[1]Fujikura Ltd., Sakura, Chiba, Japan, [2]Tohoku University, Sendai, Japan

3MPo1C-11 [M31] **Effect of $BaHfO_3$ dopant on the superconducting properties of $EuBa_2Cu_3O_{7-\delta}$ films prepared by pulsed laser deposition**

Yujin Park[1], Won-Jae Oh[1], Insung Park[1] and Sang-Im Yoo[1]

[1]Seoul National University, Seoul, Korea (the Republic of)

3MPo1C-12 [M32] **Increased pinning strength in 2nd generation REBCO coated conductors grown by liquid assisted processes.**

John Feighan[1], May Hsim Lai[1], Ahmed Kursumovic[1], Judith MacManus-Driscoll[1], Jae-Hun Lee[2] and Seung-Hyun Moon[2]

[1]University of Cambridge, Cambridge, United Kingdom, [2]SuNAM Co. Ltd, Anseong, Korea (the Republic of)

Lunch: 12:00 p.m. - 1:30 p.m.

Student Career Box Lunch Session
608-609; 12:00 p.m. - 1:30 p.m.

Coffee Break
Exhibit Hall; 2:00 p.m. - 2:30 p.m.

3EPo2A - Flux Trapping, Packaging, and Test Beds
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Paul Dresselhaus, NIST & Joshua Strong, Northrop Grumman

3EPo2A-01 [E1] **[Invited] Investigation of magnetic flux trapping in superconductor integrated circuits: Effects of residual magnetic field and cooling rate**

Yuri Polyakov[1], Vasili Semenov[1] and Sergey Tolpygo[2]

[1]Stony Brook University, Stony Brook, New York, US, [2]MIT Lincoln Laboratory, Lexington, Massachusetts, US

3EPo2A-02 [E2] **Superconducting magnetic shielding and magnetic transformer using cylindrical structure MgB_2 thick films fabricated by HPCVD**

Zhengshan Guo[1], Xinwei Cai[1], Qingrong Feng[1] and Zizhao Gan[1]

[1]Peking University, Beijing, China

3EPo2A-03 [E3] **HPCVD thin film MgB_2 for Superconducting Magnetic Shielding**

Xinwei Cai[1], Zhengshan Guo[1], Wenhao Luo[1], Zigeng Huang[1], Qingrong Feng[1] and Zizhao Gan[1]

[1]Peking University, Beijing, China

3EPo2A-04 [E4] **Low-cost, high-density microwave flex cables and vacuum feedthroughs for cryogenic applications**

Adam McCaughan[1], Dylan Oh[2], Jacob Melonis[2] and Sae Woo Nam[1]

[1]NIST, Boulder, Colorado, US, [2]University of Colorado Boulder, Boulder, Colorado, US

3EPo2A-05 [E5] **High-throughput and Variable-temperature Superconductor Integrated Circuit Test and Evaluation using ICE-T**

Anubhav Sahu[1], Benjamin Chonigman[1], Vladimir Dotsenko[1], Andrei Talalaevskii[1], Mustafa Çelik[1], Jia Tang[1] and Deepnarayan Gupta[1]

[1]HYPRES INC, Elmsford, New York, US

3EPo2A-06 [E6] **Advancements in Superconducting and Cryogenic technologies for Nanotechnology and Quantum Devices**

Ziad Melhem[1]

[1]Oxford Instruments NanoScience, Oxford, United Kingdom

3EPo2A-07 [E7] **Methodology for characterizing RQL digital logic circuitry**

Andrew Brownfield[1], Quentin Herr[1], Anna Herr[1], Joshua Osborne[1], Mohammed Lateef[1], Nancyjane Bailey[1] and Anna Sailor[1]

[1]Northrop Grumman, Ellicott City, Maryland, US

3EPo2A-08 [E8] **Reliable packaging of Josephson voltage standard circuit for cryocooler.**

Hirotake Yamamori[1], Michitaka Maruyama[2], Yasutaka Amagai[2] and Takeshi Shimazaki[2]

[1]NeRI/AIST, Tsukuba, Ibaraki, Japan, [2]NMIJ/AIST, Tsukuba, Ibaraki, Japan

3EPo2A-09 [E9] **An optoelectronical cryopackage for pulsed Josephson standards**

Franco Delpiano[1], Paolo Durandetto[1], Eugenio Monticone[1], Danilo Serazio[1] and Andrea Sosso[1]

[1]inrim, Turin, Italy

3EPo2A-10 [E10] **Advances at NIST-Boulder for Metrology of SFQ-based Advanced Computing and RF Applications**

Adam Sirois[1], Manuel Castellanos-Beltran[1], David Olaya[1], Paul Dresselhaus[1], Samuel Benz[1] and Peter Hopkins[1]

[1]NIST, Boulder, Colorado, US

3EPo2A-11 [E11] **Silicon Technology Inspired Test Structures and Methodology for SFQ Model/EDA Tools-to-Hardware Correlation**

Manjul Bhushan[1], John Timmerwilke[1], Denis Amparo[2], Gerald Gibson[1] and Mark Ketchen[1]

[1]IBM Research, T. J. Watson Research Center, Yorktown Heights, New York, US, [2]Hypres, Elmsford, New York, US

3EPo2B - TES Workshop: Applications

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: W. Bertrand Doriese, NIST & Flavio Gatti, University of Genova

3EPo2B-01 [E12&13] **[Invited] Directly realizing the becquerel with superconducting calorimeters**

Daniel Schmidt[1], Ryan Fitzgerald[1], Gene Hilton[1], Joel Ullom[1], Mark Croce[2], Andrew Hoover[2] and Michael Rabin[2]

[1]NIST, Boulder, Colorado, US, [2]LANL, Los Alamos, New Mexico, US

3EPo2B-02 [E15&16] **[Invited] MMC-spectrometry of beta decay and electron capture emission spectra**

Joern Beyer[1], Sebastian Kempf[2] and Martin Loidl[3]

[1]Physikalisch-Technische Bundesanstalt, Berlin, Germany, [2]Heidelberg University, Heidelberg, Germany, [3]CEA LNHB, Gif-sur-Yvette Cedex, France

3EPo2B-03 [E14] **[Invited] Microwave SQUID multiplexing data analysis with high photon rates**

Paul Szypryt[1], Dan Becker[2,1], John Mates[2,1], Johnathon Gard[2,1], Douglas Bennett[1], Abigail Wessels[2,1], Joseph Fowler[2,1], Bradley Alpert[1], Kelsey Morgan[2,1], Carl Reintsema[1], Daniel Schmidt[1], Leila Vale[1], Daniel Swetz[1], Joel Ullom[1], Mark Croce[3], Andrew Hoover[3], Katrina Koehler[3] and Michael Rabin[3]

[1]National Institute of Standards and Technology, Boulder, Colorado, US, [2]University of Colorado, Boulder, Colorado, US, [3]Los Alamos National Laboratory, Los Alamos, New Mexico, US

3EPo2B-04 [E17] **[Invited] Development of titanium-based transition edge single-photon detector**

Wen Zhang[1], Yue Geng[1], Zheng Wang[1], JiaQiang Zhong[1], Wei Miao[1], Qijun Yao[1] and Shengcai Shi[1]

[1]Purple Mountain Observatory, Nanjing, Jiangsu, China

3EPo2B-05 [E18] **Development of gamma-ray Position-Sensitive Transition-edge sensor microcalorimeters**

Naoko Iyomoto[1], Takehiro Kuroiwa[1], Yuta Kurume[1], Shinya Asagawa[1], Tetsuya Tsuruta[1], Keisuke Maehata[1], Tasuku HAYASHI[2], Haruka Muramatsu[2], Keisei Maehisa[2], Kazuhisa Mitsuda[2] and Shota Yoshimoto[1]

[1]Kyushu University, Fukuoka, Fukuoka, Japan, [2]ISAS, Sagamihara, Kanagawa, Japan

3EPo2B-07 [E19] **TES X-ray spectrometer for Shanghai Coherent Light Facility**

Shuo Zhang[1], Robin Cantor[2], XiaoSong Liu[1] and ZuQian Weng[1]

[1]ShanghaiTech Univesity, Shang Hai, China, [2]star cryoelectronics, Santa Fe, New Mexico, US

3EPo2B-08 [E20] **Hard X-ray transition-edge sensor spectrometer for the Advanced Photon Source**

Orlando Quaranta[1,2], Lisa Gades[1], Antonino Miceli[1], Umeshkumar Patel[1], Daikang Yan[2,1], Douglas Bennett[3], W. Bertrand Doriese[3], Joseph Fowler[3], Johnathon Gard[3], John Mates[3], Kelsey Morgan[3], Daniel Schmidt[3], Daniel Swetz[3] and Joel Ullom[3]

[1]Argonne National Laboratory, Lemont, Illinois, US, [2]Northwestern University, Evanston, Illinois, US, [3]National Institute of Standards and Technology, Boulder, Colorado, US

3EPo2B-09 [E21] **Design and performance of prototype magnetic calorimeter array for the Lynx X-ray Microcalorimeter**

Wonsik Yoon[1,2], Manuel Balvin[1], Simon Bandler[1], Archana Devasia[1,3], Peter C. Nagler[1], Stephen Smith[1,3] and Thomas Stevenson[1]

[1]NASA/GSFC, Greenbelt, Maryland, US, [2]ASRC, Laurel, Maryland, US, [3]University of Maryland Baltimore County, Baltimore, Maryland, US

3EPo2B-10 [E22] **Progress in Microcalorimeters for Nuclear Material Analysis**

Mark Croce[1], Katrina Koehler[1], Andrew Hoover[1], Veronika Mocko[1], Stosh Kozimor[1], Michael Rabin[1], Kathryn McIntosh[1], George Havrilla[1], Daniel Becker[2], Douglas Bennett[2], John Mates[2], Johnathon Gard[2], Daniel Schmidt[2], Joel Ullom[2], Matthew Carpenter[1] and Robin Cantor[3]

[1]Los Alamos National Laboratory, Los Alamos, New Mexico, US, [2]NIST, Boulder, Colorado, US, [3]STAR Cryoelectronics, Santa Fe, New Mexico, US

3EPo2B-11 [E23] **The X-ray Integral Field Unit onboard of Athena**

Jan-Willem den Herder[1], Didier Barret[4], Luigi Piro[2], Massimo Cappi[5] and Thien Lam-Trong[3]

[1]SRON, Utrecht, Utrecht, Netherlands, [2]INAF, Rome, Italy, [3]CNES, Toulouse, France, [4]IRAP, Toulouse, France, [5]INAF-Bologna, Bologna, Italy

3EPo2B-12 [E24] **Performance of cryogenic optical photon detectors with Iridium-based bilayer transition edge sensors**

Vivek Singh[1], G Benato[1,5], Clarence Chang[2,3], J Ding[4], A Drobizhev[1,5], Brian Fujikawa[5], Raul Hennings-Yeomans[1], G. Karapetrov[6], Yu Kolomensky[1,5], Laura Marini[1], Valentyn Novosad[4,7], John Pearson[4], Tomas Polakovic[6,7], B Schmidt[5], B Sheff[1], S Wagaarachchi[1], Gensheng Wang[2], B Welliver[5] and Volodymyr Yefremenko[2]

[1]University of California, Berkeley, Berkeley, California, US, [2]Argonne National Laboratory, Chicago, Illinois, US, [3]University of Chicago, Chicago, Illinois, US, [4]Argonne National Laboratory, Chicago, Illinois, US, [5]Lawrence Berkeley National Laboratory, Berkeley, California, US, [6]Drexel University, Philadelphia, Pennsylvania, US, [7]Argonne National Laboratory, Chicago, Illinois, US

3EPo2C - Novel Electronics [P]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Michael Faley, Forschungszentrum Juelich GmbH & Stephen Russek, NIST

3EPo2C-01 [E25] **Revealing the nature of two-level systems at a superconductor-insulator boundary**

Andrii Shapovalov[2], Vladimir Shaternik[3], Olexandr Suvorov[3], Elena Zhitlukhina[4,5], Mikhail Belogolovskii[3,5] and Pascal Febvre[1]

[1]University of Savoie, Le Bourget du Lac, France, [2]National Academy of Sciences of Ukraine, Kyiv, Ukraine, [3]National Academy of Sciences of Ukraine, Kyiv, Ukraine, [4]National Academy of Sciences of Ukraine, Kyiv, Ukraine, [5]Vasyl' Stus Donetsk National University, Vinnytsia, Ukraine

3EPo2C-02 [E26] **Controllable spin pumping into a superconductor using a fully quantum Y-shaped device**

Elena Zhitlukhina[2], Mikhail Belogolovskii[3] and Paul Seidel[1]

[1]Friedrich Schiller University Jena, Jena, Germany, [2]Donetsk Institute for Physics and Engineering, Kyiv, Ukraine, [3]Institute for Metal Physics, Kyiv, Ukraine

3EPo2C-03 [E27] **Phase sensitive imaging of the microwave currents in superconductive circuits with Laser Scanning Microscope**

Alexandre Karpov[1], Alexander Zhuravel[2], Alexander Averkin[1], Vladimir Chichkov[1] and Alexey Ustinov[3,1]

[1]National University of Science and Technology (MISIS), Moscow, Russian Federation, [2]B.Verkin Institute for Low Temperature Physics and Engineering of the National Academy of Sciences of Ukraine, Kharkiv, Ukraine, [3]Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

3EPo2C-04 [E28] **Domain wall induced modulation of low field H-T phase diagram in patterned superconductor-ferromagnet stripes**

Ekta Bhatia[1], Kartik Senapati[3], Zoe Barber[4] and Ilari Maasilta[2]

[1]National Institute of Science Education and Research, HBNI, Jatni, Khurda, Odisha, India, [2]University of Jyvaskyla, Jyväskylä, Finland, [3]National Institute of Science Education and Research (NISER), HBNI, Jatni, Khurda, Odisha, India, [4]University of Cambridge, 27 Charles Babbage Road, CB3 0FS, Cambridge, United Kingdom

3EPo2C-05 [E29] **A superconducting-ferromagnetic injection-controlled weak link switching device**

Ivan Nevirkovets[1,2], Serhii Shafraniuk[3] and Oleg Mukhanov[1]

[1]Hypres Inc, Elmsford, New York, US, [2]Northwestern University, Evanston, Illinois, US, [3]Northwestern University, Evanston, Illinois, US

3EPo2C-06 [E30] **Josephson cantilevers for THz microscopy of additive manufactured diffractive optical components**

Benedikt Hampel[1], Marco Tollkühn[1], Ilya Elenskiy[1], Michael Martens[1], Denis Kajevic[1] and Meinhard Schilling[1]

[1]TU Braunschweig, Braunschweig, Lower Saxony, Germany

3EPo2C-07 [E31] **Fast modulation of THz wave by electrically tunable superconducting metamaterial**

Biaobing Jin[1], Chun Li[1], Caihong Zhang[1], Jingbo Wu[1], Xiaoqing Jia[1], Lin Kang[1], Wei-wei Xu[1], Jian Chen[1] and Peiheng Wu[1]

[1]Nanjing University, Nanjing, JiangSu Province, China

3EPo2C-08 [E32] **THz electromagnetic wave radiation from intrinsic Josephson junction stacks in Bi2212 whisker**

Dai Oikawa[1], Hiromi Tanaka[2], Keita Tsuzuki[3], Toko Sugiura[1], Hiroya Andoh[3] and Takehiko Tsukamoto[1]

[1]National Institute of Technology, Toyota College , Toyota, Japan, [2]National Institute of Technology, Yonago College, Yonago, Japan, [3]National Institute of Technology, Toyota College, Toyota, Japan

3EPo2C-09 [E33] **A physics-based industry-proven TCAD simulator for superconducting electronics**

Pooya Jannaty[1], Hiu-Yung Wong[1], Ricardo Borges[1] and Lee Smith[1]

[1]Synopsys Inc, Mountain View, California, US

3EPo2C-10 [E34] **Extended testing and operating modes of a PJVS**

Paolo Durandetto[1] and Andrea Sosso[1]

[1]INRiM - Istituto Nazionale di Ricerca Metrologica, Turin, Italy, Italy

3EPo2D - Digital Logic [P II]

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Harold Hearne, Northrop Grumman & Horst Rogalla, University of Colorado at Boulder

3EPo2D-01 [E35] **A Bit-Slice Butterfly Processing Unit for 64-point RSFQ FFT Processors**

Pei-Yao Qu[1], Guang-Ming Tang[1], Xiaochun Ye[1], Dongrui Fan[1] and Ninghui Sun[1]

[1]Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China

3EPo2D-02 [E36] **A Bit-Slice Tiny Encryption Algorithm for 64-bit RSFQ Accelerators**

Pei-Shi Yu[1], Guang-Ming Tang[1], Xiaochun Ye[1], Dongrui Fan[1] and Ninghui Sun[1]

[1]Institute of Computing Technology, Chinese Academy of Sciences, Beijing, China

3EPo2D-03 [E37&38] **[Invited] Power-Controllable Superconducting AC/DC Converters for DC-Driven Energy-Efficient Single-Flux-Quantum Circuits**

Akira Fujimaki[2], Soya Taniguchi[1], Haruki Kato[2], Hayato Iwashita[2,3], Taro Yamashita[2,3] and Masamitsu Tanaka[2]

[1]Nagoya University, Nagoya, Japan, [2]Nagoya University, Nagoya, None, Japan, [3]PRESTO-JST, Kawaguchi, Japan

3EPo2D-04 [E39] **Modeling the Behavior of ERSFQ Power Delivery and a Chip Design for Validation**

Mark Ketchen[1], Gerald Gibson[1] and Manjul Bhushan[1]

[1]IBM Research, T. J. Watson Research Center, Yorktown Heights, New York, US

3EPo2D-05 [E40] **Investigation of Passive Transmission Lines for the MIT-LL SFQ5EE Process**

Ashish Shukla[1], Dimitri Kirichenko[1], Anubhav Sahu[1], Benjamin Chonigman[1] and Amol Inamdar[1]

[1]HYPRES Inc., White Plains, New York, US

3EPo2D-06 [E41] **Current Recycling: New Results**

Vasili Semenov[1] and Yuri Polyakov[1]

[1]Stony Brook University, Stony Brook, New York, US

3EPo2D-07 [E42] **Research on DC bias network of Single Flux Quantum Circuits**

Guanqun Li[1,2], Jie Ren[1], Yu Wu[1], Wei Xiong[1], Liliang Ying[1] and Zhen Wang[1,2]

[1]Shanghai institute of microsystem and information technology (SIMIT), Shanghai, China, [2]University of Chinese Academy of Science, Beijing, China

3EPo2D-08 [E43] **A feedback-friendly large-scale clocking scheme for adiabatic quantum-flux-parametron logic datapaths**

Naoki Takeuchi[1,2], Christopher Ayala[1], Qiuyun Xu[1] and Nobuyuki Yoshikawa[1,3]

[1]Yokohama National University, Yokohama, Japan, [2]Japan Science and Technology Agency, Kawaguchi, Japan, [3]Yokohama National University, Yokohama, Japan

3EPo2D-09 [E44] **Superconducting microwave delay network for adiabatic quantum-flux-parametron logic**

Yuxing He[1], Naoki Takeuchi[1], Qiuyun Xu[1] and Nobuyuki Yoshikawa[1,2]

[1]Yokohama National University, Yokohama, Kanagawa, Japan, [2]Yokohama National University, Yokohama, Kanagawa, Japan

3EPo2E - Nanowire Fabrication and Materials

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderator: Shiv Singh, University of Oxford

3EPo2E-01 [E45] **[Invited] Properties of NbN-based nanowire single-photon detectors fabricated by plasma-enhanced atomic layer deposition**

Emanuel Knehr[1,2], Julia Brandel[1], Oliver Brandel[1], Mario Ziegler[1], Sebastian Goerke[1], Sven Linzen[1], Uwe Hübner[1], Konstantin Ilin[2], Michael Siegel[2], Hans-Georg Meyer[3] and Heidemarie Schmidt[1,4]

[1]Leibniz Institute of Photonic Technology (IPHT), Jena, Germany, [2]Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany, [3]Supracon AG, Jena, Germany, [4]University of Jena, Jena, Germany

3EPo2E-02 [E46] **Local lithographic shunting of NbN nanowire devices with applications.**

Marco Colangelo[1], Emily Toomey[1] and Karl Berggren[1]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US

3EPo2E-03 [E47] **An optimized process for the fabrication of high-performance superconducting NbN nanowires**

Ilya Charaev[1], Andrew Dane[1], C.-J. Chung[1] and Karl Berggren[1]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US

3EPo2E-04 [E48] **Preparation and Characterization of WSi Superconducting Nanowire Single Photon Detectors with Different Silicon Content**

Jin Jin[1], Feng-feng Fu[1], Xiachao Yan[1], Xuecou Tu[1], Min Gu[1], Xiaoqing Jia[1], Labao Zhang[1], Lin Kang[1], Jian Chen[1] and Peiheng Wu[1]

[1]Nanjing University, Nanjing, Jiangsu, China

3EPo2E-05 [E49] **Recent results on iron-based superconductor nanowire optical detectors**

Sergio Pagano[1,2], Carlo Barone[1,2], Nadia Martucciello[2], Emanuele Enrico[3], Luca Croin[3], Eugenio Monticone[3] and Kazumasa Iida[4]

[1]University of Salerno, Fisciano (SA), Italy, [2]Consiglio Nazionale delle Ricerche, Fisciano (SA), Italy, [3]Istituto Nazionale di Ricerca Metrologica, Torino, Italy, [4]Nagoya University, Nagoya, Japan

3EPo2E-06 [E50] **Superconducting MgB_2 Single Photon Detectors with Low Kinetic Inductance and Fast Response Rate**

Usman Ul-Haq[1], Narendra Acharya[1] and Sergey Cherednichenko[1]

[1]Chalmers University of Technology, Gothenburg, Sweden

3EPo2E-07 [E51] **MgB_2 superconducting nano-inductors**

Narendra Acharya[1], Sergey Cherednichenko[1] and Usman Ul-Haq[1]

[1]Chalmers University of Techonology, Göteborg, Sweden

3EPo2E-08 [E52] **Characterization of emerging materials for large area superconducting nanowire single-photon detector arrays**

Umberto Nasti[1], Dmitry Morozov[1], Archan Banerjee[1], Robert Heath[1], Alessandro Casaburi[1] and Robert Hadfield[1]

[1]University of Glasgow, Glasgow, United Kingdom

3EPo2E-09 [E53] **Uniformity Analysis of Films and Nanowires on Different Substrates**

Xiaoying Zhou[1], Xiaoqing Jia[1], Lin Kang[1], Jin Jin[1], Xuecou Tu[1], Labao Zhang[1], Biaobing Jin[1], Weiwei Xu[1], Jian Chen[1] and Peiheng Wu[1]

[1]Nanjing University, Nanjing, Jiangsu, China

3EPo2E-10 [E54] **Enhancement to detection efficiency of superconducting nanowire single-photon detectors via helium ion irradiation**

Weijun Zhang[1], Qi Jia[1], Xin Ou[1], Zhen Wang[1] and Xiaoming Xie[1]

[1]Shanghai Institute of Microsystem and Information Technology (SIMIT) , Shanghai, China

3EPo2E-11 [E55] **Large active area superconducting singlenanowire photon detector with a 100 μm diameter**

Hui Zhou[1], Chaolin Lv[1], Lixing You[1], Hao Li[1] and Zhen Wang[1]

[1]Shanghai Institute of Microsystem and Information Technology, Shanghai, China

3LPo2A - Magnet Stability, Magnetization Effects, AC Losses and Protection [P V]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Michael Green, FRIB / MSU & Janne Ruuskanen, Tampere University of Technology

3LPo2A-01 [L1] **[Invited] Assessment of AC losses, their Impact on Quench Levels and Cryogenic Heat Loads in Nb3Sn Accelerator magnets**

Hugues Bajas[1], Marco Breschi[2], Susana Izquierdo Bermudez[1], Arnaud Devred[1], Franco Mangiarotti[1], Federica Murgia[1], Rob van Weelderen[1] and Gerard Willering[1]

[1]CERN, Geneva, Switzerland, [2]University of Bologna, Bologna, Italy

3LPo2A-02 [L2] **Analysis of the short-to-ground event in the LARP-AUP MQXFAP1 magnet, and its implication on the production and tests of the series magnets**

Vittorio Marinozzi[1], Giorgio Ambrosio[1], Joseph Muratore[2], Piyush Joshi[2], Emmanuele Ravaioli[3], Stoyan Stoynev[1] and Peter Wanderer[2]

[1]Fermilab, Batavia, Illinois, US, [2]BNL, Shirley, New York, US, [3]CERN, Geneva, Switzerland

3LPo2A-03 [L3] **Analytical modelling of CICCs coupling losses: broad investigation of two-stage multiplets towards multi-stage representation.**

Maxime Chiletti[1], Louis Zani[2], Frédéric Topin[1], Alexandre Louzguiti[3], Tommaso Bagni[4], Arend Nijhuis[4], Daniel Ciazynski[2], Alexandre Torre[2], Marco Bianchi[5], Marco Breschi[5], Jean-Luc Duchateau[2] and Bernard Turck[2]

[1]CEA/AMU, St Paul lez Durance, PACA, France, [2]CEA, St Paul lez Durance, PACA, France, [3]CERN, Genève, Switzerland, [4]Twente University, Enschede, Netherlands, [5]Bologna University, Bologna, Italy

3LPo2A-04 [L4] **Improving Operation of Superconducting Dipole Magnet for Jefferson Lab's 11 GeV Super High Momentum Spectrometer**

Eric Sun[1], Paul Brindza[1], Steven Lassiter[1] and Michael Fowler[1]

[1]Jefferson Lab, Newport News, Virginia, US

3LPo2A-05 [L5] **Stability Analysis of MgB_2 coils for SMES application consisting of large-scale Rutherford cables.**

Tsuyoshi Yagai[1], Toru Okubo[1], Moeto Hira[1], Masahiro Kamibayashi[1], Mana Jimbo[1], Yusuke Kuwahara[1], Tomoaki Takao[1], Naoki Hirano[2], Takakazu Shintomi[6], Yasuhiro Makida[6], Toshihiro Komagome[3], Kenichi Tsukada[3], Taiki Onji[4], Yuuki Arai[4], Atsushi Ishihara[4], Masaru Tomita[4], Daisuke Miyagi[5], Makoto Tsuda[5] and Takataro Hamajima[5]

[1]Sophia University, Tokyo, Japan, [2]Chubu Electric Power, Nagoya, Japan, [3]Mayekawa MFG, Moriya, Japan, [4]Railway Technical Research Institute, Kunitachi, Japan, [5]Tohoku University, Sendai, Japan, [6]KEK, Tsukuba, Japan

3LPo2A-06 [L6] **Quench analysis of thermal disturbance on LTS superconducting magnets**

Hiroyuki Ushifusa[1], Masaru Shinozaki[1] and Masayoshi Oya[1]

[1]Mitsubishi Electric Corporation, Amagasaki, Hyogo, Japan

3LPo2A-07 [L7] **Quench detection of the KSTAR CS Coil by considering plasma current effect**

Yong Chu[1]

[1]National Fusion Research Institute, Daejeon, Korea (the Republic of)

3LPo2A-08 [L8] **The Quench analysis of the KSTAR PF1 magnet**

Hyunjung Lee[1] and Yong Chu[1]

[1]NFRI, Daejeon, Korea (the Republic of)

3LPo2A-09 [L9] **Performance evaluation of the KSTAR Superconducting magnet system during 11-year operation**

Yong Chu[1]

[1]National Fusion Research Institute, Daejeon, Korea (the Republic of)

3LPo2B - Motors, Generators, and Rotating Machines [P III]: HTS Wind
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Piyush Joshi, Brookhaven National Laboratory & Quan Li, University of Edinburgh

3LPo2B-01 [L10&11] **[Invited] An Innovative Wind Project on the Development of HTS Magnet, Test Facility, Offshore Floating System, and Network Connection Technologies for 10MW Class Wind Power System fully sponsored by KEPCO**

Minwon Park[1], Hae-Jin Sung[1], Seok-Ju Lee[1], Hyun Kyoung Shin[5], Ho Min Kim[2], Hak-Man Kim[3], Hyung-Seop Shin[4], Seokho Kim[1] and In-Keun Yu[1]

[1]Changwon National University, Changwon, Korea (the Republic of), [2]Jeju National University, Jeju, Korea (the Republic of), [3]Incheon National University, Incheon, Korea (the Republic of), [4]Andong National University, Andong, Korea (the Republic of), [5]University of Ulsan, Ulsan, Korea (the Republic of)

3LPo2B-02 [L12] **Practical design of a performance evaluation system for large scale HTS wind turbine generators**

ChangHyun Kim[1], Hae-Jin Sung[1], Gi-Dong Nam[1], Minwon Park[1] and In-Keun Yu[1]

[1]ChangwonNationalUniversity, Changwon, Korea (the Republic of)

3LPo2B-03 [L13] **A Novel HTS Wind Generator Having Permanent Magnets between the Rotor Pole-Tips**

Yi Cheng[1], Dawei Li[1], Ronghai Qu[1] and Feng Lin[1]

[1]State Key Laboratory of Advanced Electromagnetic Engineering and Technology, School of Electrical and Electronic Engineering, Huazhong University of Science and Technology, Wuhan, China

3LPo2B-05 [L14] **Dynamic Performance Study of 10-MW Salient-Pole Wind Turbine HTS Synchronous Generators**

Yuanyuan Xu[2,1], Naoki Maki[1] and Mitsuru Izumi[1]

[1]Tokyo University of Marine Science and Technology, Tokyo, Japan, [2]Guangdong Ocean University, Zhanjiang, China

3LPo2B-06 [L15] **Hardware integration and performance analysis of a lab-scale HTS wind power generator**

Hae-Jin Sung[1], Byeong-Soo Go[1], Minwon Park[1] and In-Keun Yu[1]

[1]Changwon National University, Changwon, Korea (the Republic of)

3LPo2B-07 [L16] **Structural Design and Comparative Analysis of Air-core and Iron-core Type Module Coils for HTS Wind Power Generators**

Byeong-Soo Go[1], Hae-Jin Sung[1], Minwon Park[1] and In-Keun Yu[1]

[1]Changwon National University, Changwon, Korea (the Republic of)

3LPo2B-08 [L17] **Air-Core Stator Design for a Large-Capacity HTS Motor**

Yong Zhou[1], Qi Dong[1], Haiyuan Jia[1], Sisi Peng[1] and Jun Zheng[1]

[1]Wuhan Institute of Marine Electric Propulsion, Wuhan, China

3LPo2B-09 [L18] **Technology development of superconducting DC generator for offshore wind turbines**

Fabian Schreiner[1], Yingzhen Liu[1] and Mathias Noe[1]

[1]KIT - Institute for Technical Physics, Eggenstein-Leopoldshafen, Germany

3LPo2B-10 [L19] **Dynamic Loss in Superconducting Field Windings of a HTS Generator**

Kevin Kails[1], Quan Li[1], Min Yao[1] and Markus Mueller[1]

[1]The University of Edinburgh, Edinburgh, United Kingdom

3LPo2B-11 [L20] **Short-circuit Characteristics of High Temperature Superconducting Wind Turbine Generators Employing Segmented Stator Windings**

Xiaowei Song[1], Dong Liu[2], Yawei Wang[3] and Shuhong Wang[4]

[1]Envision Energy Global Innovation Center, Silkeborg, Denmark, [2]Hohai University, Nanjing, China, [3]University of Strathclyde, Glasgow, United Kingdom, [4]Xi'an Jiaotong University, Xi'an, China

3LPo2B-12 [L21] **Design and Comparison of Segmented Armature Windings for Superconducting Wind Turbine Generators with Multiple Converters**

Dong Liu[1], Xiaowei Song[2], Yawei Wang[3] and Hongzhong Ma[1]

[1]Hohai University, Nanjing, China, [2]Envision Energy Global Innovation Centre, Silkeborg, Denmark, [3]University of Strathclyde, Galsgow, United Kingdom

3LPo2C - Test, Measurement, Techniques [P II]

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.

Moderators: Richard Taylor, Queensland University of Technology & Alfredo Álvarez, Industrial Engineering School. University of Extremadura

3LPo2C-01 [L22] **Comparison of heat assisted lap joints of high-temperature superconducting tapes with inserted indium foils**

Satoshi Ito[1], Hiromichi Fujii[2], Yutaka Sato[2] and Hidetoshi Hashizume[1]

[1]Tohoku University, Sendai, Miyagi, Japan, [2]Tohoku University, Sendai, Miyagi, Japan

3LPo2C-02 [L23] **Open magnetic shielding by Superconducting technology**

Chen Gu[1], Siwei Chen[4,2], Timing Qu[3], Lingfeng Lai[2] and Yubin Yue[2]

[1]Teaching Center of Experimental Physics, Beijing, Beijing, China, [2]Eastforce Superconducting Technology Co., Ltd., Beijing, China, [3]Key Laboratory for Advanced Materials Processing Technology, Department of Mechanical Engineering, Beijing, China, [4]University of Houston, Houston, Texas, US

3LPo2C-03 [L24] **Application of the new generic quench detection system to HL-LHC's 11T dipole magnet**

Jens Steckert[1], Reiner Denz[1], Ernesto De Matteis[1], Tomasz Podzorny[1], Andrzej Siemko[1] and Jelena Spasic[1]

[1]CERN, Geneva, Switzerland

3LPo2C-04 [L25] **Sensitivity of Temperature Measurement using Metal and Polyimide Coated Optical Fibers in HTS No-insulation Coils**

Junjie Jiang[1], Zhuyong Li[1], Jie Sheng[1], Zhiyong Hong[1] and Zhijian Jin[1]

[1]Shanghai Jiao Tong University, Shanghai, China

3LPo2C-05 [L26] **Evaluation of temperature and magnetic field dependence of interface resistance in a REBCO tape for prediction of joint resistance.**

Ryoichiro Hayasaka[1], Satoshi Ito[1] and Hidetoshi Hashizume[1]

[1]Tohoku University, Sendai, Miyagi, Japan

3LPo2C-06 [L27] **Failure analysis of YBCO Tapes Considering the Amplitude and Duration of Sinusoidal Overcurrent**

Guilun Chen[1], Ying Xu[1], Li Ren[1], Dongsheng Pu[1] and Yuejin Tang[1]

[1]Huazhong University of Science and Technology, Wuhan, Hubei, China

3LPo2C-07 [L28] **Development of an HTS capacitor using HTS tapes as electrodes**

Jun Ogawa[1], Satoshi Fukui[1], Kouki Yoshino[1], Yushi Suzuki[1] and Syunsuke Torigata[1]

[1]Niigata University, Niigata, Niigata, Japan

3LPo2C-08 [L29] **Study on the Performance Deterioration of YBCO Tapes under Repeated Short-circuit Overcurrent**

Ying Xu[1], Guilun Chen[1], Li Ren[1], Dongsheng Pu[1] and Yuejin Tang[1]

[1]Huazhong University of Science and Technology, Wuhan, Hubei, China

3LPo2C-09 [L30] **Development of CW-NMR probe for precise measurement of absolute magnetic field**

Hiroshi Yamaguchi[1], Kenichi Sasaki[1], Toya Tanaka[2], Mitsushi Abe[1], David Flay[3], David Kawall[3], Tsutomu Mibe[1], Shun Seo[2], Koichiro Shimomura[1], Yasuhiro Ueno[2] and Peter Winter[4]

[1]High Energy Accelerator Research Organization, Tsukuba, Ibaraki, Japan, [2]The University of Tokyo, Hongo, Tokyo, Japan, [3]The University of Massachusetts, Amherst, Massachusetts, US, [4]Argonne National Laboratory, Lemont, Illinois, US

3LPo2C-10 [L31] **Rogowski Coil with Superconducting Shield Inserted between Primary Coil and Secondary Coil**

Masahiro Daibo[1]

[1]Iwate University, Morioka, Japan

3LPo2D - Grid Study with Superconducting Devices [P II]

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.

Moderators: Steffen Elschner, University of Applied Science Mannheim & Alfredo Álvarez, Industrial Engineering School. University of Extremadura

3LPo2D-01 [L32] **Analysis on Coordination of Over-Current Relay with Voltage Component in a Power Distribution System with a SFCL**

Sung-Hun Lim[1] and Seung-Taek Lim[1]

[1]Soongsil University, Seoul, Korea (the Republic of)

3LPo2D-02 [L33] **Study on Protection Coordination between Protective Relays Considering Application of SFCL in a Power Distribution System**

Sung-Hun Lim[1], Seung-Taek Lim[1] and Jaechul Kim[1]

[1]Soongsil University, Seoul, Korea (the Republic of)

3LPo2D-03 [L34] **Application of Superconducting Fault Current Limiters to MVDC for Low Voltage Ride Through Capability Enhancement**

Hyeong-Jin Lee[1], Sang-Jae Choi[1], Sung-Hun Lim[1], Jaechul Kim[1] and Joong Woo Shin[1]

[1]Soongsil University, Seoul, Korea (the Republic of)

3LPo2D-04 [L35] **Protection system HIL testing for the application of 154 kV SFCL in Korea**

Seung Ryul Lee[1], Jong-Joo Lee[1] and Minh-Chau Dinh[2]

[1]KERI, Uiwang-city, Gyeonggi-do, Korea (the Republic of), [2]KEPRI, Daejeon, Korea (the Republic of)

3LPo2D-05 [L36] **Study on Application of Superconducting Fault Current Limiter Considering Risk of Circuit Breaker Short-Circuit Capacity in a Loop Network System**

Jinseok Kim[1]

[1]Seoil Univ., Seoul, Korea (the Republic of)

3LPo2D-06 [L37] **Protection Coordination of Protective Relays for Application of SFCL in a Loop-Power Distribution System**

Seung-Taek Lim[1] and Sung-Hun Lim[1]

[1]Soongsil University, Seoul, Korea (the Republic of)

3LPo2D-07 [L38] **Analysis on Current Limiting and Interrupting Characteristics of DC-CB using SFCL into HVDC System**

Sang-Jae Choi[1], Hyeong-Jin Lee[1] and Sung-Hun Lim[1]

[1]Soongsil Unniversity, Seoul, Korea (the Republic of)

3LPo2D-08 [L39] **Modeling and Control of Superconducting VSC-HVDC Transmission Systems**

Dimitrios Doukas[1], Zoi Blatsi[1] and Dimitris Labridis[1]

[1]Aristotle University of Thessaloniki, Thessaloniki, Greece

3LPo2D-09 [L40] **Feasible Protection Strategy for HVDC Grids by means of Superconducting Fault Current Limiter and Hybrid DC Breaker**

Ho-Yun Lee[1], Mansoor Asif[1], Kyu-Hoon Park[1] and Bang-Wook Lee[1]

[1]Hanyang University, Ansan, Korea (the Republic of)

3LPo2E - Quench Protection of Accelerator Magnets

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.

Moderators: Lucas Brouwer, Lawrence Berkeley National Laboratory & Antti Stenvall, Tampere University of Technology

3LPo2E-02 [L41] **Quench Protection Study of 3T Booster Super-Ferric magnet using CICC for Future Electron-Ion Collider at Jefferson Laboratory**

Probir Ghoshal[1], Ruben Fair[1], Sandesh Gopinath[1], Peter McIntyre[3], Timothy Michalski[2], Renuka Rajput-Ghoshal[1], Akhdiyor Sattarov[3] and David Kashy[1]

[1]Jefferson Lab, Newport News, Virginia, US, [2]Jefferson Lab, Newport News, Virginia, US, [3]Texas A&M University, College Station, Texas, US

3LPo2E-03 [L42] **Quench protection of the 16 T Nb3Sn dipole magnets designed for the Future Circular Collider**

Tiina Salmi[1], Marco Prioli[2], Antti Stenvall[1] and Arjan Verweij[2]

[1]Tampere University of Technology, Tampere, Finland, [2]CERN, Geneva, Switzerland

3LPo2E-04 [L43] **Quench Analysis of the HL-LHC Beam Separation Dipole Model Magnet with the New Iron Cross Section**

Kento Suzuki[1], Yukiko Ikemoto[1], Hiroshi Kawamata[1], Tatsushi Nakamoto[1], Toru Ogitsu[1], Naoki Okada[1] and Michinaka Sugano[1]

[1]KEK, Tsukuba, Japan

3LPo2E-05 [L44] **Quench protection of the 11 T Nb_3Sn model and prototype dipoles for the High Luminosity LHC**

Susana Izquierdo Bermudez[1], Hugues Bajas[1], Marta Bajko[1], Luca Bottura[1], Franco Mangiarotti[1], Juan Carlos Perez[1] and Gerard Willering[1]

[1]CERN, Geneva, Switzerland

3LPo2E-06 [L45] **Self-protected coil windings based on canted cosine-theta design**

Nikolay Bykovskiy[1], Alexey Dudarev[1], Erwin Bielert[1], Helder Filipe Pais da Silva[1] and Herman ten Kate[1]

[1]CERN, Geneva, Switzerland

3LPo2E-07 [L46] **Quench Characteristics of a Superconducting Compensation Solenoid for SuperKEKB**

Xudong Wang[1], Yasushi Arimoto[1], Hiroshi Yamaoka[1], Zhanguo Zong[1], Masanori Kawai[1], Kiyosumi Tsuchiya[1] and Norihito Ohuchi[1]

[1]High Energy Accelerator Research Organization, Tsukuba, Ibaraki, Japan

3LPo2E-08 [L47] **Hot spot temperature and cyclic loading effects on the voltage spikes during the current ramps of Nb3Sn racetrack coils powering tests**

Hugues Bajas[1], Marta Bajko[1], Susana Izquierdo Bermudez[1], Nicolas Bourcey[1], Antonella Chuichiolo[1], Arnaud Devred[1] and Juan Carlos Perez[1]

[1]CERN, Geneva, Switzerland

3LPo2F - Very High Field Magnets [P II]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Mark Bird, NHMFL-FSU & Hubertus Weijers, NHMFL/ FSU

3LPo2F-01 [L48] **Novel High Current Superconducting Coil Using Integrated Coil Form Technology**

Thomas Painter[1], Tim Coombs[2] and Jianzhao Geng[2]

[1]Florida State University, Tallahassee, Florida, US, [2]University of Cambridge, Cambridge, United Kingdom

3LPo2F-02 [L49] **Exploration of the limit of DC field from the conductor point of view**

Xinbo Hu[1], Kwang Lok Kim[1], Kwangmin Kim[1], Kabindra Bhattarai[1], Kyle Radcliff[1], Jan Jaroszynski[1], Seungyong Hahn[1,2] and David Larbalestier[1]

[1]Applied superconductivity center, NHMFL, Florida state university, Tallahassee, Florida, US, [2]Seoul National University, Seoul, Korea (the Republic of)

3LPo2F-03 [L50] **Very High Field REBCO Metal-as-Insulation Magnet: Design and Results Analysis of a 7 T Mock-up and 10 T Full Scale Magnets under up to 20 T at 4.2 K**

Thibault Lécrevisse[1], Xavier Chaud[2], Philippe Fazilleau[1] and Jungbin Song[2]

[1]IRFU, CEA, Université Paris-Saclay, F-91191 Gif-Sur-Yvette, France, [2]Laboratoire National des Champs Magnétiques Intenses, Grenoble, France

3LPo2F-04 [L51] **Design of a High Field User Facility above 40 T with Combination of NI-ReBCO Coil and Resistive Magnet**

Hongyu Bai[1], Iain Dixon[1], Thomas Painter[1] and David Graf[1]

[1]National High Magnetic Field Laboratory, Tallahassee, Florida, US

3LPo2F-05 [L52] **Numerical Simulation on Screening Current-induced Field in a Bi-2223 Multifilamentary Tape Coil**

Tomoaki Koizumi[1], Eisuke Morikawa[1], SeokBeom Kim[1], Hiroshi Ueda[1], Mamoru Hamada[2], Yoshinori Yanagisawa[3] and Hideaki Maeda[3]

[1]Okayama University, Okayama, Japan, [2]Japan Superconductor Technology, Inc., Kobe, Japan, [3]RIKEN, Yokohama, Japan

3LPo2F-06 [L53] **Magnetic Field Stability Improvement of a Conduction-cooled All-REBCO Magnet by a Feedback Control of the Magnet Temperature and Power Supply Current**

Young Jin Hwang[1], Jae Young Jang[1], Seungyong Hahn[2], Min Chul Ahn[3], Yungil Kim[4], Jaemin Kim[4,2], Sohyun Kim[2], Hankil Yeom[5], Sehwan In[5] and SangGap Lee[1]

[1]Korea Basic Science Institute, Daejeon, Korea (the Republic of), [2]Seoul National University, Seoul, Korea (the Republic of), [3]Kunsan National University, Gunsan, Korea (the Republic of), [4]SuNAM Co., Ltd., Anseong, Korea (the Republic of), [5]Korea Institute of Machinery and Materials, Daejeon, Korea (the Republic of)

3LPo2F-07 [L54] **Design of a 30 T Superconducting Magnet for Quantum Oscillation Application**

Jianhua Liu[1], Qiuliang Wang[1,2] and Yinming Dai[1]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China

3LPo2G - HL-LHC Magnets [P II]

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Tatsushi Nakamoto, KEK & Stoyan Stoynev, FNAL

3LPo2G-01 [L56&57] **[Invited] Performance of 2-meter long MBH 11 T Nb_3Sn short model dipoles for HL-LHC**

Gerard Willering[1], Marta Bajko[1], Hugues Bajas[1], Bernardo Bordini[1], Luca Bottura[1], Michal Duda[1], Michael Guinchard[1], Jerome Feuvrier[1], Lucio Fiscarelli[1], Susana Izquierdo Bermudez[1], Christian Loffler[1], Emelie Nilsson[1], Juan Carlos Perez[1], Gijs de Rijk[1] and Frederic Savary[1]

[1]CERN, Genève 23, Switzerland

3LPo2G-02 [L55] **Design of a Full-Scale Prototype of the Large-aperture Beam Separation Dipole for the HL-LHC upgrade**

Michinaka Sugano[1], Kento Suzuki[1], Tatsushi Nakamoto[1] and Yukiko Ikemoto[1]

[1]KEK, Tsukuba, Japan

3LPo2G-03 [L58] **Preload Analysis of MQXFBP1, the First Prototype of the 7.2 m Long Low-β Quadrupole for the High Luminosity LHC Upgrade**

Giorgio Vallone[1], Giorgio Ambrosio[2], Nicolas Bourcey[1], Daniel Cheng[3], Paolo Ferracin[1], Philippe Grosclaude[1], Michael Guinchard[1], Susana Izquierdo Bermudez[1], Mariusz Juchno[3], Friedrich Lackner[1], Heng Pan[3], Juan Carlos Perez[1], Soren Prestemon[3], Michela Semeraro[1] and Stephane Triquet[1]

[1]CERN, Geneva, Switzerland, [2]FNAL, Batavia, Illinois, US, [3]LBNL, Berkeley, California, US

3LPo2G-04 [L59] **Mechanical design and assembly of the NbTi quadrupole MQYY for HL-LHC**

Damien Simon[1], Helene Felice[1], Jean-Michel Rifflet[1], Michel Segreti[1], Arnaud Foussat[2], Juan Carlos Perez[2], Nicolas Bourcey[2], Michael Guinchard[2] and Philippe Grosclaude[2]

[1]CEA Saclay, Gif sur Yvette cedex, France, [2]CERN, Geneve, Switzerland

3LPo2G-05 [L60] **Mechanical analysis of assembly of the short Nb_3Sn 11 T Dipole models for the High Luminosity LHC**

Emelie Nilsson[1], Susana Izquierdo Bermudez[1], Nicolas Bourcey[1], Paolo Ferracin[1], Jose Ferradas Troitino[1], Philippe Grosclaude[1], Michael Guinchard[1], Christian Loffler[1], Juan Carlos Perez[1], Gijs de Rijk[1], Frederic Savary[1] and Giorgio Vallone[1]

[1]CERN, Geneva, Switzerland

3LPo2G-06 [L61] **Mechanical analysis of the collaring process of the 11T dipole magnet**

Paolo Ferracin[1], Luca Bottura[1], Michael Daly[1], Arnaud Devred[1], Jose Ferradas Troitino[1], Jose Ferradas Troitino[1], Philippe Grosclaude[1], Michael Guinchard[1], Christian Loffler[1], Susana Izquierdo Bermudez[1], Emelie Nilsson[1], Juan Carlos Perez[1], José Luis Rudeiros Fernández[1], Frederic Savary[1], Ezio Todesco[1], Giorgio Vallone[1] and Felix Wolf[1]

[1]CERN, Geneva, Switzerland

3LPo2G-07 [L62] **Fabrication of the prototype of MQXFB, the Nb_3Sn low-b quadrupole magnet for the HiLumi LHC**

Friedrich Lackner[1], Paolo Ferracin[1], Ezio Todesco[1], Stephane Triquet[1], Marc Pozzobon[1], Max Duret[1], Herve Prin[1], Juan Carlos Perez[1], Christian Scheuerlein[1], Thomas Sahner[1], Giorgio Vallone[1], Nicolas Bourcey[1], E Cavanna[2], Thibault Genestier[3], Rosario Principe[1], Giorgio Ambrosio[4] and Frederic Savary[1]

[1]CERN, Geneva, Switzerland, [2]ASG Superconductors, Perrone, Italy, [3]General Electric, Belfort, France, [4]FNAL, Batavia, Illinois, US

3LPo2H - HTS Accelerator Magnets [P]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Ramesh Gupta, BNL & Anna Kario, KIT, ITEP

3LPo2H-01 [L63] **Activity on the sextupole round coil superferric magnet prototype at LASA**

Samuele Mariotto[1], Massimo Sorbi[1], Marco Statera[2], Maurizio Todero[2], Riccardo Valente[1], Mauro Quadrio[2], Danilo Pedrini[2], Alessandro Pasini[2], Antonio Paccalini[2] and Augusto Leone[2]

[1]INFN - LASA & Università degli Studi di Milano , Milano, Milano, Italy, [2]INFN - LASA, Milano, Italy

3LPo2H-02 [L64] **Characteristic analysis of shimming method for improvement of magnetic field homogeneity of air-core HTS quadruple magnet.**

Junseong Kim[1], Geonwoo Baek[1], Seunghyun Song[1], Woo Seung Lee[2], Sangjin Lee[3], Hyoungku Kang[4] and Tae Kuk Ko[1]

[1]Yonsei university, Seoul, Seodaemun-gu, Korea (the Republic of), [2]JH Engineering, Seoul, Korea (the Republic of), [3]Uiduk university, Gyeongju-si, Korea (the Republic of), [4]Korea National University of Transportation, Chungju-si, Korea (the Republic of)

3LPo2H-03 [L65] **Optimization and Design of a Full HTS Accelerator Dipole for Achieving Magnetic Fields Beyond 20 T**

Jeroen van Nugteren[1], Jaakko Murtomaeki[1,2], Glyn Kirby[1], Gijs de Rijk[1], Luca Bottura[1] and Lucio Rossi[1]

[1]CERN, Geneva, Switzerland, [2]Tampere University of Technology, Tampere, Finland

3LPo2H-04 [L66] **Development of an HTS accelerator magnet with REBCO coils for tests at HIMAC beam line**

Shigeki Takayama[1], Sadanori Iwai[1], Yoichi Kubo[1], Kei Koyanagi[1], Hiroshi Miyazaki[1], Tomofumi Orikasa[1], Yusuke Ishii[1], Tsutomu Kurusu[1], Naoyuki Amemiya[2], Toru Ogitsu[3], Yoshiyuki Iwata[4], Koji Noda[4] and Masahiro Yoshimoto[5]

[1]Toshiba Energy Systems & Solutions Corporation, Yokohama, Japan, [2]Kyoto University, Kyoto, Japan, [3]KEK, Tsukuba, Japan, [4]QST/NIRS, Inage, Japan, [5]JAEA, Tokai, Japan

3LPo2H-05 [L67] **Fabrication and test of BIN4 and BIN5, two Bi-2212 Canted-Cosine-Theta magnet prototype coils**

Laura Garcia Fajardo[1], Ernesto Bosque[2], Lucas Brouwer[1], Shlomo Caspi[1], Charles English[2], Aurelio Hafalia[1], Soren Prestemon[1] and Tengming Shen[1]

[1]LBNL, Berkeley, California, US, [2]MagLab, Tallahassee, Florida, US

3LPo2H-06 [L68] **High Temperature Superconducting Quadrupole Magnet with Circular Coils**

Vladimir Kashikhin[1] and Daniele Turrioni[1]

[1]Fermilab, Batavia, Illinois, US

3LPo2H-07 [L69] **Prototype HTS Sextupole Magnet for SuperKEKB Interaction Region**

Kiyosumi Tsuchiya[1], Shinji Fujita[2], Akio Terashima[1], Xudong Wang[1], Mika Masuzawa[1], Norihito Ohuchi[1], Masafumi Tawada[1], Akihiro Kikuchi[3] and Yasuhiro Iijima[2]

[1]High Energy Accelerator Research Organization, KEK, Tshukuba, Japan, [2]Fujikura Ltd., Sakura, Japan, [3]National Institute for Materials Science, NIMS, Tsukuba, Japan

3LPo2H-08 [L70] **EuCARD2 Roebel-based cos-theta coil fabrication and magnet assembly validation**

Maria Durante[2], Clément Lorin[2] and Glyn Kirby[1]

[1]CERN, Geneva, Switzerland, [2]IRFU, CEA, Université Paris-Saclay , Saclay, France

3LPo2J - ITER Conductors, Magnets and Joints
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Pierluigi Bruzzone, EPFL-CRPP & Philip Michael, MIT - Plasma Science & Fusion Center

3LPo2J-01 [L71] **[Invited] Evaluation of superconducting property of ITER TF CIC conductor in TF insert test**

Muto Yuma[1], Koh Agatsuma[1], Hideki Kajitani[2], Haruyuki Murakami[2], Norikiyo Koizumi[2] and Atsushi Ishiyama[1]

[1]Waseda University, Minamisaitama-gun Miyashiro-machi, Saitama, Japan, [2]National Institutes for Quantum and Radiological Science and Technology (QST), Naka, Ibaraki, Japan

3LPo2J-02 [L72] **Stability Test Result of ITER TF Insert Coil Using an Inductive Heater**

Hidemasa Ozeki[1], Takaaki Isono[1], Katsumi Kawano[1], Tomone Suwa[1], Kunihiro Matsui[1] and Norikiyo Koizumi[1]

[1]QST, Naka, Ibaraki, Japan

3LPo2J-03 [L73] **New inspection method of soldering region at room temperature for ITER TF Termination**

Hideki Kajitani[1], Minoru Yamane[1] and Norikiyo Koizumi[1]

[1]National Institutes for Quantum and Radiological Science and Technology (QST), Naka-shi, Ibaraki-ken, Japan

3LPo2J-04 [L74] **Improved assessment of current center line of ITER TF Coil**

Mio Nakamoto[1], Norikiyo Koizumi[1], Hideki Kajitani[1] and Minoru Yamane[1]

[1]National Institutes for Quantum and Radiological Science and Technology, Naka, Ibaraki, Japan

3LPo2J-05 [L75] **Electromechanical modeling of the impact of cyclic loading on the performance of ITER TF conductors**

Rebecca Riccioli[3,1], Alexandre Torre[1], Marco Breschi[3] and Damien Durville[2]

[1]CEA Cadarche, St-Paul Lez Durance, France, [2]CentraleSupélec ECP, Chatenay-Malabry, France, [3]University of Bologna, Bologna, Italy

3LPo2J-06 [L76] **Development of Insulation Technology with Vacuum-pressure-impregnation (VPI) for ITER PF6 Double Pancakes**

Xiaowu Yu[1], Yuntao Song[1], Chunyu Wang[1], Bing Hu[1], Zhaohui Yan[1], Fei Liu[1], Huan Wu[1], Guang Shen[1], Weiyue Wu[1], Jing Wei[1], Kun Lu[1] and Kevin Smith[2]

[1]Institute of Plasma Physics,Chinese Academy of Sciences., Hefei, China, [2]Fusion for Energy, Bacelona, Spain

3LPo2J-07 [L77] **Quantitative analysis of electrical and thermal stability of ITER NbTi PF joints**

Jianfeng Huang[1], Tommaso Bagni[1,2], Yury Ilin[3] and Arend Nijhuis[1]

[1]University of Twente, Enschede, Netherlands, [2]University of Ghent, Ghent, Belgium, [3]ITER Organization, St. Paul lez Durance, France

3LPo2J-08 [L78&79] **[Invited] Modeling the ITER CS AC losses based on the CS insert analysis**

Roberto Bonifetto[1], Marco Breschi[2], Nicolai Martovetsky[3], Laura Savoldi[1] and Roberto Zanino[1]

[1]Politecnico di Torino, Torino, Torino, Italy, [2]Università di Bologna, Bologna, Bologna, Italy, [3]US ITER Project Office, Oak Ridge, Tennessee, US

3LPo2J-09 [L80&81] **[Invited] Electromagnetic Analysis of Transients in the ITER PF Superconducting Joints**

Marco Breschi[1], Lorenzo Cavallucci[1], Davide Lotito[1], Pier Luigi Ribani[1], Fabrizio Bellina[2] and Francesco Stacchi[2]

[1]University of Bologna, Bologna, Bologna, Italy, [2]University of Udine, Udine, Italy

3LPo2J-10 [L82] **Manufacture and Behaviors of Superconducting Busbar Joint for ITER Correction Coil Feeder**

Xinjie Wen[1], Xiongyi Huang[1], Kun Lu[1], Chen Liu[1], Guoliang Li[1], Chen-yu Gung[2], Jaromir Farek[2], Hyungjun Kim[2], Yury Ilin[2], Nicholas Clayton[2], Erwu Niu[3] and Chunlong Zou[1]

[1]ASIPP, Hefei, China, [2]ITER Organization, St Paul Lez Durance Cedex, France, [3]CNDA, Beijing, China

3LPo2J-11 [L83] **Energy Losses and Stability of ITER Coil Lap Joints**

Yury Ilin[1], Arend Nijhuis[2], Jianfeng Huang[2], Bernard Turck[1], Byung Su Lim[1], Neil Mitchell[1] and Tommaso Bagni[2]

[1]ITER, St Paul Lez Durance, France, [2]University of Twente, Enschede, Netherlands

3LPo2K - Magnetic Levitation and Bearings
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Shreyas Balachandran, ASC/ NHMFL/FSU & John Hull, The Boeing Company

3LPo2K-01 [L84] **Dynamic stability of high-T_c superconducting maglev system running at high speeds**

Da Jin Zhou[1], Li Feng Zhao[2], Chuan Ke[2], Cui Hua Cheng[1], Yong Zhang[2] and Yong Zhao[1]

[1]Fujian Normal University, Fuzhou, Fujian Province, China, [2]Southwest Jiaotong University, Chengdu, Sichuan, China

3LPo2K-02 [L85] **Vertical Dynamics of Vehicle/Track Coupled System in High Temperature Superconducting Maglev Vehicle**

Yanxing Li[1], Jipeng Li[1] and Zigang Deng[1]

[1]Southwest Jiaotong University, Chengdu, China

3LPo2K-03 [L86] **A Strongly Coupled Electromagnetic-Thermo-Mechanical Model for Predicting Dynamic Charactristics in HTS Maglev System**

Wenjiao Yang[1], Chang-Qing Ye[1], Kun Liu[1], Loïc Quéval[2] and Guangtong Ma[1]

[1]Southwest Jiaotong University, Chengdu, China, [2] CentraleSupélec, Paris, France

3LPo2K-04 [L87] **Operating Characteristics by Electromagnetic Shielding Effect for Different Structure of Cooling Vessel in Wireless Power Charging System at Superconducting MAGLEV**

Yoon Do Chung[1], Chang Young Lee[2], Woo Seung Lee[3] and Eun Young Park[4]

[1]Suwon Science College, Hwasung-si, Korea (the Republic of), [2]Korea Railroad Institute, Gyeonggi-do, Korea (the Republic of), [3]JH Engineering Co.Ltd, Gyeonggi-do, Korea (the Republic of), [4]Korea Christian University, Seoul, Korea (the Republic of)

3LPo2K-05 [L88] **Transfer Efficiency Effect under Multi Frequency RF Powers for Wireless Power Charging System of Superconducting Electric Vehicle**

Dae Wook Kim[1], Yoon Do Chung[2] and Haeryong Jeon[1]

[1]Yonsei University, Seoul, Korea (the Republic of), [2]Suwon Science College, Gyeonggi-do, Korea (the Republic of)

3LPo2K-06 [L89] **The effects of additional ring-shaped magnet on stability of superconducting Levitation**

Muneo Futamura[1] and Ryo Shindo[1]

[1]Akita Prefectural University, Yurihonjo, Akita, Japan

3LPo2K-07 [L90] **Mobile HTS bulk devices as enabling ton–force technology for Maglev trains**

Uta Floegel-Delor[1], Peter Schirrmeister[1], Thomas Riedel[1], Rene Koenig[1], Viktor Kandarbar[1], Mirko Liebmann[1] and Frank Werfel[1]

[1]Adelwitz Technologiezentrum GmbH (ATZ), Torgau, Germany

3LPo2K-09 [L91] **Investigation on two degree-of-freedom modeling and simulation of superconducting magnetic bearing**

Liwang Ai[1,2], GuoMin Zhang[1], Wanjie Li[1,2], Guole Liu[1,2], Jianhui Chen[1,2] and Qingquan Qiu[1]

[1]The Key Laboratory of Applied Superconductivity and the Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China

3LPo2K-11 [L92] **Rotational Loss Analysis of Superconducting Magnetic Bearings for a Polarization Modulator**

Hiroyuki Ohsaki[1], Yutaka Terao[1], Yukimasa Hirota[1], Yuki Sakurai[2], Tomotake Matsumura[2], Hajime Sugai[2], Shin Utsunomiya[2], Nobuhiko Katayama[2], Hirokazu Kataza[3] and Hiroaki Imada[3]

[1]The University of Tokyo, Kashiwa, Chiba, Japan, [2]The University of Tokyo, Kashiwa, Japan, [3]Japan Aerospace Exploration Agency, Sagamihara, Japan

3LPo2K-12 [L93] **Analysis of dynamic deformation and disturbing torque of superconducting magnetically-supported spinning rotor**

Chunyan Cui[1], Xinning Hu[1,2], Hui Wang[1], Hao Wang[1,2] and Qiuliang Wang[1,2]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences , Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China

3LPo2L - Magnets for Medical Systems [P II]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderator: Kathleen Amm, Brookhaven National Lab

3LPo2L-01 [L94] **Quench safety simulation and verification of superconducting coils for the SC200 superconducting cyclotron**

Kaizhong Ding[1,2], Hansheng Feng[1,2], Yanfang Bi[1], Chunlong Zou[1,2], Rui Hu[2], Xufeng Liu[1], Gen Chen[1,2], Yonghua Chen[1,2] and Yuntao Song[1,2]

[1]Institute of Plasma Physics, CAS, Hefei, China, [2]Hefei CAS Ion Medical and Technical Devices Co.Ltd, Hefei, China

3LPo2L-02 [L95] **Development of the boil-off cooling system for 5 Tesla commercial superconducting magnet**

Hansheng Feng[1], Kaizhong Ding[1], Yanfang Bi[1], Yonghua Chen[1] and Rui Hu[1]

[1]Institute of Plasma Physics, CAS, Hefei, China

3LPo2L-03 [L96] **Instrumentation, Cooling, Testing and Quench Protection of a Large, Conduction-Cooled, R&W MgB_2 Coil Segment for MRI Applications**

Danlu Zhang[1], Christopher Kovacs[1], Jacob Rochester[1], Milan Majoros[1], Fang Wan[1], Mike Sumption[1], Edward Collings[1], Matthew Rindfleisch[2], Dave Doll[2], Michael Tomsic[2], Charles Poole[3] and Michael Martens[3]

[1]The Ohio State University, Columbus, Ohio, US, [2]Hyper Tech Research, Columbus, Ohio, US, [3]Case Western Reserve University, Cleveland, Ohio, US

3LPo2L-04 [L97] **Conceptual Design of Compact HTS Cyclotron for RI Production**

Hiroshi Ueda[1], Atsushi Ishiyama[2], So Noguchi[3], Tomonori Watanabe[4], Shigeo Nagaya[4], Jun Yoshida[5], Takehisa Tsurudome[5], Nobuaki Takahashi[5], Yukio Mikami[5] and Mitsuhiro Fukuda[6]

[1]Okayama University, Okayama, Japan, [2]Waseda University, Tokyo, Japan, [3]Hokkaido University, Sapporo, Japan, [4]Chubu Electric Power Co., Inc., Nagoya, Japan, [5]Sumitomo Heavy Industries, Ltd., Yokosuka, Japan, [6]Osaka University, Ibaraki, Japan

3LPo2L-05 [L98] **Optimised Design of High Temperature Superconducting Magnet for Medical Accelerator Application**

Yvonne Turid Baird[1] and Quan Li[1]

[1]The University of Edinburgh, Edinburgh, United Kingdom

3LPo2L-06 [L99] **Magnetic modelling of superconducting whole body, actively shielded 7 T MRI magnets wound using Nb_3Sn strands and a segmented coil design**

Milan Majoros[1], Mike Sumption[1], Xuan Peng[2], Dave Doll[2], Michael Tomsic[2] and Edward Collings[1]

[1]The Ohio State University, Columbus, Ohio, US, [2]Hypertech Research, Columbus, Ohio, US

3LPo2L-07 [L100]: **Magnetic, mechanical and thermal modeling of superconducting, whole-body, actively shielded, 3 T MRI magnets wound using MgB_2 strands for liquid cryogen free operation**

Milan Majoros[1], Mike Sumption[1], Dave Doll[2], Michael Tomsic[2] and Edward Collings[1]

[1]The Ohio State University, Columbus, Ohio, US, [2]Hypertech Research, Columbus, Ohio, US

3LPo2L-08 [L101] **Conceptual Design and Performance Estimation of a 5 T/s 5 T Superconducting Dipole Synchrotron Magnet for Cancer Treatment**

Jeong Hwan Park[1], Garam Hahn[2], Uijong Bong[1], Soun Kwon[3], Hyunjung Lee[3], Mincheol Cho[1], Jaemin Kim[1], Yong Chu[3], Moonyoun Jung[4] and Seungyong Hahn[1]

[1]Seoul National University, Seoul, Korea (the Republic of), [2]Korea Institute of Radiological & Medical Sciences, Seoul, Korea (the Republic of), [3]National Fusion Research Institute, Daejeon, Korea (the Republic of), [4]Electronics and Telecommunications Research Institute, Daejeon, Korea (the Republic of)

3MPo2A - LTS: Procurement and Properties

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Hem Kanithi, Luvata Waterbury, Inc. & Peter Lee, Florida State University

3MPo2A-01 [M1] **Critical Current Measurements of the Nb_3Sn wires for the HL-LHC project**

Adrian Szeliga[1,2], Bernardo Bordini[2], Alessandro Cattabiani[2] and Amalia Ballarino[2]

[1]IFJ PAN, Krakow, Poland, [2]CERN, Geneva, Switzerland

3MPo2A-02 [M2] **Verification of Nb_3Sn and NbTi strands for the ITER toroidal and poloidal field magnets**

Mark Raine[1], Damian Hampshire[1] and Thierry Boutboul[2]

[1]Durham University, Durham, United Kingdom, [2]Fusion for Energy, Barcelona, Spain

3MPo2A-03 [M3] **The Bronze Processed Nb_3Sn Multifilamentary Wires Made by Using Super High Tin Bronze Alloys**

Akihiro Kikuchi[1], Hiroyasu Taniguchi[2], Yasuo Iijima[1], Shigeki Nimori[1], Taiji Mizuta[2] and Yasunari Mizuta[2]

[1]National Institute for Materials Science, Tsukuba, Ibaraki, Japan, [2] Osaka Alloying Works, Co., Ltd , Fukui, Japan

3MPo2A-04 [M4] **Microstructure and properties of the bronze processed $(Nb,Ta)_3Sn$ strands**

Maxim Alekseev[1], Ildar Abdyukhanov[1], Victor Pantsyrny[1], Alexander Silaev[1], Anastasiia Tsapleva[1], Mansur Nasibulin[1], Nadezhda Konovalova[1], Elena Dergunova[1], Konstantin Mareev[1], Valery Drobyshev[1], Marina Kravtsova[1] and Pavel Lukyanov[1]

[1]A. A. Bochvar High-Technology Research Institute of Inorganic Materials, Moscow, Russian Federation

3MPo2A-05 [M5] **Superconducting properties of the bronze processed Nb3Sn multifilamentary wires using various Cu-Sn-In ternary alloy matrices**

Yoshimitsu Hishinuma[1], Hiroyasu Taniguchi[2] and Akihiro Kikuchi[3]

[1]National Institute for Fusion Science, Toki, Japan, [2]Osaka Alloying Works Co.Ltd, Fukui, Japan, [3]National Institute for Materials Science, Tsukuba, Japan

3MPo2A-07 [M6] **Microstructure and Superconducting Properties of Brass Matrix Internal Tin Nb_3Sn Wire with Ti doping to Nb core**

Taro Morita[1,2], Nobuya Banno[2], Tsuyoshi Yagai[1] and Kyoji Tachikawa[2]

[1]Sophia University, Kanagawa Isogo-ku, Japan, [2]National Institute for Materials Science, Tsukuba, Japan

3MPo2A-08 [M7] **Size effect of NbTi filament on the interfacial reaction and properties of lead-free superconducting solder joints**

Sangeeta Santra[1], Guillaume Matthews[1], Chris Grovenor[1] and Susannah Speller[1]

[1]University of Oxford, Oxford, Oxfordshire, United Kingdom

3MPo2A-09 [M8] **Lead-free persistent mode joints between NbTi wires**

Timothy Davies[1], Shona McNab[1], M'hammed Lakrimi[2], Adrian Thomas[2], Chris Grovenor[1] and Susannah Speller[1]

[1]University of Oxford, Oxford, United Kingdom, [2]Siemens Magnet Technology, Oxford, United Kingdom

3MPo2A-10 [M9] **The study of high RRR value and high yield strength of wire in channel superconductor wire**

Xiang Liu[1], Qiang Guo[1] and Yan Kaijuan[1]

[1]Western Superconducting Technologies Co., Ltd, XI'AN, China

3MPo2A-11 [M10] **Study on the High-current Rope Cable in Channel NbTi Conductor**

Yan Kaijuan[1,2], Qiang Guo[1,2] and Xiang Liu[1,2]

[1]Western Superconducting Technologies Co., Ltd, Xi'an, China, [2]National Engineering Laboratory for Superconducting Materials Preparation, Xi'an, shannxi, China

3MPo2B - Coated Conductors IV: Synthesis & Characterization [P II]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Antonio Leo, Università degli Studi di Salerno & Valentina Pinto, ENEA

3MPo2B-01 [M11] **Continues measurement of Ic degradation in bended YBCO tapes**

Lingfeng Lai[1], Chen Gu[4], Yubin Yue[1], Siwei Chen[5,1], Meng Song[2], Nan Hu[2] and Timing Qu[3]

[1]Eastforce Superconducting Technology Co., Ltd., Beijing, China, [2]Guangdong power grid company, Guangzhou, China, [3]Tsinghua University, Beijing, China, [4]Tsinghua University, Beijing, China, [5]University of Houston, Houston, Texas, US

3MPo2B-02 [M12] **Development of textured $YBa_2Cu_3O_{7-x}$ superconducting coated conductors by Fluorine-Free MOD Route**

Jingyuan Chu[1] and Yue Zhao[1]

[1]Shanghai Jiao Tong University, Shanghai, China

3MPo2B-03 [M13] **Effect of deposition temperature on microstructure and critical current properties of Zr-doped $(Gd,Y)Ba_2Cu_3O_x$ superconducting tapes**

Ziming Fan[1], Ping Jiang[1], Shudong Zhang[1], Zhichen Han[1], Shiwei Xu[1], Gang Yang[1] and Yimin Chen[1]

[1]Northeastern University, Shenyang, China

3MPo2B-04 [M14] **Studies on co-addition of halogens (Cl, Br) and metals (Zr, Sn, Hf) to YBCO thin films using fluorine-free MOD method**

Takanori Motoki[1,5], Shuhei Ikeda[1], Shinkichi Gondo[1], Shin-ichi Nakamura[2], Toshiya Doi[3,5], Genki Honda[4], Tatsuoki Nagaishi[4] and Jun-ichi Shimoyama[1,5]

[1]Aoyama Gakuin University, Sagamihara, Kanagawa, Japan, [2]TEP, Tokyo, Japan, [3]Kyoto University, Kyoto, Japan, [4]Sumitomo Electric Industries, Ltd., Osaka, Japan, [5]JST-ALCA, Tokyo, Japan

3MPo2B-05 [M15] **Large-scale coated conductor fabrication with Pulsed Laser Deposition**

Ralph Delmdahl[1] and Sergey Lee[2]

[1]Coherent LaserSystems GmbH & Co. KG, Goettingen, Germany, [2]SuperOx Japan LLC, Sagamihara, Japan

3MPo2B-06 [M16] **Refinement of Gd_2O_3 or Gd_2CuO_4 inclusion in the $GdBa_2Cu_3O_{7-\delta}$ film fabricated by the RCE-DR process**

Insung Park[1], Won-Jae Oh[1], Jae-Hun Lee[2], Seung-Hyun Moon[2] and Sang-Im Yoo[1]

[1]Seoul National University, Seoul, Korea (the Republic of), [2]Superconductor, Nano & Advanced Materials Corporation (SuNAM Co.) Ltd, Anseong, Korea (the Republic of)

3MPo2B-07 [M17] **Fast growth of GdBCO superconducting layer through high density amorphous film prepared by a fluorine-free MOD process.**

Sujin Chae[1], Won-Jae Oh[1], Insung Park[1] and Sang-Im Yoo[1]

[1]Seoul National University, Seoul, Seoul, Korea (the Republic of)

3MPo2B-08 [M18] **$BaHfO_3$ nanoparticles in $REBa_2Cu_3O_{7-x}$ films deposited by reel-to-reel TFA-MOD on CeO_2-buffered Ni-5at%W tapes**

Wolfram Freitag[1], Manuela Erbe[1], Pablo Cayado[1], Martina Falter[2], Jens Hänisch[1] and Bernhard Holzapfel[1]

[1]Karlsruhe Institute of Technology (KIT), Eggenstein-Leopoldshafen, Germany, [2]Deutsche Nanoschicht GmbH, Rheinbach, Germany

3MPo2B-09 [M19] **Critical current at high magnetic fields of SuperOx 2G HTS wire with $BaSnO_3$ and $BaZrO_3$ artificial pinning centres**

Vsevolod Chepikov[1], Dmytro Abraimov[3], Jan Jaroszynski[3], Sergey Lee[4], Valery Petrykin[4], Nikolay Mineev[1], Pavel Degtyarenko[1], Andrey Kaul[5,1], Alexander Molodyk[1,2], Sergey Samoilenkov[1] and David Larbalestier[3]

[1]SuperOx, Moscow, Russian Federation, [2]S-Innovations, Moscow, Russian Federation, [3]NHMFL, USA, Florida, US, [4]SuperOx Japan LLC, Sagamihara, Japan, [5]Lomonosov Moscow State University, Moscow, Russian Federation

3MPo2B-10 [M20] **Microstructure of conductive buffer candidate and superconducting layers in a coated conductor using {100} <001> textured Cu tape**

Ataru Ichinose[1,3], Kohta Yamaguchi[2], Shigeru Horii[2,3] and Toshiya Doi[2,3]

[1]CRIEPI, Yokosuka, Kanagawa, Japan, [2]Kyoto University, Kyoto, Kyoto, Japan, [3]JST-ALCA, Chiyoda-ku, Tokyo, Japan

3MPo2B-11 [M21] **Effect of oxygen annealing treatment on in-field J_c in PLD-$EuBa_2Cu_3O_y$ coated conductors with $BaHfO_3$ nanorods**

Shuji Anno[1], Kenji Miyata[1], Michio Sato[1], Koki Agatsuma[1], Masashi Miura[1], Akira Ibi[2] and Teruo Izumi[2]

[1]Seikei university, Musashino, Tokyo, Japan, [2]National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan

3MPo2C - Other Properties [P I]

Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Jens Hänisch, Karlsruhe Institute for Technology & Aixia Xu, nGimat LLC

3MPo2C-01 [M22] **Performance Evaluation for HTS Tapes with Structure of Single Side Lamination**

Fei Gu[1], Zhuyong Li[1], Zhiyong Hong[1] and Zhijian Jin[1]

[1]Shanghai Jiao Tong University, Shanghai, China

3MPo2C-02 [M23] **Correlation between thermal and electric contact resistance of stacked REBCO wires**

Kyeongdeok Kim[1], Jaehwan Lee[1], Jihoon Seok[1], Jungmin Ha[1], Seokho Kim[1] and Seo Geonhang[1]

[1]Changwon National University, Changwon, Korea (the Republic of)

3MPo2C-03 [M24] **Electric and Thermal Characteristic Investigation on Steady and Transient Behaviors of Insulated and Non-Insulated 2G HTS Coils**

Huu Luong Quach[1], Ji Hyung Kim[1], Chang Ju Hyeon[1], Yoon Seok Chae[1], Jae Hyung Moon[1], Sang Heon Chae[1], Jin Hong Ahn[1], Eel-Hwan Kim[1], Se Ho Kim[1], Young Gyu Jin[1], Hyung-Wook Kim[2], Young-Sik Jo[2] and Ho Min Kim[1]

[1]Jeju National Universiy, Jeju, Jeju, Korea (the Republic of), [2]the Korea Electrotechnology Research Institute (KERI) , Chang Won, Korea (the Republic of)

3MPo2C-05 [M25] **Investigation on Passive Shielding Method for MgB_2 Magnet Using an MgB_2 Cylindrical Shell**

Jiman Kim[1,2], Jong Cheol Kim[1], Young-Gyun Kim[1], Junsub Kim[1], Yeon Suk Choi[3] and Haigun Lee[1]

[1]Korea University, Seoul, Korea (the Republic of), [2]Kiswire Advanced Technology Co., Ltd., Daejeon, Korea (the Republic of), [3]Korea Basic Science Institute, Daejeon, Korea (the Republic of)

3MPo2D - BSCCO Wires and Tapes [P]
Exhibit Hall & Poster Sessions; 1:30 p.m. - 3:30 p.m.
Moderators: Chris Grovenor, Oxford University & Aixia Xu, nGimat LLC

3MPo2D-01 [M26] **Overview of Advances in Superconducting Bi-2212 Round Wire for High-Field Magnet Applications**

Eric Hellstrom[1], Ernesto Bosque[1], Griffin Bradford[1], Michael Brown[1], Jonathan Cooper[1], Daniel Davis[1], Lamar English[1], Imam Hossain[1], Jianyi Jiang[1], Fumitake Kametani[1], Youngjae Kim[1], David Larbalestier[1], Jun Lu[1], Evan Miller[1], George Miller[1], Temidayo Abiola Oloye[1], Yavuz Oz[1] and Ulf Trociewitz[1]

[1]FSU / ASC / NHMFL, Tallahassee, Florida, US

3MPo2D-02 [M27] **Measurements of Critical Current Distributions in Bi-2212 Round Wires**

Yavuz Oz[1,2], Daniel Davis[1,2], Jianyi Jiang[1,2], Eric Hellstrom[1,2] and David Larbalestier[1,2]

[1]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [2]Florida State University, Tallahassee, Florida, US

3MPo2D-03 [M28] **A study of the effect of predensification condition on critical current density of Bi-2212 wires**

Imam Hossain[1], Jianyi Jiang[1], Griffin Bradford[1], David Larbalestier[1] and Eric Hellstrom[1]

[1]Florida State University, Tallahassee, Florida, US

3MPo2D-04 [M29] **Current distribution and AC loss of BSCCO/YBCO hybrid superconductor**

Wei Pi[1], Yansen Ou[1], Yinshun Wang[1], Jin Dong[2] and Qingmei Shi[2]

[1]Electrical & Electronic Engineering School, North China Electric Power University, Beijing, China, [2]North China Electric Power University, Beijing, China

3MPo2D-05 [M30] **Investigation of inter-grain critical current density in $Bi_2Sr_2CaCu_2O_{8+d}$ superconducting wires and its relationship with the GB oxygenation**

Andrea Malagoli[1], Ilaria Pallecchi[1], Alessandro Leveratto[1], Valeria Braccini[1], Carlo Ferdeghini[1] and Michael Eisterer[2]

[1]CNR-SPIN, Genova, Italy, [2]Atominstitute TUW, Wien, Austria

3MPo2D-07 [M31] **Persistent Current in Bi-2223/Ag Closed circuit Coil with Superconducting Joint at 77 K**

Kaite Huang[1], Xiaohang Li[1], Xiuhua Song[1], Rui Bao[1], Shanshan Chen[1] and Zhenghe Han[1]

[1]Innova Superconductor Technology Co., Ltd., Beijing, China

3MPo2D-08 [M32] **Superconducting joints between DI-BSCCO tapes connected by Bi2223 polycrystalline layer**

Yasuaki Takeda[1], Tomoyuki Tanaka[2], Ryo Koike[2], Takanori Motoki[2], Jun-ichi Shimoyama[2], Hitoshi Kitaguchi[3], Shin-ichi Nakamura[4], Takayoshi Nakashima[5], Shin-ichi Kobayashi[5] and Takeshi Kato[5]

[1]The University of Tokyo, Tokyo, Japan, [2]Aoyama Gakuin University, Sagamihara, Japan, [3]NIMS, Tsukuba, Japan, [4]TEP Co., Ltd., Tokyo, Japan, [5]Sumitomo Electric Industries, Ltd., Osaka, Japan

3MPo2D-09 [M33] **Persistent mode joints between Bi-2212/Ag wires**

Chris Grovenor[1], Danielle van Gilst[1], Tayebeh Mousavi[1], Ziad Melhem[2], Yibing Huang[3] and Susannah Speller[1]

[1]Oxford University, Oxford, United Kingdom, [2]Oxford Instruments Ltd, Abingdon, United Kingdom, [3]Bruker OST LLC (Bruker EST Group), Carteret, New Jersey, US

3MPo2D-10 [M34]: **The impact of powder source on the processing uniformity of Bi2Sr2CaCu2O8-x (Bi-2212) green wire using digital image analysis**

Timothy Lui[1], Yibing Huang[2], Hanping Miao[2] and Matthew Jewell[1]

[1]University of Wisconsin - Eau Claire, Eau Claire, Wisconsin, US, [2]Bruker-OST (Bruker EST Group), Carteret, New Jersey, US

3EOr2A - Quantum Information Processing
606-607; 3:30 p.m. - 5:30 p.m.
Moderators: Oleg Mukhanov, Hypres, Inc. & John Przybysz, Northrop Grumman

3:30 p.m. - 3:45 p.m. 3EOr2A-01: **Interfacing superconducting qubits with cryogenic digital logic: Control**

JJ Nelson[1], Edward Leonard Jr.[2], Matthew Beck[2], Kenneth Dodge[1], Caleb Howington[1], Jaseung Ku[1], Oleg Mukhanov[3], Robert McDermott[2] and Britton Plourde[1]

[1]Syracuse University, Rochester, New York, US, [2]University of Wisconsin - Madison, Madison, Wisconsin, US, [3]Hypres Inc, Elmsford, New York, US

3:45 p.m. - 4:00 p.m. 3EOr2A-02: **NbN-based ferromagnetic Josephson junctions for π-shift superconducting flux qubits**

Taro Yamashita[1,2], Akira Kawakami[3], Hirotaka Terai[3] and Akira Fujimaki[1]

[1]Nagoya University, Kobe, Hyogo, Japan, [2]JST-PRESTO, Kawaguchi, Saitama, Japan, [3]National Institute of Information and Communications Technology, Kobe, Hyogo, Japan

4:00 p.m. - 4:15 p.m. 3EOr2A-03: **Design of key building blocks for next-generation superconducting quantum annealing**

Sergey Novikov[1]

[1]Northrop Grumman Corporation, Linthicum, Maryland, US

4:15 p.m. - 4:30 p.m. 3EOr2A-04: **Superconducting Multi-Chip Module Bump-Bond Process with Controlled Interchip Spacing for Quantum Integrated Circuits**

Daniel Yohannes[1], Denis Amparo[1], Jason Walter[1], John Vivalda[1], Mario Renzullo[1], Mykola Chernyashevskyy[1], Andrei Talalaevskii[1], Oleksandr Chernyashevskyy[1], Igor Vernik[1] and Oleg Mukhanov[1]

[1]HYPRES, Inc., Elmsford, New York, US

4:30 p.m. - 4:45 p.m. 3EOr2A-05: **Symmetric Traveling Wave Parametric Amplifier**

student paper contestant

Alessandro Miano[1,2] and Oleg Mukhanov[3,2]

[1]University of Naples Federico II, Naples, Italy, [2]SeeQC-eu, Rome, Italy, [3]Hypres, Elmsford, New York, US

4:45 p.m. - 5:00 p.m. 3EOr2A-06: **Nonlinear light-matter interaction: from superconducting qubits to spins in diamond**

Eyal Buks[1]

[1]Technion, Haifa, Israel

5:00 p.m. - 5:15 p.m. 3EOr2A-07: **Accounting for the current crowding at room temperature in tunnel junctions for superconducting qubits**

Russell Lake[1], Xian Wu[1,2], Hsiang-Sheng Ku[1,2], Junling Long[1,2], Mustafa Bal[1,2], CoreyRae McRae[1,2] and David Pappas[1]

[1]National Institute of Standards and Technology, Boulder, Colorado, US, [2]University of Colorado, Boulder, Colorado, US

5:15 p.m. - 5:30 p.m. 3EOr2A-08: **Reduction of cavity photon dephasing for superconducting qubits**

Jen-Hao Yeh[1,2], Rui Zhang[1,2], Shavindra Premaratne[1,2], Jay LeFebvre[3], Frederick Wellstood[1,4] and Benjamin Palmer[2]

[1]University of Maryland, College Park, Maryland, US, [2]Laboratory for Physical Sciences, College Park, Maryland, US, [3]University of California, Riverside, Riverside, California, US, [4]Joint Quantum Institute, College Park, Maryland, US

3EOr2B - TES Workshop: CMB Applications
611-612; 3:30 p.m. - 5:30 p.m.
Moderators: Johannes Hubmayr, NIST & Dale Li, SLAC National Accelerator Laboratory

3:30 p.m. - 3:45 p.m. 3EOr2B-01: **Thermal Kinetic Inductance Detectors for sub-millimeter and Cosmic Microwave Background Astrophysics**

Roger O'Brient[1,2], James Bock[2,1], Hien Nguyen[1], Bryan Steinbach[2], Anthony Turner[1], Albert Wandui[2] and Jonas Zmuidzinas[2,1]

[1]Jet Propulsion Laboratory, Pasadena, California, US, [2]California Institute of Technology, Pasadena, California, US

3:45 p.m. - 4:00 p.m. 3EOr2B-02: **An overview of the South Pole Telescope's third-generation SPT-3G instrument with a focus on the ~16,000 transition edge sensor detector array.**

Faustin Carter[2,1] [see full list of co-authors in Itinerary Planner via ASC'18 webiste]

[1]South Pole Telescope SPT-3G, Chicago, Illinois, US, [2]Argonne National Laboratory, Lemont, Illinois, US

4:00 p.m. - 4:15 p.m. 3EOr2B-03: **Array of annular ring antennas with SINIS bolometers**

Sumedh Mahashabde[3,4], Aleksandra Gunbina[2], Mikhail Tarasov[1,4], Grigory Yakopov[5], Renat Yusupov[1], Valerian Edelman[6] and Vyacheslav Vdovin[2]

[1]V.Kotelnikov Institute of Radio Engineering and Electronics, Moscow, Russian Federation, [2]Institute of Applied Physics, Nizhny Novgorod, Russian Federation, [3]University of Oxford , Oxford, United Kingdom, [4]Chalmers University of Technology, Göteborg, Sweden, [5]Special Astrophysical Observatory, Nizhnij Arkhyz, Karachai-Cherkessian Republic, Russian Federation, [6]P.Kapitza Institute for Physical Problems, Moscow, Russian Federation

4:15 p.m. - 4:30 p.m. 3EOr2B-04: **Comparison of Two Microstrip Termination Schemes for Multichroic TES Polarimeters**

Samantha Walker[4,1], Carlos Sierra[2], Jason Austermann[1], James Beall[1], Dan Becker[3,1], Bradley Dober[1], Shannon Duff[1], Gene Hilton[1], Johannes Hubmayr[1], Jeff Van Lanen[1], Jeff McMahon[2], Sara Simon[2], Joel Ullom[3,1] and Michael Vissers[1]

[1]National Institute of Standards and Technology, Boulder, Colorado, US, [2]University of Michigan, Ann Arbor, Michigan, US, [3]University of Colorado Boulder, Boulder, Colorado, US, [4]University of Colorado Boulder, Boulder, Colorado, US

4:30 p.m. - 4:45 p.m. 3EOr2B-05: **Design, fabrication, and simulation of slot-antenna coupled superconducting transition-edge sensor arrays for Ali CMB polarimetry**

Da Xu[1], Jianshe Liu[1] and Wei Chen[1]

[1]Tsinghua University, Beijing, China

4:45 p.m. - 5:00 p.m. 3EOr2B-06: **High frequency multichroic polarimeters for cosmic microwave background and galactic foreground observations**

Carlos Sierra[1], Samantha Walker[3,2], Jason Austermann[3], James Beall[3], Dan Becker[3], Bradley Dober[3], Shannon Duff[3], Gene Hilton[3], Johannes Hubmayr[3], Jeff Van Lanen[3], Jeff McMahon[1], Sara Simon[1], Mike Vissers[3] and Joel Ullom[3,2]

[1]University of Michigan, Ann Arbor, Michigan, US, [2]University of Colorado Boulder, Boulder, Colorado, US, [3]NIST, Boulder, Colorado, US

5:00 p.m. - 5:15 p.m. 3EOr2B-07: **Investigations on kilopixel focal planes directed toward improving next-generation instruments**

Maria Salatino[1] and The Advanced ACTPol Collaboration[2]

[1]Laboratoire AstroParticule et Cosmologie (APC), Paris, France, [2]Princeton University, Princeton, New Jersey, US

5:15 p.m. - 5:30 p.m. 3EOr2B-08: TBD

3EOr2C - Digital Memory
602-604; 3:30 p.m. - 5:30 p.m.
Moderators: Akira Fujimaki, Nagoya University & Quentin Herr, Northrop Grumman

3:30 p.m. - 4:00 p.m. 3EOr2C-01: **[Invited] Demonstration of RQL Memories for a 16-bit CPU**

Ryan Clarke[1], Harold Hearne[1], Randall Burnett[1], Timothy Lee[1], Jacob Vogel[1], Andrew Brownfield[1], Yamil Huertas[1], Mohammed Lateef[1], Brainton Song[1], Alexander Braun[1], Quentin Herr[1] and Anna Herr[1]

[1]Northrop Grumman Corporation, Linthicum, Maryland, US

4:00 p.m. - 4:15 p.m. 3EOr2C-02: **Design and implementation of 16-word by 4-bit register file using adiabatic quantum flux parametron logic**

Mai Nozoe[1], Christopher Ayala[2], Naoki Takeuchi[2], Yuki Yamanashi[1] and Nobuyuki Yoshikawa[1]

[1]Yokohama National University, Yokohama, Kanagawa, Japan, [2]Institute of Advanced Sciences, Yokohama National University, Yokohama, Kanagawa, Japan

4:15 p.m. - 4:30 p.m. 3EOr2C-03: **Demonstration of a fully-integrated 32-byte SQUID-based ROM**

Randall Burnett[1], Donald Miller[1], Harold Hearne[1], Timothy Lee[1], Jacob Vogel[1], Anna Herr[1], Quentin Herr[1] and Thomas Chamberlin[1]

[1]Northrop Grumman, Linthicum, Maryland, US

4:30 p.m. - 5:00 p.m. 3EOr2C-04: **[Invited] Demonstration of JMRAM Arrays**

Ian Dayton[1], Hana Baker[1], Melissa Loving[1], Thomas Ambrose[1], Nathan Siwak[1], Shawn Keebaugh[1], Christopher Kirby[1], Donald Miller[1], Anna Herr[1], Eric Gingrich[1] and Ofer Naaman[1]

[1]Northrop Grumman Corporation, Glen Burnie, Maryland, US

5:00 p.m. - 5:15 p.m. 3EOr2C-05: **Phase-controllable ferromagnetic Josephson junctions for cryogenic memory**

Norman Birge[1], Joseph Glick[1], Victor Aguilar[1], Alexander Madden[1], Joshua Willard[1], Bethany Niedzielski[1,2], Eric Gingrich[3], Reza Loloee[1] and William Pratt[1]

[1]Michigan State University, East Lansing, Michigan, US, [2]MIT Lincoln Laboratory, Lexington, Massachusetts, US, [3]Northrop Grumman Corporation, Baltimore, Maryland, US

5:15 p.m. - 5:30 p.m. 3EOr2C-06: **Nanowires-Based Superconducting Memory Array**

Reza Baghdadi[1], Brenden Butters[1], Emily Toomey[1], Adam McCaughan[2], Saleem Iqbal[1], Andrew Dane[1], Qingyuan Zhao[3] and Karl Berggren[1]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [2]National Institute of Standards and Technology, Boulder, Colorado, US, [3]Nanjing University, Nanjing, Jiangsu, China

3LOr2A - Transmission and Distribution Cables and Links
6C; 3:30 p.m. - 5:30 p.m.
Moderators: Christian-Eric Bruzek, Nexans & Minwon Park, Changwon National University

3:30 p.m. - 4:00 p.m. 3LOr2A-01: **[Invited] Recent Progress and the Research Activities on the HTS Power Cable Projects in Korea**

Chul-Hyu Lee[1], Hyung Suk Yang[2] and Minwon Park[3]

[1]KEPCO, Namyangju-si, Gyeonggi-do, Korea (the Republic of), [2]KEPRI, Daejeon, Korea (the Republic of), [3]Changwon National University, Changwon, Korea (the Republic of)

4:00 p.m. - 4:30 p.m. 3LOr2A-02: **[Invited] Development of a High Temperature Superconducting Gas-Insulated Power Cable**

Peter Cheetham[1], Jonathan Wagner[3,1], Aws Al-Taie[3,1], Chul Kim[1], Lukas Graber[2] and Sastry Pamidi[1,3]

[1]Florida State University, Tallahassee, Florida, US, [2]Georgia Institute of Technology, Atlanta, Georgia, US, [3]FAMU-FSU College of Electrical Engineering, Tallahassee, Florida, US

4:30 p.m. - 4:45 p.m. 3LOr2A-03: **A Study on the design and performance analysis of AC loss for real fabrication of 3-phase coaxial superconducting power cable**

Seok-Ju Lee[1], Thang Le[1], Minwon Park[1], In-Keun Yu[1], Du Yean Won[2] and Hyung Suk Yang[2]

[1]Changwon National University , Changwon, Korea (the Republic of), [2]Kerea Electric Power Cooperati, Daejeon, Korea (the Republic of)

4:45 p.m. - 5:00 p.m. 3LOr2A-04: **Development of high-temperature superconducting CORC® power transmission cable systems**

Danko van der Laan[1,2], Jeremy Weiss[1,2], Chul Kim[3] and Sastry Pamidi[3]

[1]Advanced Conductor Technologies, Boulder, Colorado, US, [2]University of Colorado, Boulder, Colorado, US, [3]Center for Advanced Power Systems, Tallahassee, Florida, US

5:00 p.m. - 5:15 p.m. 3LOr2A-05: **Production and Characterization of Strands for a 35 kA HTS DC Cable Demonstrator**

Alan Preuss[1], Michael Wolf[1], Mathias Heiduk[1], Christian Lange[1] and Walter Fietz[1]

[1]Karlsruhe Institute of Technology, Karlsruhe, BW, Germany

5:15 p.m. - 5:30 p.m. 3LOr2A-06: **Electro-magnetic performance of MgB_2 cables for the high current transmission lines at CERN**

Konstantina Konstantopoulou[1], Julien Hurte[1], Jerome Fleiter[1] and Amalia Ballarino[1]

[1]CERN, Geneva, Switzerland

3LOr2B - Dipole, Corrector, and Detector Magnets
6B; 3:30 p.m. - 5:30 p.m.
Moderators: Renuka Rajput-Ghoshal, JLAB & Ezio Todesco, CERN

3:30 p.m. - 4:00 p.m. 3LOr2B-01: **[Invited] Testing of Series Superconducting Dipole Magnets for the SIS100 Synchrotron**

Anna Mierau[1], Christian Roux[1], Patricia Aguar Bartolome[1], Florian Kaether[1], Giancarlo Golluccio[1], Pawel Kosek[1], Piotr Szwangruber[1], Walter Freisleben[1], Kei Sugita[1], Alexander Warth[1], Farid Marzouki[1] and Egbert Fischer[1]

[1]GSI Helmholtzzentrum für Schwerionenforschung GmbH, Darmstadt, Germany

4:00 p.m. - 4:15 p.m. 3LOr2B-02: **Commissioning of the CLAS12 Hall-B Solenoid & Torus Detector Magnets at Jefferson Laboratory**

Probir Ghoshal[1], Rama Bachimanchi[2], George Biallas[2], Pablo Campero[3], Brian Eng[3], Ruben Fair[1], John Hogan[4], Denny Insley[1], David Kashy[1], Onish Kumar[2], Cesar Luongo[2], Tyler Lemon[3], Joe Matalevich[2], Mac Mestayer[1], Robert Miller[1], Wesley Moore[5], Renuka Rajput-Ghoshal[1], Nicholas Sandoval[1] and Glenn Young[5]

[1]Jefferson Lab, Newport News, Virginia, US, [2]Jefferson Lab, Newport News, Virginia, US, [3]Jefferson Lab, Newport News, Virginia, US, [4]Jefferson Lab, Newport News, Virginia, US, [5]Jefferson Lab, Newport News, Virginia, US

4:15 p.m. - 4:30 p.m. 3LOr2B-03: **Final design of the superferric branched dipoles for the FAIR Super-FRS**

Arnaud Madur[1], Lionel Quettier[1], Hervé Allain[1], Olivier Rasamimanana[1], Patrick Graffin[1], Hugo Reymond[1], Michael Massinger[1], Hans Müller[2], Eun Jung Cho[2], Martin Winkler[2] and Kei Sugita[2]

[1]CEA Paris-Saclay, Gif-sur-Yvette, France, [2]GSI, Darmstadt, Germany

4:30 p.m. - 4:45 p.m. 3LOr2B-04: **Construction and Cold Test of the Superferric Dodecapole for the LHC Luminosity Upgrade**

Marco Statera[1], Franco Alessandria[1], Francesco Broggi[1], Augusto Leone[1], Vittorio Marinozzi[1], Samuele Mariotto[1,2], Antonio Paccalini[1], Danilo Pedrini[1], Mauro Quadrio[1], Massimo Sorbi[2,1], Alessandro Pasini[1], Paolo Fessia[3], Andrea Musso[3] and Ezio Todesco[3]

[1]INFN, Milano, Milano, Italy, [2]University of Milan, Milano, Italy, [3]CERN, Geneve, Switzerland

4:45 p.m. - 5:00 p.m. 3LOr2B-05: **Development of 2 m Model Magnet of the Beam Separation Dipole with new iron cross-section for the High-Luminosity LHC Upgrade**

Michinaka Sugano[1], Shun Enomoto[1], Norio Higashi[1], Masahisa Iida[1], Yukiko Ikemoto[1], Hiroshi Kawamata[1], Nobuhiro Kimura[1], Tatsushi Nakamoto[1], Hirokatsu Ohhata[1], Naoki Okada[1], Toru Ogitsu[1], Ryutaro Okada[1], Kenichi Sasaki[1], Kento Suzuki[1], Kenichi Tanaka[1], Naoto Takahashi[1], Andrea Musso[2] and Ezio Todesco[2]

[1]KEK, Tsukuba, Japan, [2]CERN, Geneva, Switzerland

5:00 p.m. - 5:15 p.m. 3LOr2B-06: **Test of short model and prototype of the HL-LHC D2 orbit corrector based on CCT technology**

Franco Mangiarotti[1], Marta Bajko[1], Michal Duda[1], Glyn Kirby[2], Matthias Mentink[3], Jacky Mazet[2], Jeroen van Nugteren[2], Kevin Pepitone[1], Francois-Olivier Pincot[2], Gijs de Rijk[2], Jens Steckert[4], Ezio Todesco[2] and Gerard Willering[1]

[1]European Organization for Nuclear Research, Geneva, Geneva, Switzerland, [2]European Organization for Nuclear Research, Geneva, Geneva, Switzerland, [3]European Organization for Nuclear Research, Geneva, Geneva, Switzerland, [4]European Organization for Nuclear Research, Geneva, Geneva, Switzerland

5:15 p.m. - 5:30 p.m. 3LOr2B-07: **Fabrication and First Tests of the Nested Orbit Corrector Prototype for HL-LHC**

Jesús García-Matos[1,2], Pablo Abramian[1], Jesus Calero[1], Pablo Gómez[1], Jose Gutierrez[1], Luis Garcia-Tabares[1], Daniel López[1], Javier Munilla[1], Fernando Toral[1], Nicolas Bourcey[3], Juan Carlos Perez[3] and Ezio Todesco[3]

[1]CIEMAT, Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, Madrid, Madrid, Spain, [2]Escuela Técnica Superior de Ingenieros Industriales (ETSII), Universidad Politécnica de Madrid (UPM), Madrid, Madrid, Spain, [3]CERN, European Organization for Nuclear Research, Geneva, Switzerland

3LOr2C - Special Session: Numerical Modeling for HTS
6A; 3:30 p.m. - 5:30 p.m.
Moderators: Mark Ainslie, University of Cambridge & Francesco Grilli, Karlsruhe Institute of Technology

3:30 p.m. - 3:45 p.m. 3LOr2C-01: **Fast Normal Zone Propagation Velocity Computations with Adaptive Meshing Enabled by Front Tracking**

Luca Ferranti[1], Antti Stenvall[1], Valtteri Lahtinen[1], Tiina Salmi[1] and Janne Ruuskanen[1]

[1]Tampere University of Technology, Tampere, Finland

3:45 p.m. - 4:15 p.m. 3LOr2C-02: **[Invited] Modeling of beam loss induced quenches in the LHC main quadrupoles and dipoles**

Marco Breschi[1], Enrico Felcini[2] and Luca Bottura[2]

[1]University of Bologna, Bologna, Italy, [2]CERN, Geneva, Switzerland

4:15 p.m. - 4:30 p.m. 3LOr2C-03: **A mixed-dimensional modeling of multilayer conductor on round core (CORC) cables: quench with current sharing and current redistribution, and AC losses**

Wan Kan Chan[1] and Justin Schwartz[2]

[1]North Carolina State University, Raleigh, North Carolina, US, [2]Pennsylvania State University, University Park, Pennsylvania, US

4:30 p.m. - 4:45 p.m. 3LOr2C-04: **Superconductor AC loss modelling: Synthesis and hindsight**

Valtteri Lahtinen[1] and Antti Stenvall[1]

[1]Tampere University of Technology, Tampere, Finland

4:45 p.m. - 5:00 p.m. 3LOr2C-05: **Modelling of dynamic current distribution in a Rare-Earth BaCuO winding using a volume integral formulation: Calculation of the inductive voltage on a double pancake coil submitted to current ramps and background fields and comparison with experiments**

Blandine Rozier[1], Jeremie Ciceron[1], Brahim Ramdane[1], Arnaud Badel[1], Gérard Meunier[1] and Pascal Tixador[1]

[1]G2ELab, Grenoble CEDEX 1, France

5:00 p.m. - 5:15 p.m. 3LOr2C-06: **Test and 3D Modelling of 110 kV/3 kA Cold Dielectric Superconducting Cable Consisted of YBCO Tapes**

Huiming Zhang[1], Jiahui Zhu[1], Hongjie Zhang[1], Ming Qiu[1] and Panpan Chen[1]

[1]China Electric Power Research Institute, Beijing, China

5:15 p.m. - 5:30 p.m. 3LOr2C-07: **Theoretical model of the screening-current-induced field in HTS coils**

Yasunori Mawatari[1]

[1]National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan

3MOr2A - Coated Conductors V: Industrial Development
608-609; 3:30 p.m. - 5:30 p.m.
Moderators: Kaname Matsumoto, Kyushu Institute of Technology & Teresa Puig, ICMAB-CSIC

3:30 p.m. - 3:45 p.m. 3MOr2A-01: **Progress of 2G HTS Wire Development and Process Improvement at SuperPower**
Drew Hazelton[1], Yifei Zhang[1], Paul Brownsey[1], Hiroshi Kuraseko[1], Aarthi Sundaram[1], Gene Carota[1], Allan Knoll[1], Satoshi Yamano[1], Shinya Yasunaga[1], Hisaki Sakamoto[1,2] and Toru Fukushima[1]
[1]SuperPower Inc., Schenectady, New York, US, [2]Furukawa Electric Co. Ltd., Nikko, Japan

3:45 p.m. - 4:00 p.m. 3MOr2A-02: **Development of BMO Doped REBCO Coated Conductors with Productive and Uniform Growth Condition by Hot-Wall PLD Process on IBAD template**
Yasuhiro Iijima[1], Kazuomi Kakimoto[1], Yutaka Adachi[1], Shinji Fujita[1], Shogo Muto[1], Wataru Hirata[1], Tomo Yoshida[1], Satoru Hanyu[1], Ryo Kikutake[1], Masanori Daibo[1], Satoshi Awaji[2] and Takanobu Kiss[3]
[1]Fujikura Ltd., Sakura, Chiba, Japan, [2]Tohoku University, Sendai, Miyagi, Japan, [3]Kyushu University, Ito, Fukuoka, Japan

4:00 p.m. - 4:15 p.m. 3MOr2A-03: **Status of 2G HTS Wire Production at SuperOx**
Alexander Molodyk[1,2], Alexey Mankevich[1,2], Anton Markelov[1], Valery Petrykin[3], Sergey Lee[3], Svetlana Martynova[1] and Sergey Samoilenkov[1]
[1]SuperOx, Moscow, Russian Federation, [2]S-Innovations, Moscow, Russian Federation, [3]SuperOx Japan LLC, Sagamihara, Japan

4:15 p.m. - 4:30 p.m. 3MOr2A-04: **Development in SuNAM's coated conductor manufacturing**
Hunju Lee[1], Jae-Hun Lee[1] and Seung-Hyun Moon[1]
[1]SuNAM Co., Ltd., Gyeonggi, Korea (the Republic of)

4:30 p.m. - 4:45 p.m. 3MOr2A-05: **Recent improvements of HTS wires produced by e-beam PVD with a pilot production line**
Markus Bauer[1], Raphaela Burzler[1], Therese Chabert[1], Veit Grosse[1] and Timo Koenen[1]
[1]Theva Duennschichttechnik GmbH, Ismaning, Germany

4:45 p.m. - 5:00 p.m. 3MOr2A-06: **2G HTS Coated Conductors: Processing & Testing enhancements for multiple application markets**
Ken Pfeiffer[1], Jeong-Uk Huh[1], Joseph Chase[1] and Daniel DeLeon[1]
[1]Superconductor Technologies Inc., Austin, Texas, US

5:00 p.m. - 5:15 p.m. 3MOr2A-07: **Progress in R&D for 2G HTS wires in Shanghai Superconductor**
Yue Zhao[1]
[1]Shanghai JiaoTong University, Shanghai, Shanghai, China

5:15 p.m. - 5:30 p.m. 3MOr2A-08: **Electromechanical Performance of CORC® Cables and Wires under Axial Tension and Transverse Compression**
Dustin McRae[1,2], Jeremy Weiss[1,2] and Danko van der Laan[1]
[1]Advanced Conductor Technologies, LLC, Boulder, Colorado, US, [2]University of Colorado, Boulder, Colorado, US

3MOr2B - Pnictides, Fe-Chalcogenides and New Emerging Materials
615-617; 3:30 p.m. - 5:30 p.m.
Moderators: Yanwei Ma, Institute of Electrical Engineering, Chinese Academy of Sciences & Temidayo Abiola Oloye, Florida State University

3:30 p.m. - 3:45 p.m. 3MOr2B-01: **Recent achievements and progress of iron-based superconducting wires toward applications**
Yanwei Ma[1]
[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, Beijing, China

3:45 p.m. - 4:00 p.m. 3MOr2B-02: **Effect of α-particle Irradiation on the Superconducting Properties of NdFeAs(O,F) Thin Films**

Chiara Tarantini[1], Kazumasa Iida[2,3], Naoki Sumiya[2], Masashi Chihara[2], Takafumi Hatano[2], Hiroshi Ikuta[2,3], Rakesh Singh[4], Nathan Newman[4] and David Larbalestier[1]

[1]National High Magnetic Field Laboratory, Florida State University, Tallahassee, Florida, US, [2]Nagoya University, Nagoya, Japan, [3]Nagoya University, Nagoya, Japan, [4]Arizona State University, Tempe, Arizona, US

4:00 p.m. - 4:15 p.m. 3MOr2B-03: **A route for simultaneous increase of T_c and J_c in iron-based superconductors by low-energy proton irradiation**

Qiang Li[1]

[1]Brookhaven National Lab, Upton, New York, US

4:15 p.m. - 4:30 p.m. 3MOr2B-04: **Grain boundary characteristics of NdFeAs(O,F) superconductors**

Kazumasa Iida[1,2], Taito Omura[2], Takuya Matsumoto[1], Takafumi Hatano[1,2] and Hiroshi Ikuta[1,2]

[1]Nagoya University, Nagoya, Chikusa-ku, Japan, [2]Nagoya University, Nagoya, Japan

4:30 p.m. - 4:45 p.m. 3MOr2B-05: **Superconducting FeSe coated tape made by electrochemical deposition**

Yoshihiko Takano[1] and Aichi Yamashita[1]

[1]National Institute for Materials Science (NIMS), University of Tsukuba, Tsukuba, Japan

4:45 p.m. - 5:00 p.m. 3MOr2B-06: **Fabrication and transport properties of high-strength 122-type iron-based superconducting wires and tapes**

Chao Yao[1], Dongliang Wang[1], Xianping Zhang[1], Yanwei Ma[1] and Satoshi Awaji[2]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2]Institute for Materials Research, Tohoku University, Sendai, Japan

5:00 p.m. - 5:15 p.m. 3MOr2B-07: **Fe(Se,Te) coated conductors deposited on metallic alloys with or without buffer layer**

Valeria Braccini[1], Giulia Sylva[1,2], Andrea Malagoli[1], Emilio Bellingeri[1], Carlo Ferdeghini[1], Marina Putti[1,2], Mikhail Lisitskiy[3], Andrea Augieri[4], Giuseppe Celentano[4], Antonella Mancini[4] and Angelo Vannozzi[4]

[1]CNR - SPIN, Genoa, Italy, [2]Physics Department, University of Genoa, Genoa, Italy, [3]CNR-SPIN, Naples, Italy, [4]ENEA, Frascati, Rome, Italy

5:15 p.m. - 5:30 p.m. 3MOr2B-08: **Structure and properties of single Fe(Se,Te) crystals grown in molten chlorides**

Andrea Masi[1], Carlo Alvani[2], Mariangela Bellusci[2], Giuseppe Celentano[3], Sandro Chiarelli[3], Gianluca De Marzi[3], Fabio Fabbri[2], Chiarasole Fiamozzi Zignani[3], Aurelio La Barbera[2], Franco Padella[2], Marzia Pentimalli[2], Francesco Rizzo[3], Alessandro Rufoloni[3], Antonino Santoni[3], Enrico Silva[1], Angelo Vannozzi[3] and Francesca Varsano[2]

[1]Università degli Studi di Roma Tre, Rome, Rm, Italy, [2]ENEA, Rome, Italy, [3]ENEA, Frascati, Italy

Student Paper Contest Sessions – sponsored by A. A. Bochvar High-Technology Research Institute of Inorganic Materials (JSC VNIINM), IEEE Council on Superconductivity, JSC "TVEL" and "Friends of Victor Keilin"

Student Paper Contest - Electronics
602-604; 6:00 p.m. - 7:40 p.m.

6:00 p.m. - 6:20 p.m. E1 - **Fabrication of Localized Superconducting $BaFe_2As_2$ Films using Cobalt-ion Implantation** *(see 1EPo2B-06)*
Myeong-jun Oh; *Department of Physics, Kyungpook National University, Daegu, Korea (the Republic of)*

6:20 p.m. - 6:40 p.m. E2 - **| Design and demonstration of reversible full adders using adiabatic quantum flux parametron logic** *(see 4EOr3C-01)*
Taiki Yamae; *Department of Electrical and Computer Engineering, Yokohama National University, Yokohoma, Japan*

6:40 p.m. - 7:00 p.m. E3 - **Symmetric Traveling Wave Parametric Amplifier** *(see 3EOr2A-05)*
Alessandro Miano; *Physics, University of Naples Federico II, Naples, Italy*

7:00 p.m. - 7:20 p.m. *student paper contestant*
E4 - **Advantages of Microwave-Biased Superconducting Nanowire Single-Photon Detectors** *(see 3EPo1A-09)*
Steffen Doerner*; Institute of Micro- and Nanoelectronic Systems, Karlsruhe Institute of Technology, Karlsruhe, Germany*

7:20 p.m. - 7:40 p.m.
E5 - **Study on Single Flux Quantum Floating-Point Divider Based on Goldschmidt's Algorithm** *(see 1EPo2E-05)*
Akiyoshi Sanada; *Yokohama National University, Yokohoma, Japan*

Student Paper Contest - Large Scale
606-607; 6:00 p.m. - 8:00 p.m.

6:00 p.m. - 6:20 p.m.
L1 - **Experiment and Simulation of Post-Quench Behaviors of a No-Insulation 4.7 T 40 mm REBCO Magnet** *(see 2LOr2A-03)*
Kabindra Bhattarai; *Applied Superconductivity Center, National High Magnetic Field Laboratory, Florida State University, Tallahassee, Florida, US*

6:20 p.m. - 6:40 p.m.
L2 - **Cable-in-Conduit using MgB_2, Nb_3Sn and Bi-2212 for wind-and-react coils** *(see 1LPo2J-07)*
Daniel Chavez; *Physics Department, Universidad de Guanajuato and Physics & Astronomy, Texas A&M University, College Station, Texas, US*

6:40 p.m. - 7:00 p.m.
L3 - **A method to significantly shorten the magnetic field delay of a no-insulation layer-wound REBCO coil** *(see 2LOr2A-02)*
Yu Suetomi; *Chiba University, Chiba, Japan and RIKEN, Yokohama, Kanagawa, Japan*

7:00 p.m. - 7:20 p.m.
L4 - **Modelling of dynamic current distribution in a Rare-Earth BaCuO winding using a volume integral formulation: Calculation of the inductive voltage on a double pancake coil submitted to current ramps and background fields and comparison with experiments** *(see 3LOr2C-05)*
Blandine Rozier; *G2ELab, Grenoble Cedex 1, France*

7:20 p.m. - 7:40 p.m.
L5 - **Reduction of Screening Current-induced field in a HTS Coil Wound by 2G Tapes with 1 mm width** *(see 2LPo1B-05)*
Mingyang Wang; *Electrical Engineering, Shanghai Jiao Tong University, Shanghai, China*

7:40 p.m. - 8:00 p.m.
L6 - **3D Quench Modeling based on the T-A Formulation for (RE)Ba2Cu3Ox Conductor on Round Core Cable** *(see 2LPo2F-11)*
Zixuan Zhu; *University of Bath, Bath and University of Strathclyde, Glasgow, United Kingdom*

Student Paper Contest - Materials
608-609; 6:00 p.m. - 8:00 p.m.

6:00 p.m. - 6:20 p.m.
M1 - **Surface impedance measurements on Nb3Sn at high magnetic fields** *(see 4MOr2B-02)*
Andrea Alimenti; *Engineering, Roma Tre University; Roma, Italy*

6:20 p.m. - 6:40 p.m.
M2 - **The impact of low temperature nitrogen exposure on the surface chemistry and superconducting properties of SRF grade high purity niobium** *(see 2LPo2B-08)*
Santosh Chetri; *Applied Superconductivity Center, NHMFL, FSU, Tallahassee, Florida, US*

6:40 p.m. - 7:00 p.m.
M3 - **Improving mechanical strength of YBCO bulk superconductors by Ag addition** *(see 1MPo2E-01)*
Jasmin Congreve; *Department of Engineering, University of Cambridge, Cambridge, United Kingdom*

7:00 p.m. - 7:20 p.m.
M4 - **Measurement of Critical Current of REBCO Tapes as a Function of Strain, Magnetic field (10-15 T) and Temperature (4.2-50 K)** *(see 3MPo1C-03)*
Federica Pierro; *Tufts University, Medford, Massachusetts, US*

7:20 p.m. - 7:40 p.m.
M5 - **Penetration depth of shielding currents due to crossed fields in bulk superconductors** *(see 2MOr1B-03)*
Jan Srpčič; *University of Cambridge, Cambridge, Cambridgeshire, United Kingdom*

7:40 p.m. - 8:00 p.m.
M6 - **Frequency-dependent AC Loss Characteristics of HTS Tape up to Tens of Kilohertz** *(see 1MPo2C-07)*
PengBo Zhou; *Applied Superconductivity Laboratory, State Key Laboratory of Traction Power, Southwest Jiaotong University, Chengdu, Sichuan, China*

Student Pub Crawl
Sign up at the Student Information Desk by Wednesday morning to receive your pass.
8:00 p.m., meet outside room 601

Thursday, November 1, 2018

Plenary Session
Ballroom 6ABC

4PL1A - Plenary 1
8:00 a.m. - 8:45 a.m.
Moderators: Arthur Lichtenberger, University of Virginia & Nobuyuki Yoshikawa, Yokohama National University

4PL1A-01: The Prospects for Scalable Quantum Computing with Superconducting Circuits
Professor Robert Schoelkopf[1]
[1]Yale University, New Haven, Connecticut, US

4PL1B - Plenary 2
8:45 a.m. - 9:30 a.m.
Moderators: Naoyuki Amemiya, Kyoto University & Gen Nishijima, National Institute for Materials Science

4PL1B-01: MIRAI Program and the New Super-high Field NMR Initiative in Japan
Dr. Hideaki Maeda[2,1], Jun-ichi Shimoyama[3], Yoshinori Yanagisawa[1], Yoshitaka Ishii[4] and Masaru Tomita[5]
[1]RIKEN, Yokohama, Kanagawa, Japan, [2]Japan Science and Technology Agency, Tokyo, Japan, [3]Aoyama Gakuin University, Sagamihara, Japan, [4]Tokyo Institute of Technology, Yokohama, Japan, [5]Railway Technical Research Institute, Kokubunji, Japan

IEEE CSC Graduate Study Fellowship & ASC Best Student Paper Awards
Ballroom 6ABC; 9:30 a.m. - 9:45 a.m.

Coffee Break
Exhibit Hall; 10:15 a.m. - 10:45 a.m.

4EPo1A - Quantum Information Processing [P]
Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Randall Burnett, Northrop Grumman & Britton Plourde, Syracuse University

4EPo1A-01 [E1] **Experimental verification of critical building blocks for next-generation superconducting quantum annealing**
Robert Hinkey[1]
[1]Northrop Grumman Corporation, Linthicum Heights, Maryland, US

4EPo1A-03 [E2] **Interfacing superconducting qubits with cryogenic digital logic: Measurement**
Caleb Howington[1], Alex Opremcak[2], Ivan Pechenezhskiy[2], Oleg Mukhanov[3], Robert McDermott[2] and Britton Plourde[1]
[1]Syracuse University, Syracuse, New York, US, [2]University of Wisconsin–Madison, Madison, Wisconsin, US, [3]HYPRES, Inc, Elmsford, New York, US

4EPo1A-04 [E3] **Characterization of TiN microwave resonators prepared by various sputtering conditions**
Hirotaka Terai[1] and Wei Qiu[1]
[1]National Institute of Information and Communications Technology, Kobe, Japan

4EPo1A-05 [E4] **Multi-layer niobium fabrication process for superconducting quantum bits**
Daniel Yohannes[1,2], John Vivalda[1,2], Mario Renzullo[1,2], Denis Amparo[1,2], Patrick Truitt[2], Alex Kirichenko[2], Oleg Mukhanov[2,1], Sandoko Kosen[3], Arjan Loo[3] and Alexy Karenowska[3]
[1]HYPRES, Inc., Elmsford, New York, US, [2]HYPRES, INC, ELMSFORD, New York, US, [3]Oxford University, Oxford, United Kingdom

4EPo1A-06 [E5] **Realization of controlled-NOT gate based on microwave-activated phase (MAP) gate in two superconducting transmon qubit system**

Taewan Noh[1], Gwan Yeol Park[1,2], Soon Gul Lee[2], Woon Song[1] and Yonuk Chong[1,3]

[1]Korea Research Institute of Standards and Science, Daejeon, Korea (the Republic of), [2]Korea University Sejong Campus, Sejong, Korea (the Republic of), [3]University of Science and Technology, Daejeon, Korea (the Republic of)

4EPo1A-08 [E6] **Development of nanobridge based Single Flux Quantum readout for Superconducting Nanowire Single Photon Detector Arrays**

Jon Collins[1,2], Koran Jackson[1], Umberto Nasti[1], Connor Shelly[2], Patrick See[2], J. Ireland[2], J. Williams[2], Robert Hadfield[1] and Alessandro Casaburi[1]

[1]University of Glasgow, Sunbury-on-Thames, United Kingdom, [2]National Physical Laboratory, Teddington, United Kingdom

4EPo1A-09 [E7] **Superconducting qubits readout by high quality-factor stepped-impedance resonator**

Yirong Jin[1], Hekang Li[1], Xueyi Guo[1] and Dongning Zheng[1]

[1]Institute of Physics, Chinese Academy of Sciences., Beijing, China

4EPo1A-10 [E8] **Control of single-photon propagation in superconducting circuits by applying longitudinal field modulation**

Xueyi Guo[1,2], Yirong Jin[1], Hui Deng[1] and Dongning Zheng[1,2]

[1]Institute of Physics and Beijing National Laboratory for Condensed Matter Physics, Chinese Academy of Sciences, Beijing, China, [2]University of Chinese Academy of Sciences, Beijing, China

4EPo1A-11 [E9] **High quality factor superconducting resonators fabricated with Nb film sputtered on Si substrate**

Xiao Song[1]

[1]The Institute of Physics, Chinese Academy of Sciences, Beijing, China

4EPo1A-12 [E10] **Macroscopic quantum tunneling and quantum coherence in negative mutual inductance SQUID qubits**

Weiyang Liu[1,2], Feifan Su[1,3], Ye Tian[1], Shi-Ping Zhao[1,3] and Siyuan Han[2,1]

[1]Institute of Physics, Beijing, China, [2]University of Kansas, LAWRENCE, Kansas, US, [3]University of Chinese Academy of Sciences, Beijing, China

4EPo1A-13 [E11] **Josephson Parametric Amplifier in Readout of a Superconducting Qubit**

Yapeng Lu[1], Wei-wei Xu[1], Yongchao Li[1], Jiazheng Pan[1], Danyang Wang[2], Tao Hua[1], Jianxin Shi[1], Guozhu Sun[1] and Peiheng Wu[1]

[1]Nanjing University, Nanjing, Jiangsu, China, [2]Henan University of Urban Construction, Pingdingshan, Henan, China

4EPo1A-14 [E12] **Gate-tunable Transmon Qubit made with Graphene/hBN Heterostructures**

Joel I-Jan Wang[1], Daniel Rodan-Legrain[2], Landry Bretheau[3], Fei Yan[1], David Kim[4], Morten Kjaergaard[1], Daniel Campbell[1], Philip Krantz[1], Jonilyn Yoder[4], Gabriel Samach[4], Kenji Watanabe[5], Takashi Taniguchi[5], Terry P. Orlando[6,1], Simon Gustavsson[1], Pablo Jarillo-Herrero[2] and William Oliver[1,4]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [2]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [3]Ecole Polytechnique, Paris, France, [4]Massachusetts Institute of Technology, Lexington, Massachusetts, US, [5]National Institute for Materials Science, Tsukuba, Japan, [6]Massachusetts Institute of Technology, Cambridge, Massachusetts, US

4EPo1B - Novel Fabrication/LTS Fabrication

Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Ari Brown, NASA Goddard Space Flight Center & Daniel Cunnane, NASA Jet Propulsion Laboratory

4EPo1B-01 [E13] **Ferromagnetic Josephson junctions incorporating both in and out-of-plane magnetic anisotropy**

Victor Aguilar[1], Joseph Glick[1], Reza Loloee[1], William Pratt[1] and Norman Birge[1]

[1]Michigan State University, East Lansing, Michigan, US

4EPo1B-02 [E14] **0-π Phase State in NbN/NiCu/NbN Magnetic Josephson Junctions**

Li Feng[1,2], Long Wu[1,2], Wei Peng[1,2] and Zhen Wang[1,2]

[1]Shanghai Institute of Microsystem and Information Technology, Chinese Academy of Sciences, Shanghai, China, [2]University of Chinese Academy of Sciences, Beijing, China

4EPo1B-03 [E15] **All-metallic Josephson junctions with spin-orbit coupling**

James Devine-Stoneman[1], Sachio Komori[1] and Jason Robinson[1]

[1]University of Cambridge, Cambridge, Cambridgeshire, United Kingdom

4EPo1B-04 [E16] **Fabrication of NbTiN Josephson junctions with thermally oxidized Hf tunnel barriers**

Hiroyuki Akaike[1], Kentaro Munemoto[2], Yoshito Sakakibara[2] and Akira Fujimaki[3]

[1]Daido University, Nagoya, Japan, [2]Nagoya University, Nagoya, Japan, [3]Nagoya University, Nagoya, Japan

4EPo1B-05 [E17] **Fabrication of high-quality NbN tunnel junctions on TiN (200) buffered Si substrate**

Wei Qiu[1]

[1]National Institute of Information and Communications Technology, Kobe, Japan

4EPo1B-06 [E18] **Characterization of SNS Josephson junctions with tunable Ta_xN barriers**

Nancy Missert[1], Matthaeus Wolak[1], Michael Henry[1], Rupert Lewis[1], Steven Wolfley[1], Lyle Brunke[1] and Robert Copeland[1]

[1]Sandia National Laboratories, Albuquerque, New Mexico, US

4EPo1B-07 [E19] **Fabrication of multi-device layer, planarized SNS Ta_xN Josephson junctions**

Michael Henry[1], Rupert Lewis[1], Matthaeus Wolak[1], Travis Young[1], Jonaton Sierra-Suarez[1], Steven Wolfley[1], Michael Frank[1] and Nancy Missert[1]

[1]Sandia National Labs, Albuquerque, New Mexico, US

4EPo1B-08 [E20] **Growth and characterization of NbTiN films synthesized by reactive bias target ion beam deposition (RBTIBD)**

Michael Cyberey[2], Tannaz Farrahi[2], Jiwei Lu[2], Robert Weikle[2], Omid Noroozian[1] and Arthur Lichtenberger[2]

[1]National Radio Astronomy Observatory, Charlottesville, Virginia, US, [2]University Of Virginia, Charlottesville, Virginia, US

4EPo1B-09 [E21] **Effect of Post Deposition Annealing on the Structural and Electrical Properties of NbTiN Thin Films Deposited by Reactive Bias Target Ion Beam Deposition Technique**

Tannaz Farrahi[1], Michael Cyberey[1], Michael Eller[1] and Arthur Lichtenberger[1]

[1]University of Virginia, Charlottesville, Virginia, US

4EPo1B-10 [E22] **High quality superconducting pulsed laser deposited titanium nitride films and tunnel junctions**

Andrii Torgovkin[1,2], Saumyadip Chaudhuri[1,3], Aki Ruhtinas[1], Manu Lahtinen[4], Timo Sajavaara[5] and Ilari Maasilta[1]

[1]University of Jyvaskyla, Jyvaskyla, Finland, [2]BlueFors Cryogenics, Helsinki, Finland, [3]Picodeon Ltd, Ii, Finland, [4]University of Jyvaskyla, Jyvaskyla, Finland, [5]University of Jyvaskyla, Jyvaskyla, Finland

4EPo1B-11 [E23] **Heat flow in superconductor-normal metal planar structures.**

Fatemeh Hajiloo[1], Aleksandra Gunbina[2], Mikhail Tarasov[3,1], Vyacheslav Vdovin[2], Janine Splettstoesser[1] and Fabian Hassler[4]

[1]Chalmers University of Technology, Göteborg, Sweden, [2]Institute of Applied Physics of Russian Academy of Sciences, Moscow, Russian Federation, [3]V.Kotelnikov Institute of Radio Engineering and Electronics of Russian Academy of Sciences, Moscow, Russian Federation, [4]Institute for Quantum Information, RWTH Aachen University, Aachen, Germany

4EPo1C - Non-Equilibrium and Photon Detectors
Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Jia Du, CSIRO & Saad Sarwana, HYPRES Inc.

4EPo1C-01 [E24] **RESpy: A python toolbox for creating scripted resonator GDS files**

Thomas Cecil[1], Faustin Carter[1] and Peter Barry[2]

[1]Argonne National Laboratory, Lemont, Illinois, US, [2]University of Chicago, Chicago, Illinois, US

4EPo1C-02 [E25] **Increased multiplexing of superconducting microresonator arrays by post-characterization adaptation of the on-chip capacitors**

Shibo Shu[1], Martino Calvo[2,3], Johannes Groupy[2,3], Samuel Leclercq[1], Alessandro Monfardini[2,3], Aurelien Bideaud[2,3], Andrea Catalano[4,3] and Eduard Driessen[1]

[1]Institut de Radioastronomie Millimétrique, St Martin d'Heres, Rhone-Alpes, France, [2]Institut Néel, Grenoble, France, [3]Université Grenoble Alpes, Saint Martin d'Hères, France, [4]Laboratoire de Physique Subatomique et de Cosmologie, Grenoble, France

4EPo1C-03 [E26] **Neganov-Luke phonon amplified light detectors for Low-temperature dark matter experiments**

Jin-A Jeon[1], Hyelim Kim[1], Inwook Kim[1,2], So-Ra Kim[1], Sung-Hun Lee[1], Jung Hoon Song[3] and Yong-Hamb Kim[1,2]

[1]Center for Underground Physics, Institute for Basic Science (IBS), Daejeon, Korea (the Republic of), [2]Korea Research Institute of Standards and Science (KRISS), Daejeon, Korea (the Republic of), [3]Department of Physics, Kongju National University, Kongju, Korea (the Republic of)

4EPo1C-05 [E27] **Influence of antenna design on direction sensitivity of the electric-field response of zero-biased Y-Ba-Cu-O detectors to ultra-short THz pulses**

Alexander Schmid[1], Artem Kuzmin[1], Johannes Steinmann[2], Juliane Raasch[1], Stefan Wuensch[1], Konstantin Ilin[1], Anke-Susanne Müller[2] and Michael Siegel[1]

[1]Karlsruhe Institute of Technology, Karlsruhe, Germany, [2]Karlsruhe Institute of Technology, Karlsruhe, Germany

4EPo1C-06 [E28] **Terahertz direct detectors based on superconducting hot electron bolometers with different biasing methods**

Jian Chen[1]

[1]Nanjing University, Nanjing, Jiangsu, China

4EPo1D - Digital Memory [P]
Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Randall Burnett, Northrop Grumman & Eby Friedman, University of Rochester

4EPo1D-01 [E29] **Demonstration of a Fully-Integrated RQL Memory Bank for Instruction and Data Memory**

Timothy Lee[1], Randall Burnett[1], Harold Hearne[1], Ryan Clarke[1], Jacob Vogel[1], Alexander Braun[1], Quentin Herr[1] and Anna Herr[1]

[1]Northrop Grumman, Linthicum, Maryland, US

4EPo1D-02 [E30] **RQL Encoded 8x16 Register File for 16-bit CPU**

Harold Hearne[1], Jacob Vogel[1], Ryan Clarke[1], Randall Burnett[1], Timothy Lee[1], Anna Herr[1], Quentin Herr[1], Alexander Braun[1], Yamil Huertas[1] and Patrick Farrell[1]

[1]Northrop Grumman, Linthicum, Maryland, US

4EPo1D-03 [E31] **Very large scale integration of Josephson-junction-based superconductor random access memories**

Vasili Semenov[1], Yuri Polyakov[1] and Sergey Tolpygo[2]

[1]Stony Brook University, Stony Brook, New York, US, [2]Massachusetts Institute of Technology, Lexington, Massachusetts, US

4EPo1D-04 [E32] **Design of Adiabatic-Quantum-Flux-Parametron Register Files Using a Top-Down Design Flow**

Qiuyun Xu[1], Tomoyuki Tanaka[1], Christopher Ayala[1], Naoki Takeuchi[1] and Nobuyuki Yoshikawa[1]

[1]Yokohama National University, Yokohama, Japan

4EPo1D-05 [E33] **Energy efficient control and addressing of magnetic memory arrays**

Amir Jafari-Salim[1], David McAllister[1], Patrick Truitt[1], Denis Amparo[1], Alex Kirichenko[1], Daniel Yohannes[1], Oleg Mukhanov[1] and Tom Ohki[2]

[1]Hypres, Inc., Elmsford, New York, US, [2]Raytheon BBN Technologies, Cambridge, Massachusetts, US

4EPo1D-07 [E34] **[Invited] Controllable 0 – π switching in ferromagnetic Josephson junctions for cryogenic memory**

Alexander Madden[1], Joshua Willard[1], Reza Loloee[1] and Norman Birge[1]

[1]Michigan State University, Lansing, Michigan, US

4EPo1D-08 [E35] **Sense amplifier for spin-based cryogenic memory cell**

Gleb Krylov[1] and Eby Friedman[1]

[1]University of Rochester, Rochester, New York, US

4EPo1D-09 [E36] **[Invited] Design and Realization of a Superconducting Nanowire-based Memory Array**

Brenden Butters[1], Reza Baghdadi[1], Emily Toomey[1], Murat Onen[1] and Karl Berggren[1]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US

4EPo1D-10 [E37] **Ternary and higher-order Josephson junction-based memory cells**

Niketh Nair[1,2] and Yehuda Braiman[1,2]

[1]University of Tennessee, Knoxville, Tennessee, US, [2]Oak Ridge National Laboratory, Oak Ridge, Tennessee, US

4EPo1E - Digital EPA Tools [P]
Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Christopher Ayala, Yokohama National University & Amol Inamdar, HYPRES

4EPo1E-01 [E38] **Development and implementation of an SFQ and QFL gate-level HDL logic simulator**

Calvin Maree[1], Paul Le Roux[1] and Coenrad Fourie[1]

[1]Stellenbosch University, Stellenbosch, Western Cape, South Africa

4EPo1E-02 [E39] **MLACA with modified grouping strategy for efficient superconducting circuit analysis**

Ben Nel[1] and Matthys Botha[1]

[1]Stellenbosch University, Stellenbosch, South Africa

4EPo1E-03 [E40] **Optimization of Passive Transmission Lines to minimize reflections between RSFQ logic cells**

Lieze Schindler[1], Paul Le Roux[1] and Coenrad Fourie[1]

[1]Stellenbosch University, Cape Town, Western Cape, South Africa

4EPo1E-04 [E41] **Simulation-based Analysis and Optimization of ERSFQ Biasing for Superconducting Circuits**

Naveen Katam[1,2], Oleg Mukhanov[2] and Massoud Pedram[1]

[1]University of Southern California, Los Angeles, California, US, [2]Hypres, Inc., ELMSFORD, New York, US

4EPo1E-05 [E42] **Parametric Approach for Routing Power Nets and Passive Transmission Line Tracks as Part of Library Cells**

Sukanya Sagarika Meher[1], Chandan Kanungo[2], Ashish Shukla[1] and Amol Inamdar[1]

[1]HYPRES Inc, Elmsford, New York, US, [2]Teledyne LeCroy, Chestnut Ridge, New Jersey, US

4EPo1E-06 [E43] **A Zero-Skew Clock Tree Synthesis Algorithm for Single Flux Quantum Logic Circuits Considering Splitter Delays and Placement Blockages**

Soheil Nazar Shahsavani[1], Massoud Pedram[1] and Naveen Katam[1]

[1]University of Southern California, Los Angeles, California, US

4EPo1E-07 [E44] **Time domain modeling of superconducting circuit interconnects**

Paul Le Roux[1], Johannes Delport[1], Kyle Jackman[1] and Coenrad Fourie[1]

[1]Stellenbosch University, Stellenbosch, Western Cape, South Africa

4EPo1E-08 [E45] **Impedance Extraction of Superconducting Structures**

Kyle Jackman[1] and Coenrad Fourie[1]

[1]Stellenbosch University, Stellenbosch, Western Cape, South Africa

4EPo1E-09 [E46] **A physical verification EDA flow for very large scale superconducting electronic circuits**

Ron Duncan[1]

[1]Synopsys, Mountain View, California, US

4LPo1A - Magnet Stability, Magnetization Effects, AC Losses and Protection [P VI]
Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Philippe Masson, AML Superconducting and Magnetics & Maxime Matras, CERN

4LPo1A-01 [L1] **The effect of a detection voltage on the operating current density in the detect-and-dump protection of HTS coils**

Hiroki Mochida[3,1], Yu Suetomi[2,1], Tomoaki Takao[3] and Yoshinori Yanagisawa[1]

[1]RIKEN, Kanagawa, Japan, [2]Chiba University, Chiba, Japan, [3]Sophia University, Tokyo, Japan

4LPo1A-02 [L2] **Quench Protection Behaviors of Superconducting Coils Impregnated with Various Epoxy Materials**

Hyun Hee Son[1], Jong Cheol Kim[1], Young-Gyun Kim[1], Jihoon Lee[1], Yeon Suk Choi[2] and Haigun Lee[1]

[1]Korea University, Seoul, Korea (the Republic of), [2]Korea Basic Science Institute, Daejeon, Korea (the Republic of)

4LPo1A-03 [L3] **Fundamental Evaluations of Applicability of LTS Quench Detectors to REBCO Pancake Coil**

Shin Hasegawa[1], Satoshi Ito[1], Gen Nishijima[2] and Hidetoshi Hashizume[1]

[1]Tohoku University, Sendai-shi, Miyagi-ken, Japan, [2]The National Institute for Materials Science, Tsukuba, Ibaraki-ken, Japan

4LPo1A-04 [L4] **Experimental Results of quench protection system using dual-capacitor switching for high-field superconducting magnets**

Yojong Choi[1], Woo Seung Lee[2], Seunghyun Song[1], Haeryong Jeon[1] and Tae Kuk Ko[1]

[1]Yonsei university, Seoul, Korea (the Republic of), [2]JH Engineering, Anyang, Korea (the Republic of)

4LPo1A-05 [L5] **Quench Detection Method of a High-Temperature Superconducting Magnet using Machine Learning under High Disturbance Conditions.**

Haeryong Jeon[1], Geonwoo Baek[1], Yojong Choi[1] and Tae Kuk Ko[1]

[1]Yonsei university, Seoul, Korea (the Republic of)

4LPo1A-06 [L6] **Quench detection study of high temperature superconductor based on Fiber Bragg Grating sensor.**

Yanchao Liu[2,1], Maximilian Fisser[1], Jin Fang[2], Zhenan Jiang[1] and Rodney Badcock[1,2]

[1]Victoria University of Wellington, Lower Hutt, New Zealand, [2]Beijing Jiaotong University, Beijing, 100044, China

4LPo1A-07 [L7] **Quasi-distributed fiber optic hot-spot sensing for application in HTS coils.**

Maximilian Fisser[1], Yanchao Liu[2,1] and Rodney Badcock[1,2]

[1]Victoria University of Wellington, Lower Hutt, New Zealand, [2]Beijing Jiaotong University, Beijing, 100044, China

4LPo1A-08 [L8] **Quench Analysis of Locally Insulated Winding Method for HTS Single Pancake Coils**

Jinsub Kim[1], Jiho Lee[3], Hirofumi Yonekawa[1], Geonwoo Baek[2], Seunghak Han[2], Seokho Nam[2], Young-ok Kim[1], Kwang-pyo Kim[1] and Yong Chu[1]

[1]National Fusion Research Institute, DAEJEON, Korea (the Republic of), [2]Yonsei university, Seoul, Korea (the Republic of), [3]Massachusetts Institute of Technology, Cambridge, Massachusetts, US

4LPo1A-10 [L9] **AC Loss Characteristics of a Kind of Core Cable With YBCO Coated Conductors Under DC/AC Magnetic Field**

Dongbin Song[1], Wenjiang Yang[1], Rujing Liu[1] and Yu Liu[1]

[1]School of Astronautics, Beihang University, Beijing, P.R. China, Beijing, China

4LPo1A-11 [L10] **AC loss measurement of a HTS coil with non-sinusoidal and aperiodic current**

Kai Zhu[1], Li Ren[1], Sinian Yan[1], Siyuan Liang[1], Zhong Xia[1] and Yuejin Tang[1]

[1]Huazhong University of Science and Technology, Wuhan, China

4LPo1B - Future Fusion Devices

Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.

Moderators: Yury Ilin, ITER & & Vitaly Vysotsky, Russian Scientific R&D Cable Institute & Joseph Minervini, Massachusetts Institute of Technology

4LPo1B-01 [L11] **Benchmark of the stress-assessment tools for fast and reliable mechanical analysis of the EU DEMO fusion reactor superconducting coils**

Francesco Giorgetti[2], Marco Evangelos Biancolini[2], Roberto Bonifetto[1], Andrea Chiappa[2], Antonio della Corte[3], Lorenzo Giannini[3], Luigi Muzzi[3] and Francois Nunio[4]

[1]Politecnico di Torino, Turin, Italy, Italy, [2]University of Rome "Tor Vergata", Rome, Italy, Italy, [3]ENEA, Rome, Italy, Italy, [4]CEA, Gif-sur-Yvette Cedex, Essonne, France

4LPo1B-03 [L12] **Thermal-hydraulic analysis of the winding pack (WP#1) for the EU DEMO TF coil**

Monika Lewandowska[1], Aleksandra Dembkowska[1] and Kamil Sedlak[2]

[1]West Pomeranian University of Technology, Szczecin, Szczecin, Poland, [2]EPFL-SPC, PSI Villigen, Switzerland

4LPo1B-03 [L13] **CEA Magnets Design of EU DEMO updated configuration**

Louis Zani[1], Daniel Ciazynski[1], Valentina Corato[2], Benoit Lacroix[1], Quentin Le coz[1], Nicolas Misiara[1], Sylvie Nicollet[1], Francois Nunio[1], Kamil Sedlak[3], Alexandre Torre[1], Roser Vallcorba[1] and Christian Vorpahl[4]

[1]CEA, St Paul lez Durance, France, [2]ENEA, Frascati, Italy, [3]EPFL-SPC, Villigen, Switzerland, [4]Eurofusion, Garching, Germany

4LPo1B-04 [L14] **Design of DEMO PF Coils**

Mithlesh Kumar[1], Kamil Sedlak[1], Xabier Sarasola[1], Pierluigi Bruzzone[1], Antonio della Corte[2], Lorenzo Giannini[2], Luigi Muzzi[2] and Valentina Corato[2]

[1]Ecole Polytechnique Federale de Lausanne (EPFL), Villigen, Aargau, Switzerland, [2]Italian National Agency for New Technologies (ENEA), Frascati, RM, Italy

4LPo1B-05 [L15] **Research status of AC loss and stability of HTS conductor for CFETR superconducting magnet**

Jinxing Zheng[1], Yuntao Song[1], Kun Lu[1], Zhengshuo Zhang[1], Lei Wang[1] and Xiongyi Huang[1]

[1]Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, Anhui, China

4LPo1B-06 [L16] **AC loss measurement and analysis of Bi2212 sub-size conductor**

Jinggang Qin[1] and Yuxiang He[1]

[1]Institute of Plasma Physics, CAS, Hefei, China

4LPo1B-07 [L17] **Optimised design of a spherical tokamak using high temperature superconducting magnets**

Simon Chislett-McDonald[1], Elizabeth Surrey[2], Michael Kovari[2] and Damian Hampshire[1]

[1]Durham University, Durham, DH1 3LE, United Kingdom, [2]Culham Science Centre, Abingdon, OX14 3EB, United Kingdom

4LPo1B-08 [L18] **Magneto-Structural Optimization of the Central Solenoid of the DTT magnet system**

Giordano Tomassetti[1], Lorenzo Giannini[2], Simonetta Turtu'[1], Luigi Muzzi[1], Aldo Di Zenobio[1] and Antonio della Corte[1]

[1]ENEA, Frascati, RM, Italy, [2]ICAS, Frascati, Italy

4LPo1B-09 [L19] **Cryo-Stability of Quasi-Insulation Winding Method on HTS Coil Design for Pulsed Fusion Magnet**

Jinsub Kim[1], Seok Chan An[4], Seunghak Han[2], Seokho Nam[2], Jae Young Jang[3] and Yong Chu[1]

[1]National Fusion Research Institute, DAEJEON, Korea (the Republic of), [2]Yonsei university, Seoul, Korea (the Republic of), [3]Korea Basic Science Institute, Daejeon, Korea (the Republic of), [4]Agency for defense developent, Daejeon, Korea (the Republic of)

4LPo1C - Grid Study with Superconducting Devices [P III]
Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Kohei Higashikawa, Kyushu University & Sung-Hun Lim, Soongsil University

4LPo1C-02 [L20] **Scheduling Method for Virtual Power Plant with Superconductor Flywheel Energy Storage System and Renewable Energy.**

Rakkyung Ko[1], Jinyeong Lee[1], Juyoung Chong[1], Saehyun Koh[1], Sangmin Ryu[1] and Sung-Kwan Joo[1]

[1]KOREA UNIVERSITY, Seoul, Korea (the Republic of)

4LPo1C-03 [L21] **Research on the Application of Superconducting Magnetic Energy Storage Based on Sliding Mode Control in Photovoltaic Systems**

Yongkai Li[1], Yong Lei[1], Xiaodong Lin[1], Wei Wang[1] and Yingwei Zhu[1]

[1]Sichuan University, Chengdu, Sichuan, China

4LPo1C-04 [L22] **Research on SMES state evaluation method based on BP neural network**

Shuqiang Guo[1]

[1]Huazhong University of Science And Technology, Wuhan, Hubei, China

4LPo1C-05 [L23] **Mitigation of partial shading impact in photovoltaic systems using superconducting magnetic energy storage**

Abdelwahab Hassan[1], Diaa-Eldin Mansour[1], Nawal A. Elsherief[1] and Weijia Yuan[2]

[1]Tanta University, Tanta, Egypt, [2]University of Bath, Bath, United Kingdom

4LPo1C-06 [L24] **Optimal allocation of modular SMES in microgrid**

Yuanyuan Li[1], Jing Shi[1], Minghan Gao[1] and Lihui Zhang[1]

[1]State Key Laboratory of Advanced Electromagnetic Engineering and Technology, Wuhan, Hubei, China

4LPo1C-07 [L25] **Development of an efficient system model for an all-electric aircraft network with superconducting devices**

Sriharsha Venuturumilli[1], Frederick Berg[2], Min Zhang[1] and Weijia Yuan[1]

[1]University of Bath, Bath, United Kingdom, [2]Airbus Group Innovations, Munich, Germany

4LPo1C-08 [L26] **Consideration on Transient Stability of Superconducting Generator introduced power system by Electromagnetic Transient Analysis**

Reiko Kato[1] and Orie Sakamoto[1]

[1]Sophia University, Chiyoda, Tokyo, Japan

4LPo1C-09 [L27] **Design and Operation Characteristic Analysis of MMC-HVDC System for large Scale Offshore Wind Farm with a 10-MW-Class HTS Wind Generator**

Sang Heon Chae[1], Jin Hong Ahn[1], Gi Hoon Kim[1], Seong Hoon Kim[1], Min Hyeok Kang[1], Jae Hyung Moon[1], Ji Hyung Kim[1], Se Ho Kim[1], Young Gyu Jin[1], Ho Min Kim[1] and Eel-Hwan Kim[1]

[1]Jeju National University, Jeju-si, Korea (the Republic of)

4LPo1C-10 [L28] **A mid-range wireless power transfer system using superconducting and copper planar coils**

Luis Romba[1,2], Stanimir Valtchev[1,2], Joao Murta-Pina[1,2] and Anabela Pronto[1,2]

[1]UNINOVA, Caparica, Setubal, Portugal, [2]Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Caparica, Portugal

4LPo1D - Cables (HTS, LTS), CICC and Current Leads [P III]
Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Yury Ilin, ITER & & Vitaly Vysotsky, Russian Scientific R&D Cable Institute & Chao Li, University of Cambridge

4LPo1D-01 [L29] **Electromechanical Properties of Cabled HTS CrossConductors**
Walter Fietz[1], Michael Wolf[1], Nadezda Bagrets[1], Mathias Heiduk[1], Reinhard Heller[1], Christian Lange[1] and Klaus-Peter Weiss[1]

[1]Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany

4LPo1D-02 [L30] **Re-makeable joint with insulation for REBCO superconductor cables**
Andrea Haight[1], Mark Haynes[1], Leslie Bromberg[2], Makoto Takayasu[2], Philip Michael[2] and Alexey Radovinsky[2]

[1]Composite Technology Development, Inc., Lafayette, Colorado, US, [2]Massachusettes Institute of Technology, Cambridge, Massachusetts, US

4LPo1D-03 [L31] **Suggestions to improve stability of cable-in-conduit conductors made of Nb_3Sn strands**
Denis Kaverin[1], Liudmila Potanina[1], Sergey Zanegin[1] and Vitaly Vysotsky[1,2]

[1]Russian Scientific R&D Cable Institute, Moscow, Russian Federation, [2]National Research Nuclear University MEPhI (Moscow Engineering Physics Institute), , Moscow, Russian Federation

4LPo1D-05 [L32] **Comparison of the Electromagnetic and Loss Properties of High Current HTS CICC Conductors for Fusion**
Wei Wang[1], Ziheng Hu[1], Bin Zhang[1], Jianping Liao[1], Xiaogang Pang[1], Zhenzi Wang[1], Xuhui Xu[1] and Nan Ma[1]

[1]Shenzhen Power Supply Bureau Co., Ltd, ShenZhen, China

4LPo1D-06 [L33] **HTS high current high field cables for DEMO**
Ortensia Dicuonzo[1], Davide Uglietti[1], Rainer Wesche[1] and Pierluigi Bruzzone[1]

[1]EPFL, Villigen, Switzerland

4LPo1D-07 [L34] **Numerical investigation on current distribution and AC losses in a prototype cable for the European DEMO TF coils**
Francesco Stacchi[1], Fabrizio Bellina[1], Marco Breschi[2] and Pier Luigi Ribani[2]

[1]University of Udine, Udine, Italy, [2]Bologna University, Bologna, Italy

4LPo1D-08 [L35] **Manufacturing of CFETR CSMC Full-size Conductors**
Jinggang Qin[1]

[1]Institute of Plasma Physics, CAS, Hefei, China

4LPo1D-09 [L36] **Experimental and modeling analysis of three CICC cabling patterns for CFETR CS conductor**
Anvar Abdulsalam[1,3], Tommaso Bagni[1], Konstantin Yagotintsev[1], Jinggang Qin[2], Yu Wu[2], Arnaud Devred[4], Md Shahriar Hossain[3,5] and Arend Nijhuis[1]

[1]University of Twente, Enschede, Overijssel, Netherlands, [2]Institute of Plasma Physics, Chinese Academy of Sciences, Hefei, China, [3]University of Wollongong, Wollongong, New South Wales, Australia, [4]ITER IO, Geneva, Swaziland, [5]the University of Queensland, Brisbane, Queensland, Australia

4LPo1D-10 [L37] **The effect of specific manufacturing characteristics on ITER full-size joint performance**
Pilar Fernandez Pison[1,2], Stefanie Langeslag[1], Ignacio Aviles Santillana[1], Alexander Dimitrijevic[1,3], Stefano Sgobba[1], Yury Ilin[4], Fabrice Simon[4] and Byung Su Lim[4]

[1]CERN, CH-1211 Genève, Switzerland, [2]University Carlos III of Madrid, Campus de Leganes, Av. Universidad 30, 28911 Madrid, Spain, [3]University College London, Gower Street, Bloomsbury, London WC1E 6BT, United Kingdom, [4]ITER Organization, Route de Vinon sur Verdon, CS 90 046, 13067 St. Paul lez Durance Cedex, France

4LPo1E - NMR Magnets
Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Chao Li, University of Cambridge & Tsuyoshi Yagai, Sophia University

4LPo1E-01 [L38] **A Quench Simulation Study of the MIT 1.3-GHz LTS/HTS NMR Magnet**

So Noguchi[1,2], Dongkeun Park[2], Jiho Lee[2], Yoon Hyuck Choi[2], Yi Li[2], Philip Michael[2], Juan Bascunan[2], Seungyong Hahn[3] and Yukikazu Iwasa[2]

[1]Hokkaido University, Sapporo, Japan, [2]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [3]Seoul National University, Seoul, Korea (the Republic of)

4LPo1E-02 [L39] **Experimental and Numerical Studies on a Method to Mitigate Screening Current-Induced Field for the MIT 1.3GHz LTS/HTS NMR magnet**

Jiho Lee[1], Dongkeun Park[1], Yi Li[1], Yoon Hyuck Choi[1], Philip Michael[1], Juan Bascunan[1] and Yukikazu Iwasa[1]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US

4LPo1E-03 [L40] **Design and Test Results of Self-Protecting REBCO Z1 and Z2 Shim Coils for the MIT 1.3-GHz LTS/HTS NMR Magnet**

Dongkeun Park[1], Yoon Hyuck Choi[1], Yi Li[1], Jiho Lee[1], Philip Michael[1], Juan Bascunan[1], Yukikazu Iwasa[1], Zhuyong Li[2], Mingyang Wang[2] and Zhiyong Hong[2]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [2]Shanghai Jiao Tong University, Shanghai, China

4LPo1E-04 [L41] **A New Design Method for Ferromagnetic Shim of a Superconducting NMR Magnet by Rearranging Shim Elements**

Min Chul Ahn[1], Hongmin Yang[1], Jae Young Jang[2], Young Jin Hwang[2] and SangGap Lee[2]

[1]Kunsan National University, Gunsan, Jeonbuk, Korea (the Republic of), [2]KBSI, Cheongju, Korea (the Republic of)

4LPo1E-05 [L42] **Towards a 1.3 GHz (30.5 T) NMR operated in a persistent current mode: Development of a persistent current 400 MHz (9.39 T) LTS/REBCO NMR magnet**

Yoshinori Yanagisawa[1], Yu Suetomi[3,1], Kazama Yamagishi[2,1], Renzhong Piao[1], Masato Takahashi[1], Kotaro Ohki[4], Takashi Yamaguchi[4], Tatsuoki Nagaishi[4], Tomoaki Takao[2], Hitoshi Kitaguchi[5], Kazuyoshi Saito[6], Mamoru Hamada[6] and Hideaki Maeda[7,1]

[1]RIKEN, Yokohama, Japan, [2]Sophia University, Chiyoda, Tokyo, Japan, [3]Chiba University, Chiba, Japan, [4]Sumitomo Electric Industries, Ltd., Osaka, Japan, [5]National Institute for Materials Science, Tsukuba, Japan, [6]Japan Superconductor Technology, Inc., Kobe, Japan, [7]Japan Science and Technology Agency, Kawaguchi, Japan

4LPo1E-06 [L43] **Development of a compact 800 MHz (18.8 T) LTS/Bi-2223 NMR magnet**

Renzhong Piao[1], Masato Takahashi[1], Hideaki Maeda[1], Yoshinori Yanagisawa[1], Yu Suetomi[2,1], Yasuyuki Miyoshi[3], Masatoshi Yoshikawa[3], Kazuyoshi Saito[3], Mamoru Hamada[3], Shinji Matsumoto[4] and Hiroto Suematsu[5]

[1]RIKEN, Yokohama, Japan, [2]Chiba University, Chiba, Japan, [3]Japan Superconductor Technology, Inc., Kobe, Japan, [4]National Institute for Materials Science, Tsukuba , Japan, [5]JEOL RESONANCE Inc., Tokyo, Japan

4LPo1E-07 [L44] **Design Study of a Tabletop Liquid-Helium-Free 23.5-T Magnet for 1-GHz Microcoil NMR Spectroscopy**

Dongkeun Park[1] and Yukikazu Iwasa[1]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US

4LPo1E-08 [L45] **Design, Construction, and Operation of a 9.4 T 66 mm NMR Magnet Wound with Metal-Cladding REBCO Tapes**

Jaemin Kim[1,2], Yungil Kim[1], Sunghun Oh[1], Kang Hwan Shin[1], Young Jin Hwang[3], Jae Young Jang[3], Sehwan In[4], Jeseok Bang[2], Sohyun Kim[2], Hankil Yeom[4], Kwangmin Kim[5], Kwang Lok Kim[5], Min Chul Ahn[6], Hunju Lee[1], SangGap Lee[3] and Seungyong Hahn[2]

[1]SuNAM Co., Ltd., Anseong-si, Gyeonggi-do, Korea (the Republic of), [2]Seoul National University, Seoul, Korea (the Republic of), [3]Korea Basic Science Institute, Daejeon, Korea (the Republic of), [4]Korea Institute of Machinery and Materials, Daejeon, Korea (the Republic of), [5]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [6]Kunsan National University, Kunsan, Korea (the Republic of)

4LPo1E-09 [L46] **Calculation and Measurement of Harmonic Field Errors of a 400 MHz 66 mm No-Insulation REBCO NMR Magnet due to Screening Current induced Field**

Jeseok Bang[1], Seokho Kim[2], Jae Young Jang[3], Young Jin Hwang[3], Mincheol Cho[1], Jaemin Kim[1], Sohyun Kim[1], Jung Tae Lee[1], Min Chul Ahn[4], SangGap Lee[3] and Seungyong Hahn[1]

[1]Seoul National University, SEOUL, Gwanak-gu, Korea (the Republic of), [2]Changwon National University, Changwon, Korea (the Republic of), [3]Korea Basic Science Institute, Daejeon, Korea (the Republic of), [4]Kunsan National University, Kunsan, Korea (the Republic of)

4LPo1E-10 [L47] **Analysis of the Effect of a Crossover Turn in Double-Pancake Winding on Magnetic Field Homogeneity of HTS NMR Magnet**

Geonwoo Baek[1], Junseong Kim[1], Hyoungku Kang[2] and Tae Kuk Ko[1]

[1]Yonsei University, Seoul, Korea (the Republic of), [2]Korea National University of Transportation, Chungju, Korea (the Republic of)

4LPo1F - Nb_3Sn Magnets for Next Generation Accelerators [P II]

Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.

Moderators: Yong Zhang, Key Laboratory of Magnetic Levitation Technologies and Maglev Trains & Alexander Zlobin, Fermilab

4LPo1F-01 [L49&50] **[Invited] F2D2: a block-coil short-model dipole toward FCC**

Helene Felice[1], Valerio Calvelli[1], Maria Durante[1], Philip Mallon[1], Etienne Rochepault[1] and Susana Izquierdo Bermudez[2]

[1]CEA/IRFU- Universite Paris Saclay, Gif sur Yvette, France, [2]CERN, Geneva, Switzerland

4LPo1F-02 [L48] **3D mechanical design of EuroCirCol cos θ 16 T bending dipole**

Barbara Caiffi[1], Giovanni Bellomo[1], Pasquale Fabbricatore[1], Stefania Farinon[1], Samuele Mariotto[1], Alessandra Pampaloni[1], Alessandro Maria Ricci[1], Marco Statera[1] and Massimo Sorbi[1]

[1]INFN, Genoa, Italy

4LPo1F-03 [L51] **Exploration of two layer designs of the Future Circular Collider Main Quadrupoles**

Clément Lorin[1], Guillaume Dilasser[1], Helene Felice[1], Etienne Rochepault[1], Tiina Salmi[2] and Daniel Schoerling[3]

[1]CEA, Gif-sur-Yvette, France, [2]TUT, Tampere, Finland, [3]CERN, Geneva, Switzerland

4LPo1F-04 [L52] **Mechanical Design and Validation of the Support Structure of the CERN R&D magnets for the FCC**

Susana Izquierdo Bermudez[1], Juan Carlos Perez[1], Nicolas Bourcey[1], Manuel Francisco Garcia Perez[1], Philippe Grosclaude[1], Michael Guinchard[1] and Davide Tommasini[1]

[1]CERN, Geneva, Switzerland

4LPo1F-05 [L53] **Magnetic and Mechanical Design of the Block-coil Dipole Option for the Future Circular Collider**

Chhon Pes[1], Michel Segreti[1], Etienne Rochepault[1], Maria Durante[1] and Clément Lorin[1]

[1]IRFU, CEA, Université Paris-Saclay, Gif-sur-Yvette, France

4LPo1F-06 [L54] **Mechanical Utility Structure for Testing High Field Superconducting Dipole Magnets**

Mariusz Juchno[1], Lucas Brouwer[1], Shlomo Caspi[1], Ray Hafalia[1], Igor Novitski[2], Soren Prestemon[1] and Alexander Zlobin[2]

[1]Berkeley Lab, Berkeley, California, US, [2]Fermilab, Batavia, Illinois, US

4LPo1F-07 [L55] **Optimization of the Electromagnetic Design of the FCC Sextupoles and Octupoles**

Alexandre Louzguiti[1] and Daniel Schoerling[1]

[1]CERN, Geneva, Switzerland

4LPo1F-08 [L56] **A Bend and Shim Assembly Method for Canted-Cosine-Theta Magnets**

Lucas Brouwer[1], Diego Arbelaez[1], Shlomo Caspi[1] and Soren Prestemon[1]

[1]Lawrence Berkeley National Laboratory, Berkeley, California, US

4LPo1F-09 [L57] **3-D Mechanical Modelling of 20 T Clover Leaf and Flared Ends Coils – Good Practices and Lessons Learned**

Jaakko Murtomaeki[1,2], Jeroen van Nugteren[3], Antti Stenvall[4], Glyn Kirby[3] and Lucio Rossi[5]

[1]Tampere University of Technology, Seinaejoki, Finland, [2]CERN, Geneva, Switzerland, [3]CERN, Geneva, Switzerland, [4]Tampere University of Technology, Tampere, Finland, [5]CERN, Geneva, Switzerland

4LPo1G - Joints [P]

Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Antonio della Corte, ENEA & Nadezda Bagrets, Karlsruher Institute of Technology

4LPo1G-01 [L58] **Superconducting joint between multi-filamentary Bi2223 tapes by incongruent melting**

Xinzhe Jin[1], Yu Suetomi[2,3], Renzhong Piao[2], Yoshinori Yanagisawa[2], Hideaki Maeda[2], Yasuteru Mawatari[1], Toshihiro Kuzuya[1], Yukihiro Kawamura[1], Atsunori Kamegawa[1], Chihiro Sekine[1] and Shinji Hirai[1]

[1]Muroran Institute of Technology, Muroran, Hokkaido, Japan, [2]RIKEN, Yokohama-shi, Kanagawa, Japan, [3]Chiba University, Chiba-shi, Chiba, Japan

4LPo1G-02 [L59] **Superconducting joint between RE123-coated conductors with CJMB method**

Xinzhe Jin[1], Yasuteru Mawatari[1], Toshihiro Kuzuya[1], Yusuke Amakai[1], Yoshinori Tayu[1], Naoki Momono[1], Shinji Hirai[1], Yoshinori Yanagisawa[2] and Hideaki Maeda[2]

[1]Muroran Institute of Technology, Muroran, Hokkaido, Japan, [2]RIKEN, Yokohama-shi, Kanagawa, Japan

4LPo1G-03 [L60] **Superconducting solder joint for REBCO tape**

Nobuya Banno[1], Toshihisa Asano[1], Kazunori Komori[1], Minoru Tachiki[1], Shunichi Arisawa[1] and Hitoshi Kitaguchi[1]

[1]National Institute for Materials Science, Tsukuba, Japan

4LPo1G-04 [L61] **A promising superconducting joining technique for YGdBCO coated conductors**

Baolei Huo[1], Wentao Wang[1,2], Lian Liu[1], Yudong xia[1], Xue Yang[1], Mingjang Wang[1] and Yong Zhao[1]

[1]Southwest Jiaotong University, Chengdu, China, [2]Pennsylvania State University, State College, Pennsylvania, US

4LPo1G-05 [L62] **Current transport characteristics of intermediate-grown superconducting (iGS) joint between REBCO coated-conductors in external magnetic fields at 77 K, 50 K and 4.2 K**

Kazama Yamagishi[1,2], Yu Suetomi[3,2], Takeshi Ueno[1,2], Renzhong Piao[2], Kotaro Ohki[4], Takashi Yamaguchi[4], Tatsuoki Nagaishi[4], Hitoshi Kitaguchi[5], Tomoaki Takao[1], Hideaki Maeda[2,6] and Yoshinori Yanagisawa[2]

[1]Sophia university, Yokohama, Kanagawa, Japan, [2]RIKEN, Yokohama, Kanagawa, Japan, [3]Chiba university, Chiba, Chiba, Japan, [4]Sumitomo Electric Industries, Ltd., Osaka, Osaka, Japan, [5]National Institute for Materials Science, Tsukuba, Ibaraki, Japan, [6]Japan Science and Technology Agency, Kawaguchi, Saitama, Japan

4LPo1G-06 [L63] **Splice Resistance Characteristics of REBCO Coated Conductor at 77 K and 4.2 K**

Xudong Wang[1], Kiyosumi Tsuchiya[1], Akio Terashima[1], Akihiro Kikuchi[2], Mio Uchida[3] and Tomoaki Takao[3]

[1]High Energy Accelerator Research Organization, Tsukuba, Ibaraki, Japan, [2]National Institute for Materials Science, Tsukuba, Japan, [3]Sophia University, Tokyo, Japan

4LPo1G-07 [L64] **[Invited] Cryocooler operated persistent mode REBCO layer winding for MRI magnet**

Yasuyuki Miyoshi[1], Kazuyoshi Saito[1], Mamoru Hamada[1], Shinji Matsumoto[2], Gen Nishijima[2], Akinobu Nakai[3], Hisaki Sakamoto[3] and Shinichi Mukoyama[3]

[1]Japan Superconductor Technology, Inc., Kobe, Japan, [2]National Institute for Materials Science, Tsukuba, Japan, [3]Furukawa Electric Co., Ltd., Ichihara, Japan

4LPo1G-08 [L65] **Persistent current switch controlled by alternating current field for high-temperature superconducting closed coils with conduction cooling**

Yunhao Pan[1], Wei Wu[1] and Jie Sheng[1]

[1]Shanghai Jiao Tong university, Shanghai, Shanghai, China

4LPo1G-09 [L66] **Estimation of REBCO Joint Resistance in Single-Turn Loop**

Shinji Matsumoto[1], Gen Nishijima[1], Akinobu Nakai[2], Hisaki Sakamoto[2], Shinichi Mukoyama[2], Yasuyuki Miyoshi[3], Kazuyoshi Saito[3] and Mamoru Hamada[3]

[1]National Insititute for Materials Science, Tsukuba, Ibaraki, Japan, [2]Furukawa Electric Co., Ltd., Ichihara, Japan, [3]Japan Superconductor Technology, Inc., Kobe, Japan

4LPo1G-10 [L67] **Field Mapping of the Joint-less HTS Solenoid Magnet in a Persistent Current Mode Operation**

Miyeon Yoon[1], Seyeon Lee[1], Ji-kwang Lee[2], Gye-Won Hong[1], Kyeongdal Choi[1], Seungyong Hahn[3], SangGap Lee[4], Jun Hee Han[4] and Woo-Seok Kim[1]

[1]Korea Polytechnic University, Siheung, Korea (the Republic of), [2]Woosuk University, Junju, Korea (the Republic of), [3]Seoul National University, Seoul, Korea (the Republic of), [4]Korea Basic Science Institute, Daejeon, Korea (the Republic of)

4LPo1H - Fault Current Limiters [P V]

Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Hangtian Lei, University of Idaho & Mircea Nasui, Technical University of Cluj-Napoca

4LPo1H-01 [L68] **[Invited] Development of 220kV/1.5kA resistive type superconducting fault current limiter**

Shaotao Dai[1], Tao Ma[1], Lei Hu[1], Yong Huang[2], Xiaofei Xu[2], Lianqi Zhao[2] and Chi Xue[2]

[1]Beijing Jiaotong University, Beijing, China, [2]Jiangsu Zhongtian Technology Co. Ltd., Nantong, Jiangsu, China

4LPo1H-02 [L69&70] **[Invited] Dynamic breakdown characteristics of pancake coil model for resistive superconducting fault current limiters**

Naoki Hayakawa[1], Masataka Mimbu[1], Hiroki Kojima[1], Shigeki Isojima[2] and Minoru Kuwata[3]

[1]Nagoya University, Nagoya, Japan, [2]Sumitomo Electric Industries, Osaka, Japan, [3]Nissin Electric, Kyoto, Japan

4LPo1H-03 [L71] **A novel approach of improving the quench velocity of superconducting fault current limiters**

Hongwei Liu[1]

[1]North China Electric Power University, Beijing, China

4LPo1H-04 [L72] **Recovery Characteristics of GdBCO tape with various surface condition in a pressurized Liquid Nitrogen for a resistive SFCL**

Chihiro Maeda[1], Satoshi Takaya[1], Yasuyuki Shirai[1], Masahiro Shiotsu[1], Genki Honda[2] and Shigeki Isojima[2]

[1]Kyoto University, Kyoto, Kyoto, Japan, [2]Sumitomo Electric Industries, Ltd., Chuo-ku, Osaka, Japan

4LPo1H-05 [L73] **Research on delaminate damage of YBCO tape under DC impact based on Hilbert-Huang Transform**

Haonan Wang[1,2], Zhifeng Zhang[3,1], Qingquan Qiu[3,1], Qingfeng Liu[1,2], QianQian Feng[1,2] and GuoMin Zhang[3,1]

[1]Institute of Electrical Engineering, Chinese Academy of Science, Beijing, China, [2]University of Chinese Academy of Science, Beijing, China, [3]Applied Superconductivity Key Lab, Chinese Academy of Science, Beijing, China

4LPo1H-06 [L74] **Experimental and Numerical Analysis of Transport AC Losses in Bifilar Stacks Comprising Four-strand HTS Roebel Cables**

Zhenan Jiang[1], Wenjuan Song[2], Mike Staines[1], Chris Bumby[1], Rodney Badcock[1] and Jin Fang[2]

[1]Victoria University of Wellington, Lower Hutt, New Zealand, [2]Beijing Jiaotong University, Beijing, China

4LPo1H-07 [L75] **Feasibility study on a fault current limiter consisting of coated conductors with copper fins for improvement of cooling by liquid nitrogen**

Yusuke Sogabe[1], Shigeki Isojima[2] and Naoyuki Amemiya[1]

[1]Kyoto University, Kyoto, Japan, [2]Sumitomo Electric Industries, Ltd., Osaka, Japan

4LPo1H-08 [L76] **Study of transient resistance characteristic of resistive superconducting fault current limiter under AC over-current**

Chi Zhang[1] and Li Ren[1]

[1]Huazhong University of Science and Technology, Wuhan, Hubei, China

4LPo1H-09 [L77] **Overcurrent performance of current limiting module for transsmission voltage resistive superconducting fault current limiter**

Tao Ma[1], Shaotao Dai[1] and Lei Hu[1]

[1]Beijing Jiaotong University, Beijing, China

4LPo1J - Test, Measurement, Techniques [P III]

Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Masahiro Daibo, Iwate University & Jens Steckert, CERN

4LPo1J-01 [L78] **Simulations and Measurements of Industrial HTS Topologies**

Richard Taylor[1]

[1]Queensland University of Technology, Brisbane, Queensland, Australia

4LPo1J-02 [L79] **Superconducting 2G Loopes Model for Electric Field due to Pulse Magnetization**

Vagner Cruz[1], Guilherme Telles[1], Antonio Ferreira[1] and Rubens de Andrade Jr.[1]

[1]Universidade Federal do Rio de Janeiro, Rio de Janeiro, Rio de Janeiro, Brazil

4LPo1J-03 [L80] **Feasibility Study on Examination of Feeder Busbar Joint Connection by Electrical Tests for ITER Magnet System**

Hyungjun Kim[1], Patrick Decool[2], Chen-yu Gung[1], Patrick Petit[1], Jens Reich[1] and Neil Mitchell[1]

[1]ITER Organization, St Paul Lez Durance, France, [2]CEA, St-Paul-lez-Durance, France

4LPo1J-05 [L81] **An acoustic method of quench detection for CICC magnets**

Makoto Takayasu[1]

[1]MIT, Cambridge, Massachusetts, US

4LPo1J-06 [L82] **Inductive Characterization Method for Superconducting 2G Loops**

Guilherme Telles[1], Vagner Cruz[1], Antonio Ferreira[1] and Rubens de Andrade Jr.[1]

[1]Universidade Federal do Rio de Janeiro, Rio de Janeiro, Rio de Janeiro, Brazil

4LPo1J-07 [L83] **Short Circuit and Recovery Time Tests with a bifilar SFCL configuration**

Luís Micahel Rocha[2,3], Daniel Henrique Dias[1], Guilherme Sotelo[1], Felipe Sass[1] and Alexander Polasek[3]

[1]Fluminense Federal University, Niteroi, RJ, Brazil, [2]Federal University of Rio de Janeiro , Rio de Janeiro, Brazil, [3]Electric Energy Research Center, Rio de Janeiro, Brazil

4LPo1J-08 [L84] **Simulation Study on a Virtual NMR Signal Generator with a Hall Sensor Array Under a Small Drift Operation Current**

Woo Seung Lee[1], Youngjae Kim[2], Ulf Trociewitz[2], Kwangmin Kim[2] and Min Chul Ahn[3]

[1]JH Engineering, Anyang, Gyeonggi-do, Korea (the Republic of), [2]The National High Magnetic Field Laboratory, Tallahassee, Florida, US, [3]Kunsan National University, Kunsan, Korea (the Republic of)

4LPo1J-09 [L85] **Research on the Magnetized Property of Iron Core for Saturated Iron-core Superconducting Fault Current Limiter**

Chi Zhang[1] and Yuejin Tang[1]

[1]Huazhong University of Science and Technology, Wuhan, Hubei, China

4LPo1J-10 [L86] **The Method to Diagnose Soundness of The High Temperature Superconducting Coil by Pick-up Coil Pairs**

AKifumi Kawagoe[1], Keita Hosoda[1] and Junya Tsuruda[1]

[1]Kagoshima University, Kagoshima, Kagoshima, Japan

4LPo1K - Motors, Generators, and Rotating Machines [P IV]: Propulsion Applications

Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.

Moderators: Enric Pardo, Institute of Electrical Engineering, Slovak Academy of Sciences & Min Zhang, University of Strathclyde

4LPo1K-01 [L87] **Design and Development of Cryogenic (30K) test facility for testing the High Temperature Superconducting (HTS) Pole coils to be used in HTS Synchronous Motor**

V A S Bathula[1,2], U. K Choudhury[1] and V. Rao[2]

[1]Bharat Heavy Electricals Limited , HYDERABAD, TELANGANA, India, [2]Indian Institute of Technology, Kharagpur, Kharagpur, West Bengal, India

4LPo1K-02 [L88] **HTS coils optimization for application in a linear generator for maritime applications**

Adrian Gonzalez-Parada[1], Ivan Hernandez-Robles[1] and Marco Biancheti[1]

[1]University of Guanajuato, Salamanca, Mexico

4LPo1K-03 [L89] **Design, Fabrication and Evaluation results of a Prototype High-T_c Superconducting Linear Synchronous Motor**

Chang Young Lee[1,3], Jinho Lee[1], Jungmin Jo[1], Suyong Choi[1], Jungyoul Lim[1], Kwansup Lee[1], Seokho Kim[2] and Joengmin Mun[2]

[1]Korea Railroad Research Institute, Uiwang-si, Korea (the Republic of), [2]Changwon National University, Changwon-si, Korea (the Republic of), [3]University of Science & Technology, Deajeon-si, Korea (the Republic of)

4LPo1K-04 [L90] **Development of a Small-Scale Bilateral Linear Synchronous Motor with HTS Magnets**

Zhen Huang[1], Fangliang Dong[1] and Luning Hao[1]

[1]Shanghai Jiao Tong University, Shanghai, China

4LPo1K-05 [L91] **Comparative Research on Primary Excitation Full-superconducting Linear Generators for Wave Energy Conversion**

Lei Huang[1], Minqiang Hu[1], Peiwen Tan[1] and Jing Liu[1]

[1]Southeast University, Nanjing, China

4LPo1K-06 [L92] **Design study of 5 MW Fully Superconducting Synchronous Motor with REBa2Cu3Oy coated conductors for Electric Aircrafts**

Takuya Aikawa[1], Masataka Iwakuma[1], Shun Miura[1] and Masataka Komiya[1]

[1]Kyushu University, Fukuoka, Japan

4LPo1K-07 [L93] **Design study of 10 MW REBa2Cu3Oy fully superconducting synchronous generator for electric aircraft**

Masataka Komiya[1], Masataka Iwakuma[1], Shun Miura[1], Shogo Fukuda[1], Takuya Aikawa[1], Seiki Sato[1], Koichi Yoshida[1], Yoshiji Hase[2], Akira Tomioka[2], Masayuki Konno[2] and Teruo Izumi[3]

[1]Kyushu University, Fukuoka-shi, Fukuoka-ken, Japan, [2]Fuji Electric Co. Ltd., Ichihara-shi, Japan, [3]National Institute of Advanced Industrial Science and Technology, Tsukuba, Japan

4LPo1K-08 [L94] **A Flux-Switching Permanent-Magnet Machine with HTS Armature Winding for Distributed Propulsion Aircrafts**

Christopher H. T. Lee[1], Tim Coombs[2] and T. W. Ching[3]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [2]University of Cambridge, Cambridge, United Kingdom, [3]University of Macau, Taipa, Macao

4LPo1K-09 [L95] **Design optimization and measurement of HTS racetrack coil for high-thrust linear synchronous motor**

Zhengwei Zhao[1], Kang Liu[1], Tianyong Gong[2] and Guangtong Ma[1]

[1]Southwest Jiaotong University, Chengdu, China, [2]Southwest Jiaotong University, Chengdu, Sichuan, China

4LPo1K-10 [L96] **Design and Analysis of a New HTS Linear Flux-Controllable Vernier Machine**

Xianglin Li[1], Xiaoyang Wang[1] and Yubin Wang[1]

[1]China University of Petroleum (East China), Qingdao, Shandong, China

4LPo1K-11 [L97] **Ripple field effects on the no-insulation high temperature superconductor coils**

Yawei Wang[1], Zixuan Zhu[1], Min Zhang[1] and Weijia Yuan[1]

[1]University of Strathclyde, Bath, United Kingdom

4MPo1A - Processing of Nb_3Al and Nb_3Sn Conductors

Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Taeyoung Pyon, Luvata Waterbury, Inc. & Mike Sumption, The Ohio State University

4MPo1A-01 [M1] **Development of advanced tube type Nb_3Sn conductor in Hyper Tech**

Xuan Peng[1], Matthew Rindfleisch[1], Michael Tomsic[1], Xingchen Xu[2], Jacob Rochester[3] and Mike Sumption[3]

[1]Hyper Tech Research Inc., Columbus, Ohio, US, [2]Fermilab, Batavia, Illinois, US, [3]The Ohio State University, Columbus, Ohio, US

4MPo1A-02 [M2] **Characterization and Development of Tube Type Nb_3Sn Conductors**

Jacob Rochester[1], Xuan Peng[2], Edward Collings[1] and Mike Sumption[1]

[1]The Ohio State University, Columbus, Ohio, US, [2]Hyper Tech Research Incorporated, Columbus, Ohio, US

4MPo1A-03 [M3] **Performance of Polyvinyl formal insulated Cu-Nb/Nb_3Sn wires for React-and-Wind coils**

Masahiro Sugimoto[1], Hirokazu Tsubouchi[1], Kota Katayama[1] and Hitoshi Shimizu[1]

[1]Furukawa Electric Co., Ltd., Nikko, Japan

4MPo1A-04 [M4] **Effect of hydrostatic extrusion on drawing and superconducting property**

Iksang Shin[1], Sinhye Na[1], Dukjae Yoon[2], Eung-zu Kim[2], Amalia Ballarino[3], Bernardo Bordini[3], Simon Hopkins[3] and Jiman Kim[1]

[1]Kiswire Advanced Technology Ltd., Daejeon, Korea (the Republic of), [2]Korea Institute of Industrial Technology, Incheon, Korea (the Republic of), [3]European Organization for Nuclear Research (CERN), Geneva, Switzerland

4MPo1A-05 [M5] **Study on Nb_3Sn superconducting joint by powder metallurgy**

Junsheng Cheng[1], Qinghang Qiu[2], Zili Zhang[1], Wanshuo Sun[1] and Qiuliang Wang[1,3]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China, [2]School of Materials Science and Engineering, Beijing University of Technology, Beijing, China, [3] University of Chinese Academy of Sciences, Beijing, China

4MPo1A-06 [M6] **Effect of post-heat treatment on superconducting properties Nb_3Al wires prepared with RHQ process at different conditions**

Yong Zhao[1,2], Ping Yuan Li[2], Chuan Ke[2], Xifeng Pan[3], Cui Hua Cheng[1,2], Guo Yan[3], Yong Zhang[2] and Yong Feng[3]

[1]Fujian Normal University, Fuzhou, Fujian Province, China, [2]Southwest Jiaotong University, Chengdu, Sichuan, China, [3]Western Superconducting Technologies Company, Ltd, Xi'an, Shaanxi, China

4MPo1A-07 [M7] **Superconducting properties of Nb3Al superconductors prepared by hot-pressed sintering method**

Wenjie Zhang[2], Xiaofeng Zou[2], Zou Yu[1], Xinsheng Yang[1], Xifeng Pan[3], Yong Zhao[1] and Yong Zhang[1,4]

[1]Key Laboratory of Magnetic Levitation Technologies and Maglev Trains, Chengdu, China, [2]School of Materials Science and Engineering, Southwest Jiaotong University, Chengdu, China, [3]Western Superconducting Technoligies Co., Ltd., Xi'an, China, [4] School of Electrical Engineering, Southwest Jiaotong University, Chengdu, China

4MPo1A-08 [M8] **Fabrication of Nb_3Al Superconducting Wires through the Rapid Heating/Quenching in an Open Air**

Akihiro Kikuchi[1], Yasuo Iijima[1], Dai Furukawa[2,1], Kiyosumi Tsuchiya[3] and Tomoaki Takao[2]

[1]National Institute for Materials Science, Tsukuba, Ibaraki, Japan, [2]Sophia University, Tokyo, Japan, [3]High Energy Accelerator Research Organization, Tsukuba, Japan

4MPo1A-09 [M9] **Latest Topics on Nb_3Al Conductor Development at National Institute for Materials Science**

Akihiro Kikuchi[1] and Yasuo Iijima[1]

[1]National Institute for Materials Science, Tsukuba, Ibaraki, Japan

4MPo1B - Coated Conductors VI: Synthesis & Characterization [P III]
Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Matthew Jewell, University of Wisconsin - Eau Claire & James Meen, University of Houston

4MPo1B-01 [M10] **FBG based embedded rosettes strain gauge sensor for high temperature superconductor tapes mechanical characterization.**

Rajinikumar Ramalingam[1] and Rainer Nast[1]

[1]Karlsruhe Institute of Technology, Eggenstein, Germany

4MPo1B-02 [M11] **Research of 220kV Cold Dielectric High Temperature Superconducting Cable Joint**

Wei Pi[1] and Quan Yang[1]

[1]North China Electric Power University, Beijing, China

4MPo1B-03 [M12] **High temperature oxygenation joining of YGdBCO Coated Conductors**

Mingjang Wang[1], Wentao Wang[1,2], Lian Liu[1], Yudong Xia[3], Baolei Huo[1,4], Xue Yang[1,4] and Yong Zhao[1]

[1]Key Laboratory of Magnetic Levitation and Maglev Trains (Ministry of Education of China), School of Electrical Engineering, Southwest Jiaotong University, Chengdu, Sichuan, China, [2]Department of Engineering Science and Mechanics, Pennsylvania State University, University Park, Pennsylvania, US, [3]School of Physical Science and Technology, Southwest Jiaotong University, Chengdu, Sichuan, China, [4]School of Material Science and Engineering, Southwest Jiaotong University, Chengdu, Sichuan, China

4MPo1B-04 [M13] **The study of quench behavior of REBCO cables under different twist pitch and perpendicular magnetic field**

Haiyang Zhang[1]

[1]Key Laboratory of Magnetic Suspension Technology and Maglev Vehicle(Ministry of Education), Superconductivity and New Energy R&D Center, Southwest Jiaotong University, Chengdu, Sichuan, China

4MPo1B-05 [M14] **Shielded Regions in HTS Coated Conductors**

Quan Li[1], Min Yao[1] and Zhenan Jiang[2]

[1]University of Edinburgh, Edinburgh, United Kingdom, [2]Victoria University of Wellington, Wellington, New Zealand

4MPo1B-06 [M15] **Performance Test of a Geometrically Symmetrical Strand Fabricated by 2G Wires at 4.2 K**

Changtao Kan[1] and Yinshun Wang[1]

[1]North China Electric Power University, Beijing, China

4MPo1B-07 [M16] **Comparison of Thermal Stability of Geometrically Symmetrical Strands Made from 2G Wires with Different Metal Sheaths and Fillers at 4.2 K**

Changtao Kan[1] and Yinshun Wang[1]

[1]North China Electric Power University, Beijing, China

4MPo1B-08 [M17] **Repair of locally defective coated conductors by adhering of substrate free thin superconducting patch**

DongWoo Ha[1] and Rock-Kil Ko[1]

[1]Korea Electrotechnology Research Institute, Changwon, Korea (the Republic of)

4MPo1C - Other Properties [P II]
Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Giuseppe Celentano, ENEA Frascati Research Center & Dongliang Wang, Institute of Electrical Engineering, Chinese Academy of Sciences

4MPo1C-01 [M18] **Experimental analysis of quench characteristic in HTS tapes and coils**
Li Ren[1], Ying Xu[1] and Sinian Yan[1]
[1]Huazhong University of Science and Technology, Wuhan, Hubei, China

4MPo1C-02 [M19] **Experimental Study of the Normal Zone Propagation Behavior of a HTS Coil Impregnated with Epoxy Composites Containing Boron Nitride Fillers**
Young Jin Hwang[1], Gaehang Lee[1], Jae Young Jang[1], Myung Su Kim[1] and Yeon Suk Choi[1]
[1]Korea Basic Science Institute, Daejeon, Korea (the Republic of)

4MPo1C-03 [M20] **Growth and characterization of Al doped superconducting magnesium diboride thin films**
Wenura Withanage[1], Kanishka Wijesekara[1] and Xiaoxing Xi[1]
[1]Temple University, Philadelphia, Pennsylvania, US

4MPo1C-04 [M21] **Surface Flashover Characteristics of Interface between PPLP and Epoxy according to Tensile Stress in Cryogenic Environment**
Jin-Yong Na[1], Jae-Hong Koo[1], Mansoor Asif[1], Sun-Jin Kim[1] and Bang-Wook Lee[1]
[1]Hanyang University, Ansan, Korea (the Republic of)

4MPo1C-06 [M22] **Direct Measurement of Modified Interstrand Contact Resistance Values in Coated Conductor Stacks and Roebel Cables**
Christopher Kovacs[1], Mike Sumption[1], Milan Majoros[1] and Edward Collings[1]
[1]The Ohio State University, Columbus, Ohio, US

4MPo1C-07 [M23] **Study and modeling of superconducting tape non-linearity based on hysteresis functions**
Alfredo Álvarez[1], Pilar Suárez[2] and Belén Pérez[1]
[1]Engineering School. University of Extremadura, Badajoz, Spain, [2]Engineering School. University of Extremadura, Badajoz, Badajoz, Spain

4MPo1C-08 [M24] **Enhanced electrical and mechanical performances of soldered joint between copper stabilized REBCO superconducting tapes**
Shudong Zhang[1], Gang Yang[1], Shiwei Xu[1], Zhichen Han[1], Ziming Fan[1], Ping Jiang[1] and Yimin Chen[1]
[1]Northeastern University, Shenyang, China

4MPo1C-09 [M25] **Experimental and Simulation study for Normal Zone Propagation of Multifilament MgB_2 Superconducting Wire Cooled by Liquid Hydrogen**
Taito Matsumoto[1], Yasuyuki Shirai[1], Masahiro Shiotsu[1], Hiroaki Kobayashi[2], Yoshihiro Naruo[2], Yoshihumi Inatani[2], Satoshi Nonaka[2], Hideki Tanaka[3], Motomune Kodama[3] and Takaaki Suzuki[3]
[1]Kyoto University, Sakyo-ku Kyoto-shi, Kyoto, Japan, [2]JAXA, Sagamihara, Japan, [3]Hitachi, Ltd, Hitachinaka, Japan

4MPo1C-10 [M26] **Analysis of Current Distribution of an YBCO Core Cable in Alternating Background Magnetic Field**
Wenjiang Yang[1], Rujing Liu[1] and Dongbin Song[1]
[1]School of Astronautics, Beihang University, Beijing, P.R. China, Beijing, China

4MPo1C-11 [M27] **Equivalent-Circuit Method for Analyzing Shielding Current Density in Axisymmetric HTS Film**
Atsushi Kamitani[1], Teruou Takayama[1], Takazumi Yamaguchi[1] and Ayumu Saitoh[1]
[1]Yamagata University, Yamagata, Japan

4MPo1C-12 [M28] **Overcurrent Characteristics of REBCO Coated Conductor with Different Cu Stabilizer Thickness**

Ping Yang[2], Yawei Wang[1], Zhijian Jin[1] and Zhiyong Hong[1]

[1]Shanghai Jiao Tong University, Shanghai, China, [2]Shanghai Maritime University, Shanghai, Shanghai, China

4MPo1D - MgB_2 Wires and Tapes [P]

Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.

Moderators: Davide Matera, University of Geneva & Dongliang Wang, Institute of Electrical Engineering, Chinese Academy of Sciences

4MPo1D-01 [M29] **Effects of organic matter doping on critical current density of MgB_2 superconductors by coating process**

Sehoon Jang[1], Hyosung Kim[1], Kook-Chae Chung[2] and Duck Young Hwang[1]

[1]KAT, Daejeon, Korea (the Republic of), [2]KIMS, Changwon, Korea (the Republic of)

4MPo1D-02 [M30] **Improved Transport Critical Current Properties in Glycerin-doped MgB_2 Wire using Milled Boron Powder and Solid-state Reaction of 600 °C**

Byung-Hyuk Jun[1] and Chan-Joong Kim[1]

[1]Korea Atomic Energy Research Institute (KAERI), Daejeon, Korea (the Republic of)

4MPo1D-03 [M31] **A new carbon source MgB_2C_2 for the synthesis of carbon-doped MgB_2 materials**

Momoko Sawada[1], Natsumi Takagi[1], Takanori Motoki[1], Jun-ichi Shimoyama[1], Motomune Kodama[2] and Hideki Tanaka[2]

[1]Aoyama Gakuin University, Sagamihara, Kanagawa, Japan, [2]Hitachi, Ltd., Hitachi, Japan

4MPo1D-04 [M32] **Fabrication of dense MgB2 bulks by Magnesium Vapor Transportation (MVT) method**

Yu Sanogawa[1] and Akiyasu Yamamoto[1]

[1]Tokyo University of Agriculture and Technology, Harumi, Japan

4MPo1D-05 [M33] **Control of microstructure of dense MgB_2 bulks prepared by Premix-PICT-Diffusion method**

Natsumi Takagi[1], Momoko Sawada[1], Takanori Motoki[1], Jun-ichi Shimoyama[1], Motomune Kodama[2] and Hideki Tanaka[2]

[1]Aoyama Gakuin University, Sagamihara, Kanagawa, Japan, [2]Hitachi, Ltd., Hitachi, Japan

4MPo1D-06 [M34] **Microstructure and Enhanced Engineering Critical Current Density of Modified, Advanced-Internal-Magnesium-Infiltration (AIMI) MgB_2 Wires**

Fang Wan[1], Mike Sumption[1], Edward Collings[1], Matthew Rindfleisch[2], Cj Thong[2] and Michael Tomsic[2]

[1]The Ohio State University, Columbus, Ohio, US, [2]Hyper Tech Research, Columbus, Ohio, US

4MPo1D-07 [M35] **Study of the heat treatment profiles applied to a multifilamentary MgB_2 superconducting wire**

Lucas Da Silva[1], Rodrigo Souza[1], Alan Vianna[1], Eleazar José Ribeiro[1], Pérsio Pinto[1] and Durval Rodrigues Jr.[1]

[1]Universidade de São Paulo, Lorena, SP, Brazil

4MPo1D-08 [M36] **Comparative study of the continuous and batch thermal processing of MgB_2 wires**

Bartek Glowacki[1,2], Mehmed Kutukcu[2], Serdar Atamert[2], Chris Dhulst[3], Jan Mestdagh[3] and Arend Nijhuis[4]

[1]University of Cambridge, Cambridge, United Kingdom, United Kingdom, [2]Epoch Wires Ltd. Unit 8, Burlington Park, Foxton, Cambridge, CB22 6SA, UK., United Kingdom, [3]NV Bekaert SA, BE 8550 Zwevegem, Belgium, Belgium, [4]University of Twente, 7500AE Enschede, Netherlands

4MPo1D-09 [M37] **MgB_2 wires and bulks with high superconductive performance: manufacturing, structure, properties and application**

Tetiana Prikhna[5], Matthew Rindfleisch[1], Michael Eisterer[2], Michael Tomsic[1], Vitaliy Romaka[3] and Semyon Ponomaryov[4]

[1]Hyper Tech Research, Inc., Columbus, Ohio, US, [2]Atominstitut, TU Wien, Vienna, Austria, [3]Lviv Polytechnic National University, Lviv, Ukraine, [4]Institute of Semiconductor Physics of the National Academy of Sciences of Ukraine, Kiev, Ukraine, [5]Institute for Superhard Materials of the National Academy of Sciences of Ukraine, Kiev, Ukraine

4MPo1D-10 [M38] **Progress on Multi-filament MgB_2 Superconducting Joint for Development of MRI Magnets**

Junsub Kim[1], Young-Gyun Kim[1], Hyun Hee Son[1], Byeongha Yoo[1], Duck Young Hwang[2], Yeon Suk Choi[3] and Haigun Lee[1]

[1]Korea University, Seoul, Korea (the Republic of), [2]Kiswire Advanced Technology Co., Ltd., Daejeon, Korea (the Republic of), [3]Korea Basic Science Institute, Daejeon, Korea (the Republic of)

4MPo1D-11 [M39] **A superconducting joint technique based on MgB_2 sol-gel method**

Wenhao Luo[1], Zigeng Huang[1], Xinwei Cai[1], Qingrong Feng[1] and Furen Wang[1]

[1]Peking of University, Beijing, China

4MPo1D-12 [M40] **Development of Superconducting Joint Technique for Reacted MgB_2 Wires**

Junsub Kim[1], Jong Cheol Kim[1], Young-Gyun Kim[1], Hyun Hee Son[1], Duck Young Hwang[2] and Haigun Lee[1]

[1]Korea University, Seoul, Korea (the Republic of), [2]Kiswire Advanced Technology Co., Ltd., Daejeon, Korea (the Republic of)

4MPo1E - Cuprates and Related Materials [P II]
Exhibit Hall & Poster Sessions; 9:45 a.m. - 11:45 a.m.
Moderators: Ataru Ichinose, CRIEPI & Michael Osofsky, Naval Research Laboratory

4MPo1E-01 [M41] **Effect of $LaMnO_3$ buffer thickness on structural and superconducting properties of REBCO coated conductors**

Ping Jiang[1], Ziming Fan[1], Shudong Zhang[1], Zhichen Han[1], Shiwei Xu[1], Gang Yang[1] and Yimin Chen[1]

[1]Northeastern University, Shenyang, China

4MPo1E-02 [M42] **High Performance Coated Conductors Fabricated by UTOC-MOD Process**

Teruo Izumi[1], Koichi Nakaoka[1], Michio Sato[1], Takato Machi[1], Akira Ibi[1], Ryuji Yoshida[2], Takeharu Kato[2], Masashi Miura[3], Takanobu Kiss[4], Tatsunori Okada[5], Satoshi Awaji[5], Yasuo Takahashi[6], Yuji Aoki[6] and Takayo Hasegawa[6]

[1]National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Ibaraki, Japan, [2]Japan Fine Ceramics Center, Nagoya, Japan, [3]Seikei University, Tokyo, Japan, [4]Kyushu University, Fukuoka, Japan, [5]Tohoku University, Sendai, Japan, [6]SWCC Showa Cable System Co., Ltd., Sagamihara, Japan

4MPo1E-03 [M43] **The influence of $BaZrO_3$ nanoparticles on the in-field critical current density of TFA-MOD $(Y_{0.77}Gd_{0.23})Ba_2Cu_3O_y$ films/CeO_2 buffered R-Al_2O_3 substrates**

Yoshinori Kamada[1], Ryota Oku[1], Keita Sakuma[1] and Masashi Miura[1]

[1]Seikei University, Tokyo, Japan

4MPo1E-04 [M44] **Magnetic properties of YBaCuO superconductor fabricated using melt growth**

Sang Heon Lee[1]

[1]Sunmoon University, Asan, Chung Nam, Korea (the Republic of)

4MPo1E-05 [M45] **Flux pinning properties of columnar defects introduced around ab-plane direction in YBCO thin films**

Tetsuro Sueyoshi[1], Yasuya Iwanaga[1], Takanori Fujiyoshi[1], Ataru Ichinose[3], Yosuke Takai[2], Mitsuhiro Muta[2] and Masashi Mukaida[2]

[1]Kumamoto University, Kumamoto, Japan, [2]Kyushu University, Fukuoka, Japan, [3]CRIEPI, Yokosuka, Japan

4MPo1E-06 [M46] **Comparison of Grain Structure in Multi-filamentary Bi-2212 Round Wires with Different Critical Current Densities**

Temidayo Abiola Oloye[2,1], Maxime Matras[3], Jianyi Jiang[2], Eric Hellstrom[2], David Larbalestier[2] and Fumitake Kametani[2]

[1]Florida State University, Tallahassee, Florida, US, [2]National High Magnetic Field Lab, Tallahassee, Florida, US, [3]European Organization for Nuclear Research, Geneva, Switzerland

4MPo1E-07 [M47] **The fabrication of Bi,Pb-2223 thin films from multi-layered precursor films using sputtering method**

Akiyoshi Matsumoto[1], Hitoshi Kitaguchi[1], Yusuke Shimada[2] and Satoshi Hata[3]

[1]National Institute for Materials Science, Tsukuba, Japan, [2]Tohoku Univ., Sendai, Miyagi, Japan, [3]Kyushu Univ., Kasuga, Fukuoka, Japan

4MPo1E-08 [M48] **The problems in magnetic susceptibility measurements of Bi(Pb)–Sr–Ca–Cu–O superconducting bulk ceramics**

Irina Yurchenko[1], Anatoliy V. Nemirovsky[1], Vitaliy Peklun[1] and Dmitriy Yurchenko[1]

[1]National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute", Kiev, Ukraine

Lunch: 11:45 a.m. - 1:15 p.m.

4EOr2A - Novel Electronics
611-612; 1:15 p.m. - 3:15 p.m.
Moderators: Jia Du, CSIRO & Paul Seidel, Friedrich Schiller University Jena

1:15 p.m. - 1:30 p.m. 4EOr2A-01: **Demonstration of a superconducting memory unit cell using nano-cryotrons to drive nonvolatile magnetic bits**

Graham Rowlands[1], Emily Toomey[2], Minh-Hai Nguyen[1], Marco Colangelo[2], Shengjie Shi[3], Lijun Zhu[3], Guilhem Ribeill[1], Andrew Wagner[1], Leonardo Ranzani[1], Andrew Dane[2], Karl Berggren[2], Robert Buhrman[3] and Thomas Ohki[1]

[1]Raytheon BBN Technologies, Cambridge, Massachusetts, US, [2]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [3]Cornell University, Ithaca, New York, US

1:30 p.m. - 1:45 p.m. 4EOr2A-02: **High Resolution Imaging of Supercurrents with Magnetic Recording Heads**

Stephen Russek[1], Ian Haygood[1], Eric Edwards[1], Michael Schneider[1], Anna Fox[1], Paul Dresselhaus[1], Peter Hopkins[1], William Rippard[1] and Samuel Benz[1]

[1]NIST, Boulder, Colorado, US

1:45 p.m. - 2:00 p.m. 4EOr2A-03: **Superconducting boron doped diamond as a platform for all diamond quantum information technology**

Somnath Bhattacharyya[1] and Christopher Coleman[1]

[1]University of the Witwatersrand, Johannesburg, South Africa

2:00 p.m. - 2:15 p.m. 4EOr2A-04: **Optical pulse-drive and on-chip power splitter for the pulse-driven AC Josephson voltage standard**

Oliver Kieler[1], B. Karlsen[2], P. Ohlckers[3], E. Bardalen[3], M. Nadeem Akram[3], Ralf Behr[1], H. Tian[1], J. Ireland[4], J. Williams[4], H. Malmbekk[2], Marco Schubert[5], Katja Peiselt[5,6], Luis Palafox[1] and Ruediger Wendisch[1]

[1]PTB Germany, Braunschweig, Germany, [2]Justervesenet, Kjeller, Norway, [3]University of Southeast Norway, Horten, Norway, [4]National Physical Laboratory, Teddington, United Kingdom, [5]Leibniz-Institut für Photonische Technologien, Jena, Germany, [6]Supracon AG, Jena, Germany

2:15 p.m. - 2:30 p.m. 4EOr2A-05: **DS-Josephson junctions and pi-loops**

Michael Faley[1], P. Reith[2], Vasily Stolyarov[3], I.A. Golovchanskiy[3], A.A. Golubov[2,3], H. Hilgenkamp[2] and Rafal Dunin-Borkovski[1,4]

[1]Forschungszentrum Juelich GmbH, Juelich, Germany, [2]University of Twente, Enschede, Netherlands, [3]The Moscow Institute of Physics and Technology, Dolgoprudny, Moscow Region, Russian Federation, [4]Forschungszentrum Jülich, Jülich, Germany

2:30 p.m. - 2:45 p.m. 4EOr2A-06: **Superconducting Quantum Sensors for Light Dark Matter Detection Below 300 MHz**

Stephen Kuenstner[2], Saptarshi Chaudhuri[2], Hsiao-Mei Cho[1], Kent Irwin[2,1], Dale Li[1] and Arran Phipps[2]

[1]SLAC National Accelerator Laboratory, Menlo Park, California, US, [2]Stanford University, Stanford, California, US

2:45 p.m. - 3:00 p.m. 4EOr2A-07: **The Dark Matter Radio: First Measurements with a Superconducting Resonant Light-Field Dark Matter Detector Using SQUID Readout**

Saptarshi Chaudhuri[1], Hsiao-Mei Cho[2], Carl Dawson[1], Peter Graham[1], Kent Irwin[1,2], Stephen Kuenstner[1], Dale Li[2], Arran Phipps[1] and Surjeet Rajendran[3]

[1]Stanford University, Palo Alto, California, US, [2]SLAC National Accelerator Laboratory, Menlo Park, California, US, [3]University of California, Berkeley, Berkeley, California, US

3:00 p.m. - 3:15 p.m. 4EOr2A-08: **High-Transition-Temperature Josephson Junctions in NIST Quantum Voltage Devices**

Adam Weis[1,2], Nathan Flowers-Jacobs[1], Shane Cybart[3], Horst Rogalla[1,4] and Samuel Benz[1]

[1]National Institute of Standards and Technology, Boulder, Colorado, US, [2]University of Colorado Boulder, Boulder, Colorado, US, [3]University of California Riverside, Riverside, California, US, [4]University of Colorado Boulder, Boulder, Colorado, US

4EOr2B - Digital EDA Tools
606-607; 1:15 p.m. - 3:15 p.m.
Moderators: Deepnarayan Gupta, HYPRES, Inc. & Peter Hopkins, NIST

1:15 p.m. - 1:45 p.m. 4EOr2B-01: **[Invited] A State of the Union of Design Tools, Physical IP Libraries, and Flows for the Implementation of Superconducting Electronic Circuits**

Jamil Kawa[1], Kishore Singhal[1], Deepnarayan Gupta[2], Amol Inamdar[2], Robert Freeman[1] and Antun Domic[1]

[1]Synopsys, Inc, Mountain View, California, US, [2]HYPRES, Inc, Elmsford, New York, US

1:45 p.m. - 2:15 p.m. 4EOr2B-02: **[Invited] ColdFlux Superconducting EDA and TCAD Tools Project: Overview and Progress**

Coenrad Fourie[2], Matthys Botha[2], Pascal Febvre[4], Christopher Ayala[3], Qiuyun Xu[3], Nobuyuki Yoshikawa[3], Erin Patrick[5], Mark Law[5], Yanzhi Wang[6], Murali Annavaram[1], Peter Beerel[1], Sandeep Gupta[1], Shahin Nazarian[1] and Massoud Pedram[1]

[1]Univ of Southern California, Los Angeles, California, US, [2]Stellenbosch University, Stellenbosch, South Africa, [3]Yokohama National University, Yokohama, Japan, [4]Université Savoie Mont Blanc, Chambéry, France, [5]University of Florida, Gainsville, Florida, US, [6]Syracuse University, Syracuse, New York, US

2:15 p.m. - 2:30 p.m. 4EOr2B-03: **Timing Characterization for RSFQ/ERSFQ Library Cells**

Denis Amparo[1], Mustafa Çelik[1] and Amol Inamdar[1]

[1]Hypres, Inc., Elmsford, New York, US

2:30 p.m. - 2:45 p.m. 4EOr2B-04: **Software tools for flux trapping and magnetic field analysis in superconducting circuits**

Kyle Jackman[1] and Coenrad Fourie[1]

[1]Stellenbosch University, Stellenbosch, South Africa

2:45 p.m. - 3:00 p.m. 4EOr2B-05: **Fabrication of Adiabatic Quantum-Flux-Parametron Integrated Circuits Using an Automatic Placement Tool Based on Genetic Algorithms**

Tomoyuki Tanaka[2], Christopher Ayala[1], Qiuyun Xu[1], Ro Saito[3] and Nobuyuki Yoshikawa[2]

[1]Yokohama National University, Yokohama, Japan, [2]Yokohama National University, Yokohama, Japan, [3]Yokohama National University, Yokohama, Japan

3:00 p.m. - 3:15 p.m. 4EOr2B-06: **JoSIM – Superconductor SPICE Simulator**

Johannes Delport[1], Kyle Jackman[1], Paul Le Roux[1] and Coenrad Fourie[1]

[1]Stellenbosch University, Stellenbosch, Western Cape, South Africa

4EOr2C - Special Session: Quantum Computing, Information, and Engineering – sponsored by Northrop Grumman

6B; 1:15 p.m. - 3:15 p.m.
Moderators: Micah Stoutimore, Northrop Grumman & Elie Track, IEEE CSC

1:15 p.m. - 1:39 p.m. 4EOr2C-01: **[Invited] Superconducting quantum computing research in Japan**
Yasunobu Nakamura[1,2]
[1]The University of Tokyo, Tokyo, Japan, [2]RIKEN Center for Emergent Matter Science, Wako, Japan

1:39 p.m. - 2:03 p.m. 4EOr2C-02: **[Invited] Superconducting Quantum Computing in China**
Xiaobo Zhu[1]
[1]USTC Shanghai Institute for Advanced Studies, Shanghai, China

2:03 p.m. - 2:27 p.m. 4EOr2C-03: **[Invited] Quantum annealing: current status and future directions**
Richard Harris[1]
[1]D-Wave, Burnaby, British Columbia, Canada

2:27 p.m. - 2:51 p.m. 4EOr2C-04: **[Invited] Quantum Technologies in Europe – The quantum flagship initiative**
Thomas Ortlepp[1,2]
[1]CiS Research Institute for Microsensor Systems GmbH, Erfurt, Germany, [2]Yokohama National University, Yokohama, Japan

2:51 p.m. - 3:15 p.m. 4EOr2C-05: **[Invited] Applications of Quantum Computing, Engineering, and Information**
Moe Khalil[1]
[1]Northrop Grumman Mission Systems, Linthicum Heights, Maryland, US

4LOr2A - Very High Field Magnets

6C; 1:15 p.m. - 3:15 p.m.
Moderators: Xavier Chaud, LNCMI - CNRS/UGA/EMFL & Gen Nishijima, National Institute for Materials Science

1:15 p.m. - 1:45 p.m. 4LOr2A-01: **[Invited] Performance of the NHMFL 32 T superconducting magnet**
Hubertus Weijers[1], Patrick Noyes[1], William Sheppard[1] and Eric Stiers[2]
[1]NHMFL/ FSU, Tallahassee, Florida, US, [2]NHMFL/FSU, Tallahassee, Florida, US

1:45 p.m. - 2:00 p.m. 4LOr2A-02: **Test results of the 36 T, 1ppm series-connected hybrid magnet system at the NHMFL**
Mark Bird[1], Hongyu Bai[1], Iain Dixon[1] and Andrey Gavrilin[1]
[1]NHMFL-FSU, Tallahassee, Florida, US

2:00 p.m. - 2:15 p.m. 4LOr2A-03: **Progress with Bi-2212 insert coils for high field 25 Tesla superconducting research magnets**
Ziad Melhem[2], Joachim Wosnitza[1], Thomas Herrmannsdoerfer[1], Steven Ball[2], David Warren[2], Sergei Zherlitsyn[1], Yibing Huang[3] and Andrew Twin[2]
[1]Helmholtz-Zentrum Dresden-Rossendorf e.V., , Dresden, Germany, [2]Oxford Instruments NanoScience, Abingdon, United Kingdom, [3]Bruker-OST (Bruker EST Group), Carteret, New Jersey, US

2:15 p.m. - 2:30 p.m. 4LOr2A-04: **Bi-2212 coil R&D for high field magnet applications**
Ulf Trociewitz[1], Ernesto Bosque[1], Youngjae Kim[1], Kwangmin Kim[1], Kwang Lok Kim[1], Daniel Davis[1], Charles English[1], Jianyi Jiang[1], Eric Hellstrom[1,2], Michael Brown[1], Imam Hossain[1], Yavuz Oz[1], George Miller[1], James Gillman[1], Jun Lu[1], Jeremy Levitan[1], William Brey[1], Ilya Litvak[1] and David Larbalestier[1,2]
[1]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [2]Florida State University, Tallahassee, Florida, US

2:30 p.m. - 2:45 p.m. 4LOr2A-05: **Simulation of local transition phenomena in the Rare-EarthBaCuO insert of a 25 T cryogen-free superconducting magnet: Understanding and Preventing destructive quench behavior.**
Arnaud Badel[1], Blandine Rozier[3], Tara Benkel[2] and Satoshi Awaji[1]
[1]Tohoku University, Sendai, Japan, [2]University Grenoble Alpes, Grenoble, France, [3]University Grenoble Alpes, Grenoble, France

2:45 p.m. - 3:00 p.m. 4LOr2A-06: **25 T, 100 mm Bore HTS Solenoid for Axion Dark Matter Search**

Ramesh Gupta[1], Michael Anerella[1], John Cozzolino[1], Piyush Joshi[1], Shresht Joshi[1], Jesse Schmalzle[1], William Sampson[1], Honghai Song[1], Peter Wanderer[1], Yannis Semertzidis[2,3], Woohyun Chung[2], D. L. Kim[2], Jingeun Kim[2], Byeong Ko[2] and Jonghee Yoo[2,3]

[1]BNL, Upton, New York, US, [2]Institute for Basic Science, Daejeon, Korea (the Republic of), [3]KAIST, Daejeon, Korea (the Republic of)

3:00 p.m. - 3:15 p.m. 4LOr2A-07: **Effect of hoop stress reduction by reinforced structure based on "Yoroi-coil" concept in a 50T class superconducting magnet**

Daisuke Miyagi[1], Masahiro Kato[1], Makoto Tsuda[1] and Satoshi Awaji[1]

[1]Tohoku University, Sendai, Japan

4LOr2B - Magnet Stability, Magnetization Effects, AC Losses and Quenches II
602-604; 1:15 p.m. - 3:15 p.m.
Moderators: Emmanuele Ravaioli, CERN & Honghai Song, Brookhaven National Laboratory

1:15 p.m. - 1:45 p.m. 4LOr2B-01: **[Invited] Electromagnetic, Thermal, and Mechanical Quench-Protection Simulation of NI Pancake Coils for High Magnetic Field Generation**

So Noguchi[1,2], Ryosuke Miyao[1], Hyakuichi Tachiki[1] and Hajime Igarashi[1]

[1]Hokkaido University, Sapporo, Japan, [2]Massachusetts Institute of Technology, Cambridge, Massachusetts, US

1:45 p.m. - 2:00 p.m. 4LOr2B-02: **Magnetization and Flux Penetration of YBCO Cable Segments and their contributions to Field Error in several Accelerator Magnet designs**

Mike Sumption[1], Cory Myers[1], Xiaorong Wang[2] and Edward Collings[1]

[1]The Ohio State University, Columbus, Ohio, US, [2]LBNL, Berkeley, California, US

2:00 p.m. - 2:15 p.m. 4LOr2B-03: **Mechanisms to improve stability and recovery time in non-insulated REBCO magnets: second quench at 4.2 K and global inductive quench propagation in multi-coil**

Wan Kan Chan[1] and Justin Schwartz[2]

[1]North Carolina State University, Raleigh, North Carolina, US, [2]Pennsylvania State University, University Park, Pennsylvania, US

2:15 p.m. - 2:30 p.m. 4LOr2B-04: **Quench in YBCO Pancake Coils (4 K, 10 T) with Intermediate and Spatially Varying Contact Resistance Values**

Milan Majoros[1], Christopher Kovacs[1], Mike Sumption[1] and Edward Collings[1]

[1]The Ohio State University, Columbus, Ohio, US

2:30 p.m. - 2:45 p.m. 4LOr2B-05: **Stability with respect to local critical current degradation in HTS pancake coil wound with insulated conductor composed of non-insulated multiple tape wires**

Daisuke Miyagi[1], Tsubasa Nishioka[1], Makoto Tsuda[1], Tomoaki Takao[2] and Osami Tsukamoto[2]

[1]Tohoku University, Sendai, Japan, [2]Sophia University, Tokyo, Japan

2:45 p.m. - 3:00 p.m. 4LOr2B-06: **Dynamic resistance measurement in a four-tape YBCO stack under magnetic fields with various orientations**

Zhenan Jiang[1], Yanchao Liu[2,1], Quan Li[3], Chris Bumby[1], Rodney Badcock[1,2] and Jin Fang[2]

[1]Victoria University of Wellington, Lower Hutt, New Zealand, [2]Beijing Jiaotong University , Beijing, China, [3]University of Edinburgh, Edinburgh, United Kingdom

3:00 p.m. - 3:15 p.m. 4LOr2B-07: **Quench detection in CCT coils via Rayleigh backscattering Interrogated Optical Fibers (RIOF)**

Federico Scurti[1,2], Sasha Ishmael[3], Jeremy Weiss[5], Danko van der Laan[5], Xiaorong Wang[4], Soren Prestemon[4] and Justin Schwartz[2,3]

[1]NC State University, State College, Pennsylvania, US, [2]Pennsylvania State University, University Park, Pennsylvania, US, [3]Lupine Materials and Technology, Mebane, North Carolina, US, [4]Lawrence Berkeley National Laboratory, Berkeley, California, US, [5]Advanced Conductor Technologies, Boulder, Colorado, US

4LOr2C - Cables (HTS, LTS), CICC and Current Leads
6A; 1:15 p.m. - 3:15 p.m.
Moderators: Pierluigi Bruzzone, EPFL-CRPP & Iain Dixon, National High Magnetic Field Laboratory

1:15 p.m. - 1:30 p.m. 4LOr2C-01: **Comparative reevaluation of Nb_3Sn CICC performance between CICC designs from the recent past decade**
Soun Kwon[1]
[1]National Fusion Research Institute, Daejeon, Korea (the Republic of)

1:30 p.m. - 1:45 p.m. 4LOr2C-02: **Demonstration of Two 80kA@12T/4.2K Six-Around-One ReBCO-CORC Cable-In-Conduit Conductors aimed for Detector and Fusion Magnets**
Tim Mulder[1,2], Jeremy Weiss[3], Alexey Dudarev[1], Danko van der Laan[3], Marc M. J. Dhalle[2] and Herman ten Kate[1]
[1]CERN, Geneva, Switzerland, [2]University of Twente, Enschede, Netherlands, [3]Advanced Conductor Technologies, Boulder, Colorado, US

1:45 p.m. - 2:00 p.m. 4LOr2C-03: **Design, manufacture and test of 20 kA binary current leads for the HFML 45 T hybrid magnet.**
Andries den Ouden[1], Matthias Hoffmann[1], Chris Wulffers[1], Gideon Laureijs[1], Frans Wijnen[1], Jos Perenboom[1], William Marshall[2], Iain Dixon[2], Mark Bird[2] and Nigel Hussey[1]
[1]Radboud University, Nijmegen, Netherlands, [2]National High Magnetic Field Laboratory, Tallahassee, Florida, US

2:00 p.m. - 2:15 p.m. 4LOr2C-04: **Rutherford cable made with Sumitomo Type NX 1G tape**
Alex Otto[1], Gerry Pothier III[1], Julio Colque[1] and Linda Saraco[1]
[1]Solid Material Solutions, LLC, N. Chelmsford, Massachusetts, US

2:15 p.m. - 2:30 p.m. 4LOr2C-05: **Assessment of current-sharing of fully-excited Roebel cable with modified ICR at 4.2 K using a superconducting transformer**
Christopher Kovacs[1], Mike Sumption[1], Emanuela Barzi[2], Alexander Zlobin[2] and Milan Majoros[1]
[1]The Ohio State University, Columbus, Ohio, US, [2]Fermilab National Accelerator Laboratory, Batavia, Illinois, US

2:30 p.m. - 2:45 p.m. 4LOr2C-06: **Development of HTS Cable-In-Conduit Conductor with Al-Slotted Core for Fusion Applications**
Giuseppe Celentano[1], Angelo Vannozzi[1], Gianluca De Marzi[1], Alessandro Anemona[1], Aldo Di Zenobio[1], Luigi Muzzi[1], Giordano Tomassetti[1] and Antonio della Corte[1]
[1]ENEA Frascati Research Center, Frascati, Italy

2:45 p.m. - 3:15 p.m. 4LOr2C-07: **[Invited] First large-scale industrialization of high-current MgB_2 cables for the HL-LHC Superconducting Link Project at CERN.**
Amalia Ballarino[1], Konstantina Konstantopoulou[1], Simon Hopkins[1], Patrick Retz[1], Luigi Muzzi[2], Antonio della Corte[2], Albano Bragagni[3], Massimo Seri[3] and Julien Hurte[1]
[1]CERN, Geneva, Switzerland, [2]ENEA, Rome, Italy, [3]TRATOS, Pieve Santo Stefano, Italy

4MOr2A - Coated Conductors VII: Novel Approaches
608-609; 1:15 p.m. - 3:15 p.m.
Moderators: Yasuhiro Iijima, Fujikura Ltd. & Venkat Selvamanickam, University of Houston

1:15 p.m. - 1:30 p.m. 4MOr2A-01: **Improved quench robustness of CC tapes for FCL due to increased thermal capacity**
Fedor Gömöry[1], Michal Vojenčiak[1], Marek Mosat[1], Enric Pardo[1], Marek Buran[1], Marcela Pekarcikova[2], Eva Cuninkova[2], Jozef Misik[2], Markus Bauer[3], Christian Lacroix[4] and Frederic Sirois[4]
[1]Institute of Electrical Engineering, Slovak Academy of Sciences, Bratislava, Slovakia, [2]Slovak University of Technology in Bratislava, Trnava, Slovakia, [3]Theva Dunnschichttechik GmbH, Ismaning, Germany, [4]Polytechnique Montreal, Montreal, Quebec, Canada

1:30 p.m. - 1:45 p.m. 4MOr2A-02: **Inkjet printing chemical-derived patterns on coated conductors as Current Flow Diverter approach for fault current limitation**

Marta Vilardell[2], Xavier Palmer[2], Valentina Roxana Vlad[2], Pedro Barusco[1], Xavier Granados[1], Teresa Puig[1], Xavier Obradors[1], Christian Lacroix[4], Frederic Sirois[4], Veit Grosse[3], Eike Janocha[3], Markus Bauer[3] and Albert Calleja[2]

[1]ICMAB-CSIC, Cerdanyola del Vallès, Barcelona, Spain, [2]OXOLUTIA SL, Barberá del Valès, Barcelona, Spain, [3]THEVA Dünnschichttechnik GmbH, Ismaning, Munich, Germany, [4]Université de Montréal, Montreal, Quebec, Canada

1:45 p.m. - 2:00 p.m. 4MOr2A-03: **Current transport properties in face-to-face double stacked narrow REBCO coated conductors under the influence of local I_c variation**

Takanobu Kiss[1], Yuhei Nishimiya[1], Kohei Higashikawa[1], Takumi Suzuki[1], Masayoshi Inoue[1], Valery Petrykin[3], Sergey Lee[3], Kenji Suzuki[2], Masaru Tomita[2], Akira Ibi[4], Takato Machi[4] and Teruo Izumi[4]

[1]Kyushu University, Fukuoka, Fukuoka, Japan, [2]Railway Technical Research Institute, Kokubunji, Tokyo, Japan, [3]SuperOx Japan, Sagamihara, Kanagawa, Japan, [4]National Institute of Advanced Industrial Science and Technology, Tsukiba, Ibaraki, Japan

2:00 p.m. - 2:15 p.m. 4MOr2A-04: **Symmetric Tape Round (STAR) REBCO wire with high engineering current densities at 4.2 K in magnetic fields up to 31.2 T**

Wenbo Luo[1], Soumen Kar[1,2], Xiao-Fen Li[1,3], Mehdi Kochat[1], Jan Jaroszynski[4] and Dmytro Abraimov[4]

[1]University of Houston, Houston, Texas, US, [2]AMPeers LLC, Houston, Texas, US, [3]Shanghai Jiao Tong University, Shanghai, China, [4]National High Magnet Field Laboratory, Tallahassee, Florida, US

2:15 p.m. - 2:30 p.m. 4MOr2A-05: **Multifilamentary coated conductors for high magnetic field applications produced using pulsed laser deposition on two level undercut-profile substrates**

Anders Wulff[1], Andrea Insinga[1], Alexander Usoskin[2], Ulrich Betz[2], Alexander Rutt[2], Jesper Lundeman[3], Mykola Solovyov[4], Fedor Gömöry[4], Karl Thydén[1] and Asger Abrahamsen[5]

[1]Technical University of Denmark, Roskilde, Denmark, [2]Bruker HTS GmbH (Bruker EST Group), Alzenau, Germany, [3]SUBRA Substrates A/S, Farum, Denmark, [4]Slovak Academy of Sciences, Bratislava, Slovakia, [5]Technical University of Denmark, Roskilde, Denmark

2:30 p.m. - 2:45 p.m. 4MOr2A-06: **Progress in manufacturing of long length HTS coated conductors for ultra high field applications**

Ulrich Betz[1], Alexander Usoskin[1], Johannes Gnilsen[1,2], Sonja Noll-Baumann[1], Alexander Rutt[1] and Klaus Schlenga[1]

[1]Bruker HTS GmbH (Bruker EST Group), Alzenau, Germany, [2]TU-Wien, Vienna, Austria

2:45 p.m. - 3:00 p.m. 4MOr2A-07: **Challenge and Advance in Long-length REBaCuO Coated Conductors Derived by Reel-to-Reel Metallorganic Solution and Ion-beam Assisted Depositions**

Chuanbing Cai[1,2]

[1]Shanghai University, Shanghai, China, [2]Shanghai Creative Superconductor Technologies Co. Ltd., Shanghai, China

3:00 p.m. - 3:15 p.m. 4MOr2A-08: **Growth of high-performance thick film REBCO tapes by Advanced MOCVD**

Rudra Pratap[1], Chakradhar Sanku[1], Girupaakaran Mohansundaram[1], Mehdi Kochat[1], Eduard Galstyan[1], Siwei Chen[1], Vasish Narayan Mohan[1], Jain Rohit[1], Goran Majkic[1] and Venkat Selvamanickam[1]

[1]University of houston, Houston, Texas, US

4MOr2B - Critical Current and Flux Pinning IV
615-617; 1:15 p.m. - 3:15 p.m.
Moderators: Andrea Augieri, ENEA & Sangeeta Santra, University of Oxford

1:15 p.m. - 1:30 p.m. 4MOr2B-01: **Tailored design of vortex behavior and its visualization with high-speed magneto-optical video**

Alexey Pan[1], Antony Jones[1], Frederick Wells[1] and Sergey Fedoseev[1]

[1]University of Wollongong, Wollongong, New South Wales, Australia

1:30 p.m. - 1:45 p.m. 4MOr2B-02: **Surface impedance measurements on Nb_3Sn at high magnetic fields**

Andrea Alimenti[1], Nicola Pompeo[1], Kostiantyn Torokhtii[1], Tiziana Spina[2], René Flukiger[2], Luigi Muzzi[3] and Enrico Silva[1]

[1]Roma Tre University, Roma, Italy, [2]European Organization for Nuclear Research (CERN), Genève, Switzerland, [3]Italian National Agency for New Technologies Energy and Sustainable Economic Development (ENEA), Frascati, Italy

1:45 p.m. - 2:00 p.m. 4MOr2B-03: **Measurements of microwave vortex response in dc magnetic fields in $Tl_2Ba_2CaCu_2O_{8+x}$ films**

Enrico Silva[1], Henrik Schneidewind[2] and Nicola Pompeo[1]

[1]Università Roma Tre, Rome, Italy, [2]Leibniz Institute of photonic technology (IPHT), Jena, Germany

2:00 p.m. - 2:15 p.m. 4MOr2B-04: **Atomic scale design of YBCO nanocomposite films for improving T_c and f_p factors in J_c**

Tomoya Horide[1], Fumitake Kametani[2] and Kaname Matsumoto[1]

[1]Kyushu Institute of Technology, Kitakyushu city, Japan, [2]National High Magnetic Field Laboratory, Florida State University, Tallahassee, Florida, US

2:15 p.m. - 2:30 p.m. 4MOr2B-05: **Using ultrafast liquid assisted growth and preformed nanoparticles to boost the pinning performance of low-cost CSD YBa2Cu3O7-δ thin films**

Juri Banchewski[1], Laia Soler[1], Júlia Jareño[1], Roger Guzman[1], Silvia Rasi[2], Jordi Farjas[2], Pere Roura[2], Susagna Ricart[1], Cristian Mocuta[3], Xavier Obradors[1] and Teresa Puig[1]

[1]Institut de Ciència de Materials de Barcelona ICMAB-CSIC, Barcelona, Spain, [2]University of Girona, Girona, Spain, [3]Synchrotron SOLEIL, Saint Aubin, France

2:30 p.m. - 2:45 p.m. 4MOr2B-06: **Field cooled magnetization process in RE-Ba-Cu-O superconducting bulks under high magnetic field up to 21 Tesla**

Tomoyuki Naito[1], Yuhei Takahashi[1], Hiroyuki Fujishiro[1] and Satoshi Awaji[2]

[1]Iwate University, Morioka, Iwate, Japan, [2]Tohoku University, Sendai, Japan

2:45 p.m. - 3:00 p.m. 4MOr2B-07: **Recent progress in GdBCO coated conductors via the REC-DR process**

Sang-Im Yoo[1,2]

[1]Seoul National University, Seoul, Korea (the Republic of), [2]Seoul National University, Seoul, Korea (the Republic of)

3:00 p.m. - 3:15 p.m. 4MOr2B-08: **High performance IG processed bulk YBCO produced with sharp-edge Y211 precipitates**

Muralidhar Miryala[1], S Pavan Kumar Naik[1], Milos Jirsa[2] and Masato Murakami[1]

[1]Shibaura Institute of Technology, Tokyo, Japan, [2]Czech Academy of Sciences, Praha, Czechia

4EOr3A - Microwave Devices and Components
611-612; 3:30 p.m. - 5:00 p.m.
Moderators: Shigetoshi Ohshima, Yamagata University & Ting Zhang, University of Technology Sydney

3:30 p.m. - 3:45 p.m. 4EOr3A-01: **Tunable Broadband Radiation Generated Via Ultrafast Laser Illumination of an Inductively Charged Superconducting Ring**

Thomas Bullard[1,2], John Bulmer[5], John Murphy[4,2], Manuel Ferdinandus[3] and Timothy Haugan[2]

[1]UES Inc., Wright Patterson AFB, Ohio, US, [2]U.S. Air Force Research Laboratory, AFRL/RQQM, Wright Patterson AFB, Ohio, US, [3]Air Force Institute of Technology, IN/ENP, Wright Patterson AFB, Ohio, US, [4]University of Dayton Research Institute, Wright Patterson AFB, Ohio, US, [5]University of Cambridge, Cambridge, United Kingdom

3:45 p.m. - 4:00 p.m. 4EOr3A-02: **Low-Loss Frequency Tuning and Impedance Matching and Decoupling Circuitry for HTS Based rf MRI Coils and Arrays**

Jarek Wosik[1,2], Kurt Bockhorst[3] and Ponnada Narayana[3]

[1]University of Houston, Houston, Texas, US, [2]University of Houston, Houston, Texas, US, [3]University of Texas, Health Science Center, Houston, Texas, US

4:00 p.m. - 4:15 p.m. 4EOr3A-03: **Optoelectronic oscillator locked to a high-Q SRF cavity.**

Nabin Raut[1], Jeff Miller[1], Alessandro Castelli[1], Jacob Pate[1] and Jay Sharping[1]

[1]University of California, Merced, Merced, California, US

4:15 p.m. - 4:30 p.m. 4EOr3A-04: **Zero-bias HTS Josephson terahertz harmonic mixer**

Jia Du[1], Colin Pegrum[2], Xiang Gao[1], Ting Zhang[3,1] and Jay Guo[3]

[1]CSIRO, Lindfield, New South Wales, Australia, [2]University of Strathclyde, Glasgow, United Kingdom, [3]University of Technology Sydney, Sydney, New South Wales, Australia

4:30 p.m. - 4:45 p.m. 4EOr3A-05: **Superconducting Nanowire Microwave Switch**

Andrew Wagner[1], Leonardo Ranzani[1], Guilhem Ribeill[1] and Thomas Ohki[1]

[1]Raytheon BBN Technologies, Cambridge, Massachusetts, US

4:45 p.m. - 5:00 p.m. 4EOr3A-06: **High-T_c superconducting terahertz emitters with tunable emission frequency ranging from 0.1 to 2.0 THz**

Hancong Sun[1], Xianjing Zhou[1], Jun Li[1], Zaidong Qi[1], Huili Zhang[1], Ya Huang[1], Reinhold Kleiner[2], Huabing Wang[1] and Peiheng Wu[1]

[1]Nanjing University, Nanjing, China, [2]Universit at T ubingen, T ubingen, Germany

4EOr3B - Advanced Fabrication
606-607; 3:30 p.m. - 5:00 p.m.
Moderators: Shane Cybart, UC Riverside & Alex Wynn, MIT Lincoln Laboratory

3:30 p.m. - 3:45 p.m. 4EOr3B-01: **A Comparative Study of Spin-Valve Devices with Diluted and Undiluted Permalloy Free Layers Integrated with Superconducting Electrodes for Cryogenic Applications**

Laura Rehm[1], Volker Sluka[1], Christian Hahn[1], Graham Rowlands[2], Thomas Ohki[2] and Andrew Kent[1]

[1]New York University, New York, New York, US, [2]Raytheon BBN Technologies, Cambridge, Massachusetts, US

3:45 p.m. - 4:00 p.m. 4EOr3B-02: **Integration of SIS Josephson junctions and SFS Josephson π-junctions in a fully planarized, multilayered fabrication process for superconductor electronics**

Sergey Tolpygo[1], Vladimir Bolkhovsky[1], Ravi Rastogi[1], Scott Zarr[1], Alexandra Day[1], Evan Golden[1], Terence Weir[1], Alex Wynn[1] and Leonard Johnson[1]

[1]Massachusetts Institute of Technology, Lexington, Massachusetts, US

4:00 p.m. - 4:15 p.m. 4EOr3B-03: **Fabrication and properties of Josephson junction cantilevers for microwave applications**

Denis Kajevic[1], Michael Martens[1], Benedikt Hampel[1], Marco Tollkühn[1], Ilya Elenskiy[1] and Meinhard Schilling[1]

[1]TU Braunschweig, Braunschweig, Lower Saxony, Germany

4:15 p.m. - 4:30 p.m. 4EOr3B-04: **Ultra-thin multilayer Y-Ba-Cu-O heterostructures grown by reactive co-evaporation**

Yan-Ting Wang[2], Stephen McCoy[2], Ji Wang[2], Hao Li[2], Ethan Cho[2], Robert Semerad[1] and Shane Cybart[2]

[1]Ceraco ceramic coating GmbH, Ismaning, Germany, [2]University of California, Riverside, Riverside, California, US

4:30 p.m. - 4:45 p.m. 4EOr3B-05: **Scalable, tunable Josephson junctions and dc SQUIDs based on CVD graphene**

Tianyi Li[1,2], John Gallop[2], Ling Hao[2] and Edward Romans[1]

[1]University College London, London, United Kingdom, [2]National Physical Laboratory , Teddington, United Kingdom

4:45 p.m. - 5:00 p.m. 4EOr3B-06: **Josephson junctions based on black phosphorus**

Wei Chen[1], Zuyu Xu[1], Yangyang Lv[1], Wanghao Tian[1], Xianjing Zhou[1], Jun Li[1], Huabing Wang[1] and Peiheng Wu[1]

[1]Nanjing University, Nanjing, China

4EOr3C - Novel Digital Architectures
602-604; 3:30 p.m. - 5:00 p.m.
Moderators: Anna Herr, Northrop Grumman & Deborah Van Vechten, Office of Naval Research

3:30 p.m. - 3:45 p.m. *student paper contestant* 4EOr3C-01: **Design and demonstration of reversible full adders using adiabatic quantum flux parametron logic**

Taiki Yamae[1], Naoki Takeuchi[2,3], Yuki Yamanashi[1,2] and Nobuyuki Yoshikawa[1,2]

[1]Yokohama National University, Yokohama, Japan, [2]Yokohama National University, Yokohama, Japan, [3]PRESTO, Japan Science and Technology Agency, Saitama, Japan

3:45 p.m. - 4:00 p.m. 4EOr3C-02: **Clockless Dynamic SFQ (DSFQ) AND Gate with High Input Skew Tolerance**

Sergey Rylov[1]

[1]IBM T.J. Watson Research Center, Yorktown Heights, New York, US

4:00 p.m. - 4:15 p.m. 4EOr3C-03: **Design and demonstration of an SFQ-based full-component single-chip FFT processor**

Fei Ke[1], Yuki Yamanashi[1] and Nobuyuki Yoshikawa[1]

[1]Yokohama National University, Yokohama, Japan

4:15 p.m. - 4:30 p.m. 4EOr3C-04: **Design and implementation of an extremely energy-efficient deep learning accelerator using superconducting logic**

Qiuyun Xu[1], Yanzhi Wang[2], Xiaolong Ma[2], Naoki Takeuchi[1,3] and Nobuyuki Yoshikawa[1]

[1]Yokohama National University, Yokohama, Japan, [2]Northeastern University, Boston, Massachusetts, US, [3]Japan Science and Technology Agency, Yokohama, Japan

4:30 p.m. - 4:45 p.m. 4EOr3C-05: **A Superconducting Single Instruction Multiple Data Processor Design**

Paul Tschirhart[1] and Brian Konigsburg[1]

[1]Northrop Grumman, Linthicum Heights, Maryland, US

4:45 p.m. - 5:00 p.m. 4EOr3C-06: **Low-power half single flux quantum circuits based on π-shifted Josephson junctions**

Tomohiro Kamiya[1], Yuto Takeshita[1], Kyosuke Sano[1], Masamitsu Tanaka[1], Taro Yamashita[1,2] and Akira Fujimaki[1]

[1]Nagoya University, Furocho, Chikusaku, Nagoya, Aichi, Japan, [2]JST-PRESTO, 4-1-8 Honcho, Kawaguchi, Saitama, Japan

4LOr3A - Nb_3Sn HL-LHC Magnets
6B; 3:30 p.m. - 5:00 p.m.
Moderators: Toru Ogitsu, KEK & Etienne Rochepault, CEA Paris-Saclay

3:30 p.m. - 4:00 p.m. 4LOr3A-01: **[Invited] The HL-LHC low-b quadrupole magnet MQXF: from short models to long prototypes**

Paolo Ferracin[1], Giorgio Ambrosio[2], Michael Anerella[3], Giorgio Apollinari[2], Hugues Bajas[1], Marta Bajko[1], Amalia Ballarino[1], Bernardo Bordini[1], Rodger Bossert[2], Ruben Carcagno[2], Daniel Cheng[4], Guram Chlachidze[2], Lance Cooley[5], Sandor Feher[2], Helene Felice[6], Jose Ferradas Troitino[1], Jose Ferradas Troitino[1], Lucio Fiscarelli[1], Jerome Fleiter[1], Philippe Grosclaude[1], Michael Guinchard[1], Ray Hafalia[4], Eddie Holik[2], Susana Izquierdo Bermudez[1], Steven Krave[2], Friedrich Lackner[1], Maxim Marchevsky[4], Joseph Muratore[3], Fred Nobrega[2], Heng Pan[4], Juan Carlos Perez[1], Ian Pong[4], Soren Prestemon[4], Herve Prin[1], Emmanuele Ravaioli[1], GianLuca Sabbi[4], Carlo Santini[2], Jesse Schmalzle[3], Stoyan Stoynev[2], Thomas Strauss[2], Ezio Todesco[1], Giorgio Vallone[1], Peter Wanderer[3], Xiaorong Wang[4] and Miao Yu[2]

[1]CERN, Geneva, Switzerland, [2]FNAL, Batavia, Illinois, US, [3]bnl, Upton, New York, US, [4]LBNL, Berkeley, California, US, [5]NHMFL, Tallahassee, Florida, US, [6]CEA, Saclay, France

4:00 p.m. - 4:30 p.m. 4LOr3A-02: **[Invited] Cold Powering Performance of the Nb_3Sn 11T Dipole Magnet Prototype for HL-LHC**

Frederic Savary[1], Hugues Bajas[1], Marta Bajko[1], Bernardo Bordini[1], Luca Bottura[1], Susana Izquierdo Bermudez[1], Lucio Fiscarelli[1], Arnaud Foussat[1], Ludovic Grand-Clement[1], Friedrich Lackner[1], Christian Loffler[1], Franco Mangiarotti[1], Emelie Nilsson[1], José Luis Rudeiros Fernández[1], Juan Carlos Perez[1], Herve Prin[1], Rosario Principe[1], Lucio Rossi[1], David Smekens[1] and Gerard Willering[1]

[1]CERN, Geneva, Switzerland

4:30 p.m. - 4:45 p.m. 4LOr3A-03: **Quench protection of the first 4 m long prototype of the HL-LHC Nb_3Sn quadrupole magnet**

Emmanuele Ravaioli[2], Giorgio Ambrosio[3], Lorenzo Bortot[2], Paolo Ferracin[4], Susana Izquierdo Bermudez[4], Piyush Joshi[5], Vittorio Marinozzi[3], Matthias Mentink[2], Joseph Muratore[5], Felix Rodriguez-Mateos[2], GianLuca Sabbi[1], Ezio Todesco[4] and Arjan Verweij[2]

[1]LBNL, Meyrin, Geneva, Switzerland, [2]CERN, Geneva, Geneva, Switzerland, [3]FNAL, Batavia, Illinois, US, [4]CERN, Geneva, Geneva, Switzerland, [5]BNL, Upton, New York, US

4:45 p.m. - 5:00 p.m. 4LOr3A-04: **Magnetic Analysis of the MQXF Quadrupole for the High Luminosity LHC**

Susana Izquierdo Bermudez[1], Giorgio Ambrosio[3], Hugues Bajas[1], Guram Chlachidze[3], Paolo Ferracin[1], Eddie Holik[3], Joseph DiMarco[3], Stoyan Stoynev[3], Ezio Todesco[1], GianLuca Sabbi[2], Giorgio Vallone[1] and Xiaorong Wang[2]

[1]CERN, Geneva, Switzerland, [2]LBL, Berkeley, California, US, [3]FNAL, Batavia, Illinois, US

4LOr3B - HTS Magnets II
6C; 3:30 p.m. - 5:00 p.m.
Moderators: Satoshi Awaji, Tohoku University & Seungyong Hahn, Seoul National University

3:30 p.m. - 4:00 p.m. 4LOr3B-01: **[Invited] Progress in No-Insulation HTS Magnet Researches**

Seungyong Hahn[2,1], Kwang Lok Kim[2], Kwangmin Kim[2], Kabindra Bhattarai[2], Kyle Radcliff[2], Xinbo Hu[2], Thomas Painter[2], Iain Dixon[2] and David Larbalestier[2]

[1]Seoul National University, Seoul, Korea (the Republic of), [2]National High Magnetic Field Laboratory, Tallahassee, Florida, US

4:00 p.m. - 4:15 p.m. 4LOr3B-02: **Charging performance improvement of flux pumping for HTS non-insulated coil**

Jun Ma[1], Jianzhao Geng[1], Heng Zhang[1], Chao Li[1], James Gawith[1], Boyang Shen[1], Xiuchang Zhang[1], Qihuan Dong[1], Kaihe Zhang[1] and Tim Coombs[1]

[1]University of Cambridge, Cambridge, United Kingdom

4:15 p.m. - 4:30 p.m. 4LOr3B-03: **The Effect of Turn-to-Turn Contact Resistance on the Electrical Characteristic and Thermal Stability of 2G HTS Pancake Coils**

Guangda Wang[1], Liang Li[1] and Wenzhang Guo[1]

[1]Huazhong University of Science & Technology, Wuhan, Hubei, China

4:30 p.m. - 4:45 p.m. 4LOr3B-04: **Transformer-rectifier flux pump for high current magnets: design considerations and progress**

Jianzhao Geng[1], James Gawith[1], Thomas Painter[2] and Tim Coombs[1]

[1]University of Cambridge, Cambridge, United Kingdom, [2]NHMFL, Tallahassee, Florida, US

4:45 p.m. - 5:00 p.m. 4LOr3B-05: **Asynchronous magnet-stator topologies in a squirrel-cage dynamo-type flux pump.**

Kent Hamilton[1], Andres Pantoja[1], James Storey[1], Zhenan Jiang[1], Chris Bumby[1] and Rodney Badcock[1]

[1]Victoria University of Wellington, Lower Hutt, New Zealand

4LOr3C - Superconducting Power Devices for Power Grid

6A; 3:30 p.m. - 5:00 p.m.

Moderators: Naoki Hayakawa, Nagoya University & Antonio Morandi, University of Bologna

3:30 p.m. - 3:45 p.m. 4LOr3C-01: **Power Applications of HTSC: Where are We at Today?**

Paul Grant[1]

[1]W2AGZ Technologies, San Jose, California, US

3:45 p.m. - 4:00 p.m. 4LOr3C-02: **Final results of the MgB_2-based high-power DC cable demonstrator of BEST PATHS**

Christian-Eric Bruzek[2], Amalia Ballarino[3], Colin Dessornes[4], Christoph Haberstroh[5], Stéphane Holé[6], Steffen Klöppel[5], Konstantina Konstantopoulou[3], Nicolas Lallouet[7], Frédéric Lesur[7], Adela Marian[1], José Martínez-Val[8], Erik Marzahn[9], Amadou Mieville[10] and Matteo Tropeano[11]

[1]IASS Potsdam, Potsdam, Germany, [2]Nexans France, Lens, France, [3]CERN, Geneva, Switzerland, [4]Réseau de transport d'électricité (RTE), Paris, France, [5]Technische Universität Dresden, Dresden, Germany, [6]ESPCI ParisTech, Paris, France, [7]Nexans France, Calais, France, [8]Universidad Politécnica de Madrid (UPM), Madrid, Spain, [9]Nexans Germany, Hannover, Germany, [10]Nexans Switzerland, Cortaillod, Switzerland, [11]Columbus Superconductors, Genova, Italy

4:00 p.m. - 4:15 p.m. 4LOr3C-03: **Modular Superconducting Busbar for High Current DC-Applications**

Stefan Huwer[1], Joerg Brand[5], Steffen Elschner[4], Claus Hanebeck[1], Wilfried Goldacker[2], Kudymow Andrej[2], Moritz Kuhn[3], Mathias Noe[2], Severin Strauss[2] and Wolfgang Reiser[1]

[1]Vision Electrics Super Conductors GmbH, D 67663 Kaiserslautern, Germany, [2]Karlsruhe Institute of Technology, D 76344 Eggenstein-Leopoldshafen, Germany, [3]Institut für Luft- und Kältetechnik, D 01309 Dresden, Germany, [4]University of Applied Science Mannheim, D 68163 Mannheim, Germany, [5]Ingenieurbuero Brand GmbH, D 68794 Oberhausen-Rheinhausen, Germany

4:15 p.m. - 4:30 p.m. 4LOr3C-04: **Results of Brayton Refrigerator Operation in Yokohama HTS Cable Project**

Guilherme Tanaka[1], Masahiro Shimoda[1], Hiroharu Yaguchi[1] and Tomoo Mimura[2]

[1]MAYEKAWA MFG. CO., LTD., Moriya, Ibaraki, Japan, [2]Tokyo Electric Power Company Holdings, Incorporated, Chiyoda-ku, Tokyo, Japan

4:30 p.m. - 4:45 p.m. 4LOr3C-05: **Electrothermal response of full-scale resistive-SFCLs in presence of multiple hot spots: complete multi-scale model embedded in a commercial power system transient simulator (EMTP-RV)**

Facundo Sosa Rey[1], Frederic Sirois[1], Charles Henri Bonnard[1] and Christian Lacroix[1]

[1]Polytechnique Montreal, Montreal, Quebec, Canada

4:45 p.m. - 5:00 p.m. 4LOr3C-06: **Design and Test of 50 kV / 2000 A DC Superconducting Fault Current Limiter**

Qingquan Qiu[1], Liye Xiao[1], Zhifeng Zhang[1], Liwei Jing[1], Guodong Yao[1], Shizhuo Liu[1], Qingfeng Liu[1], Jingye Zhang[1] and GuoMin Zhang[1]

[1]Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China

4MOr3A - Insulation, Dielectrics and Ancillary Materials
613-614; 3:30 p.m. - 5:00 p.m.
Moderators: Sasha Ishmael, Lupine Materials and Technology Inc. & Sastry Pamidi, Florida State University, Center for Advanced Power Systems

3:30 p.m. - 3:45 p.m. 4MOr3A-01: **Use of Additive Manufacturing for Components of High Temperature Superconducting Power Cables**

Peter Cheetham[1], James McAuley[1], Chul Kim[1], Lukas Graber[2] and Sastry Pamidi[1,3]

[1]Florida State University, Tallahassee, Florida, US, [2]Georgia Institute of Technology, Atlanta, Georgia, US, [3]FAMU-FSU College of Electrical Engineering, Tallahassee, Florida, US

3:45 p.m. - 4:00 p.m. 4MOr3A-02: **Properties of Dielectric Surface Flashover in Gas-cooled HTS Power Applications**

Chanyeop Park[1], Jia Wei[1], Peter Cheetham[2], Aws Al-Taie[2,3], Chul Kim[2], Sastry Pamidi[2,3] and Lukas Graber[1]

[1]Georgia Institute of Technology, Atlanta, Georgia, US, [2]Center for Advanced Power Systems, Tallahassee, Florida, US, [3]Department of Electrical and Computer Engineering, FAMU-FSU College of Engineering, Florida State University, Tallahassee, Florida, US

4:00 p.m. - 4:15 p.m. 4MOr3A-03: **Ceramic insulation of Bi-2212 wire: silver migration during heat treatment and its mitigation**

Jun Lu[1], Jianyi Jiang[1] and Jeremy Levitan[1]

[1]Applied Superconductivity Center, National High Magnetic Field Laboratory, Florida State University, Tallahassee, Florida, US

4:15 p.m. - 4:30 p.m. 4MOr3A-04: **Understanding and improving epoxy to reduce quench training of superconducting magnets**

Shijian Yin[1], Diego Arbelaez[1], Maxim Marchevsky[1], Soren Prestemon[1] and Tengming Shen[1]

[1]Lawrence Berkeley National Laboratory, Berkeley, California, US

4:30 p.m. - 4:45 p.m. 4MOr3A-05: **Polymer Nanocomposite Dielectrics for High-Temperature Superconducting Cables**

Joseph Nalbach[1], Michael McCaffrey[2], Robert Krchnavek[2] and Wei Xue[1]

[1]Rowan University, Glassboro, New Jersey, US, [2]Rowan University, Glassboro, New Jersey, US

4:45 p.m. - 5:00 p.m. 4MOr3A-06: **Liquid nitrogen impregnated Kraft paper for high power superconducting cables**

Stéphane Holé[1], Christian-Eric Bruzek[2], Frédéric Lesur[2], Adela Marian[3] and Nicolas Lallouet[2]

[1]Sorbonne Université / ESPCI-Paris / CNRS, Paris, France, [2]Nexans, Lens, France, [3]IAAS, Potsdam, Germany

4MOr3B - BSCCO Wires and Tapes
615-617; 3:30 p.m. - 5:00 p.m.
Moderators: Jianyi Jiang, National High Magnetic Field Laboratory & Andrea Malagoli, CNR-SPIN

3:30 p.m. - 3:45 p.m. 4MOr3B-01: **Large quantity, high quality Bi2212 powder production at nGimat**

Aixia Xu[1], Marvis White[1] and Andrew Hunt[1]

[1]nGimat LLC, Lexington, Kentucky, US

3:45 p.m. - 4:00 p.m. 4MOr3B-02: **High performance Bi-2212 wires made with recent powders**

Jianyi Jiang[1], Imam Hossain[1], Yavuz Oz[1], Michael Brown[1], Daniel Davis[1], Temidayo Abiola Oloye[1], Griffin Bradford[1], Jonathan Cooper[1], Evan Miller[1], Fumitake Kametani[1], Ulf Trociewitz[1], Eric Hellstrom[1], David Larbalestier[1], Tengming Shen[2], Yibing Huang[4], Hanping Miao[4], Aixia Xu[3], Andrew Hunt[3], Suvankar Sengupta[5] and Rao Revur[5]

[1]Florida State University, Tallahassee, Florida, US, [2]Lawrence Berkeley National Laboratory, Berkeley, California, US, [3]nGimat, Lexington, Kentucky, US, [4]Bruker-OST (Bruker EST Group), Carteret, New Jersey, US, [5]MetaMateria, Columbus, Ohio, US

4:00 p.m. - 4:15 p.m. 4MOr3B-03: **Strong round Bi2212 superconductor wire**

Alex Otto[1], Gerry Pothier III[1], Julio Colque[1] and Linda Saraco[1]

[1]Solid Material Solutions, LLC, N. Chelmsford, Massachusetts, US

4:15 p.m. - 4:30 p.m. 4MOr3B-04: **An in-situ X-ray and neutron diffraction investigation of Bi-2212 in multifilamentary wires during thermal treatment**

Alessandro Leveratto[1], Alberto Martinelli[1], Emilio Bellingeri[1], Luca Leoncino[1] and Andrea Malagoli[1]

[1]CNR-SPIN, Genova, Italy

4:30 p.m. - 4:45 p.m. 4MOr3B-05: **Numerical modeling of the $J_C(H)$ characteristics of multiple Bi-2212 wires**

Michael Brown[1,2], Jianyi Jiang[2], Dmytro Abraimov[2], Griffin Bradford[2], Jan Jaroszynski[3], Eric Hellstrom[2] and David Larbalestier[2]

[1]Florida State University, Tallahassee, Florida, US, [2]National High Magnetic Field Laboratory, Tallahassee, Florida, US, [3]National High Magnetic Field Laboratory, Tallahassee, Florida, US

4:45 p.m. - 5:00 p.m. 4MOr3B-06: **Electrical and Thermo-Physical Properties of Ni-alloy Reinforced Bi-2223 Conductors**

Marco Bonura[1], Christian Barth[1] and Carmine Senatore[1]

[1]University of Geneva, Geneva, Switzerland

4MOr3C - Coated Conductors VIII: Synthesis & Characterization II
608-609; 3:30 p.m. - 5:00 p.m.
Moderators: Ruben Hühne, IFW Dresden & Alexey Pan, University of Wollongong

3:30 p.m. - 3:45 p.m. 4MOr3C-01: **Quench behavior of High-Temperature Superconductor tapes for power applications: a strategy toward resilience**

Nicolo Riva[1], Francesco Grilli[2], Frederic Sirois[3], Bertrand Dutoit[1], Christian Lacroix[3] and Simon Richard[3]

[1]Ecole Politechnique Federale de Lausanne, Lausanne, Vaud, Switzerland, [2]Karlsruhe Institute of Technology, Karlsruhe, Germany, [3]École polytechnique de Montréal, Montreal, Quebec, Canada

3:45 p.m. - 4:00 p.m. 4MOr3C-02: **Experimental and simulated current sharing in REBCO tapes for superconducting CORC cables**

Virginia Phifer[1,3], Zhenyu Zhang[2,3], Xinbo Hu[3], Jan Jaroszynski[3], Danko van der Laan[4], Jeremy Weiss[4], Sastry Pamidi[2], David Larbalestier[3] and Lance Cooley[3]

[1]Florida State University, Tallahassee, Florida, US, [2]Center for Advanced Power Systems, Tallahassee, Florida, US, [3]Applied Superconductivity Center, Tallahassee, Florida, US, [4]Advanced Conductor Technologies, Boulder, Colorado, US

4:00 p.m. - 4:15 p.m. 4MOr3C-03: **Twinned Structure Dependence of the Critical Current of Practical REBCO Tapes**

Kozo Osamura[1], Shutaro Machiya[2] and Damian Hampshire[3]

[1]Research Institute for Applied Sciences, Kyoto, Japan, [2]Daido University, Nagoya, Aichi, Japan, [3]University of Durham, Durham, United Kingdom

4:15 p.m. - 4:30 p.m. 4MOr3C-04: **Developments in manufacturing method and equipment for the RE123 split wire (multi-core coated conductor) with inner split technology**

Xinzhe Jin[1], Yasuteru Mawatari[1], Toshihiro Kuzuya[1], Yusuke Amakai[1], Yoshinori Tayu[1], Naoki Momono[1], Shinji Hirai[1], Yoshinori Yanagisawa[2] and Hideaki Maeda[2]

[1]Muroran Institute of Technology, Muroran, Hokkaido, Japan, [2]RIKEN, Yokohama-shi, Kanagawa, Japan

4:30 p.m. - 4:45 p.m. 4MOr3C-05: **Fatigue behavior of REBCO coated conductors under transverse tensile stress**

Shogo Muto[1], Shinji Fujita[1], Kazuya Akashi[1], Hiroki Satoh[1], Yasuhiro Iijima[1] and Kunihiro Naoe[1]

[1]Fujikura Ltd., Sakura-shi, Chiba, Japan

4:45 p.m. - 5:00 p.m. 4MOr3C-06: **Turn-to-turn contact resistance of surface oxidized REBCO in pancake coils**

Jun Lu[1], Jeremy Levitan[1], Hongyu Bai[1], Kyle Radcliff[1] and Kwang Lok Kim[1]

[1]National High Magnetic Field Laboratory, Florida State University, Tallahassee, Florida, US

ASC Evening at MoPOP
Museum of Pop Culture; 7:00 p.m. - 9:00 p.m.

Friday, November 2, 2018

5EOr1A - Special Session: Superconductor Electronics Technology Roadmap for IRDS 2018
606-607; 8:00 a.m. - 10:00 a.m.
Moderators: Erik DeBenedictis, Sandia National Labs & D. Scott Holmes, Booz Allen Hamilton

8:00 a.m. - 10:00 a.m. 5EOr1A-01: **[Invited] Superconductor Electronics Technology Roadmap for IRDS 2018**

D. Scott Holmes[1], Erik DeBenedictis[2], Robert Fagaly[3], Pascal Febvre[4], Deepnarayan Gupta[5], Anna Herr[6], Anna Leese de Escobar[7], Nancy Missert[2], Oleg Mukhanov[5], Satyavolu Papa Rao[8], Nobuyuki Yoshikawa[9] and Paolo Gargini[10]

[1]Booz Allen Hamilton, College Park, Maryland, US, [2]Sandia National Laboratories, Albuquerque, New Mexico, US, [3]Honeywell, Inc., Golden Valley, Minnesota, US, [4]Université Savoie Mont Blanc, Le Bourget du Lac cedex, France, [5]Hypres, Inc., Elmsford, New York, US, [6]Northrop Grumman, Linthicum, Maryland, US, [7]SPAWAR Systems Center Pacific, San Diego, California, US, [8]SUNY Polytechnic Institute, Albany, New York, US, [9]Yokohama National University, Yokohama, Japan, [10]Chair, IRDS, Los Altos, California, US

5EOr1B - Special Session: Superconducting Applications for Cosmological Research
6C; 8:00 a.m. - 10:00 a.m.
Moderators: Faustin Carter, Argonne National Laboratory & Maria Salatino, Stanford University/KIPAC

8:00 a.m. - 8:30 a.m. 5EOr1B-01: **[Invited] Multiplexed readout of TES bolometers for the South Pole Telescope**

Amy Bender[1]

[1]Argonne National Laboratory, Argonne, Illinois, US

8:30 a.m. - 9:00 a.m. 5EOr1B-02: **[Invited] Cryogenic Detectors with Superconducting Thermometers for Low-Mass Dark Matter Searches**

Lucia Canonica[1]

[1]Max-Planck-Institut für Physik, München, Germany

9:00 a.m. - 9:30 a.m. 5EOr1B-03: **[Invited] The SuperSpec instrument and performance of a 300 channel mm-wave filterbank spectrometer.**

Erik Shirokoff[1], Peter Barry[1], Charles Bradford[2], Scott Chapman[3], George Che[4], Jason Glenn[5], Steven Hailey-Dunsheath[6], Sam Gordon[4], Matthew Hollister[6], Attila Kovacs[6], Henry Leduc[2], Philip Mauskopf[4], Ryan McGeehan[1], Steven Padin[1], Theodore Reck[2], Joseph Redford[6], Colin Ross[3], Corwin Shiu[6], Carole Tucker[7], Jordan Wheeler[5] and Jonas Zmuidzinas[6]

[1]Univeristy of Chicago, Chicago, Illinois, US, [2]Jet Propulsion Laboratory, Pasadena, California, US, [3]Dalhousie University, Halifax, Nova Scotia, Canada, [4]Arizona State University, Tempe, Arizona, US, [5]University of Colorado, Boulder, Colorado, US, [6]California Institute of Technology, Pasadena, California, US, [7] Cardiff University, Cardiff, Wales, United Kingdom

9:30 a.m. - 10:00 a.m. 5EOr1B-04: **[Invited] Understanding the inflationary universe: magnetically levitated rotating half-wave plate for LiteBIRD**

Tomotake Matsumura[1]

[1]The University of Tokyo, Kashiwa, Japan

5LOr1A - Magnet Design and Analysis Techniques
602-604; 8:00 a.m. - 9:30 a.m.
Moderators: Cristian Boffo, Bilfinger Noell GmbH & Iain Dixon, National High Magnetic Field Laboratory

8:00 a.m. - 8:15 a.m. 5LOr1A-01: **A Simple Screening Current Simulation Method Using Equivalent Circuit Model for REBCO Pancake Coils**

So Noguchi[1,2], Dongkeun Park[2], Seungyong Hahn[3,4] and Yukikazu Iwasa[2]

[1]Hokkaido University, Sapporo, Japan, [2]Massachusetts Institute of Technology, Cambridge, Massachusetts, US, [3]Seoul National University, Seoul, Korea (the Republic of), [4]National High Magnet Field Laboratory, Tallahassee, Florida, US

8:15 a.m. - 8:30 a.m. 5LOr1A-02: **3D Thermal-Electric Finite Element Model of a Nb_3Sn Coil During Quench**

Jose Ferradas Troitino[1,2], Hugues Bajas[1], Paolo Ferracin[1], Jerome Fleiter[1], Susana Izquierdo Bermudez[1], Jose Vicente Lorenzo Gomez[3], Juan Carlos Perez[1], Carmine Senatore[2] and Giorgio Vallone[1]

[1]CERN, Geneva, Switzerland, [2]University Of Geneva, Geneva, Switzerland, [3]Universidad Autonoma de Madrid, Madrid, Spain

8:30 a.m. - 8:45 a.m. 5LOr1A-03: **A mixed-dimensional delamination structural model for general laminated composites including REBCO coated conductors**

Wan Kan Chan[1], Peifeng Gao[2], Xingzhe Wang[2] and Justin Schwartz[3]

[1]North Carolina State University, Raleigh, North Carolina, US, [2]Lanzhou University, Lanzhou, China, [3]Pennsylvania State University, University Park, Pennsylvania, US

8:45 a.m. - 9:00 a.m. 5LOr1A-04: **User Defined Elements in ANSYS for 2D Multiphysics Modeling of Superconducting Magnets**

Lucas Brouwer[1], Bernhard Auchmann[2,3], Diego Arbelaez[1] and Soren Prestemon[1]

[1]Lawrence Berkeley National Laboratory, Berkeley, California, US, [2]CERN, Geneva, Switzerland, [3]Paul Scherrer Institute, Villigen, Switzerland

9:00 a.m. - 9:15 a.m. 5LOr1A-05: **Mechanical behaviour laws for multiscale numerical model of Nb3Sn conductors**

Gilles Lenoir[1], Pierre Manil[1], Francois Nunio[1] and Véronique Aubin[2]

[1]CEA Saclay, GIL-SUR-YVETTE, France, [2]CentraleSupélec, Gif-Sur-Yvette, France

9:15 a.m. - 9:30 a.m. 5LOr1A-06: **Analysis of the effects of the insulation on the quench transverse propagation in Nb_3Sn Rutherford coils.**

Fabrizio Bellina[1], Francesco Stacchi[1], Marco Breschi[2] and Pier Luigi Ribani[2]

[1]Udine University, Udine, Italy, [2]University of Bologna, Bologna, Italy

5LOr1B - Motors, Generators, and Rotating Machines II: HTS Bulk
6A; 8:00 a.m. - 9:30 a.m.
Moderators: Kent Davey, American Electromechanics, Inc. & Antonio Morandi, University of Bologna

8:00 a.m. - 8:30 a.m. 5LOr1B-01: **[Invited] Theoritical and experimental reports on the design and fabrication of 4KW HTS motor based on HTS stacked tapes**

Mehdi Baghdadi[2,1] and Tim Coombs[1]

[1]University of Cambrdige, Cambridge, United Kingdom, [2]University College London, London, United Kingdom

8:30 a.m. - 8:45 a.m. 5LOr1B-02: **In operation vibrations of a rotating superconducting magnetic bearing used as ring spinning twist element**

Maria Sparing[1], Tilo Espenhahn[1], Anne Berger[1], Oliver Neunzig[1], Mahmud Hossain[2], Günter Fuchs[1], Ludwig Schultz[1], Kornelius Nielsch[1], Anwar Abdkader[2], Chokri Cherif[2] and Ruben Hühne[1]

[1]Institute for Metallic Materials, 01069 Dresden, Germany, [2]Technical University of Dresden, 01062 Dresden, Germany

8:45 a.m. - 9:00 a.m. 5LOr1B-03: **The use of very thin TFMs in electromechanical devices**

Kent Davey[1,2], Roy Weinstein[2], Ravi-Persad Sawh[2] and Drew Parks[2]

[1]American Electromechanics, Inc., Edgewater, Florida, US, [2]University of Houston, Houston, Texas, US

9:00 a.m. - 9:15 a.m. 5LOr1B-04: **Design and Construction of Synchronous Machine Using Bulk High Temperature Superconductor for Marine Application**

Motohiro Miki[1], Clement Bocquel[1], Erasmus Shaanika[1], Tetsuya Ida[1], Mitsuru Izumi[1], Brice Felder[1], Keita Tsuzuki[1], Steven Englebretson[2], Robert Chin[3], Jere Kolehmainen[4], Hidekazu Teshima[5] and Mitsuru Morita[5]

[1]Tokyo University of Marine Science and Technology, Koto-ku, Tokyo, Japan, [2]ABB Corporate Research, Raleigh, North Carolina, US, [3]ABB Corporate Research, Vasteras, Sweden, [4]Motors and Generators, ABB Oy, Vaasa, Finland, [5]Nippon Steel & Sumitomo Metal Corp., Futtsu, Chiba, Japan

9:15 a.m. - 9:30 a.m. 5LOr1B-05: **Core Loss of a Bulk HTS Synchronous Machine at 2T and 3T Rotor Magnetisation**

Erasmus Shaanika[1], Miki Motohiro[1], Clement Bocquel[1], Brice Felder[2,1], Keita Tsuzuki[3,1], Tetsuya Ida[1], Mitsuru Izumi[1], Steven Englebretson[5], Robert Chin[5], Jere Kolehmainen[4], Mitsuru Morita[6] and Hidekazu Teshima[6]

[1]Tokyo University of Marine Science and Technology, Koto-ku, Tokyo, Japan, [2]Suzuki Shokan Co., Ltd., Saitama, Ageo-shi, Japan, [3]National Institute of Technology, Toyota College, Aichi, Japan, [4]Motors and Generators, ABB Oy, Helsinki, Finland, [5]US Corporate Research Center, ABB Inc, Raleigh, North Carolina, US, [6]Nippon Steel & Sumitomo Metals Corporation, Tokyo, Japan

5LOr1C - HTS Magnets III

6B; 8:00 a.m. - 10:00 a.m.

Moderators: Thomas Painter, Florida State University & Tengming Shen, Lawrence Berkeley National Laboratory

8:00 a.m. - 8:15 a.m. 5LOr1C-01: **Effect of striation of coated conductors to reduce shielding-current-induced fields in solenoid coils and pancake coils with/without copper terminals**

Naoyuki Amemiya[1], Yudai Mizobata[1], Naoki Tominaga[1], Satoshi Yamano[2,3] and Hisaki Sakamoto[3]

[1]Kyoto University, Kyoto, Japan, [2]SuperPower Inc., Schenectady, New York, US, [3]Furukawa Electric Co., Ltd., Chiba, Japan

8:15 a.m. - 8:30 a.m. 5LOr1C-02: **Over-current test of REBCO pancake coils impregnated with conductive epoxy resin under conduction-cooled conditions**

Hiroshi Miyazaki[1], Sadanori Iwai[1], Tatsuro Uto[1], Kusano Takashi[1], Yasumi Otani[1], Kei Koyanagi[1] and Shunji Nomura[1]

[1]1) Toshiba Energy Systems & Solutions Corporation, Yokohama, Japan

8:30 a.m. - 8:45 a.m. 5LOr1C-03: **A Half-Bridge HTS Transformer-Rectifier Flux Pump with two AC field-controlled switches**

James Gawith[1], Jianzhao Geng[1], Chao Li[1], Boyang Shen[1], Xiuchang Zhang[1], Jun Ma[1] and Tim Coombs[1]

[1]University of Cambridge, Cambridge, United Kingdom

8:45 a.m. - 9:00 a.m. 5LOr1C-04: **A new concept of a hybrid trapped field magnet**

Jie Sheng[1], Wei Wu[1], Zhiwei Zhang[1], Wenrong Li[1], Min Zhang[2] and Zhiyong Hong[1]

[1]Shanghai Jiao Tong University, Shanghai, Shanghai, China, [2]University of Strathclyde, Glasgow, United Kingdom

9:00 a.m. - 9:15 a.m. 5LOr1C-05: **Comparison of Charging Characteristics of an HTS Rotating Flux Pump Considering Type of Superconducting Tapes**

Seunghak Han[1], Jeyull Lee[1], Haeryong Jeon[1], Ji Hyung Kim[2], Chang Ju Hyeon[2], Ho Min Kim[2], Hyung-Wook Kim[3], Tae Kuk Ko[1], Yong Soo Yoon[4] and Dongkeun Park[5]

[1]Yonsei University, Seoul, Korea (the Republic of), [2]Jeju International University, Jeju-si, Jeju-do, Korea (the Republic of), [3]Korea Electrotechnology Research Institute, Changwon-si, Gyeongsangnam-do, Korea (the Republic of), [4]Shin Ansan University, Ansan-si, Gyeonggi-do, Korea (the Republic of), [5]MIT, Cambridge, Massachusetts, US

9:15 a.m. - 9:30 a.m. 5LOr1C-06: **High Current Flux pumps for High field magnets**

Tim Coombs[1], Jianzhao Geng[1], James Gawith[1], Jun Ma[1], Chao Li[1], Boyang Shen[1] and Thomas Painter[2]

[1]Cambridge University, Cambridge, United Kingdom, [2]Florida State University, Tallahassee, Florida, US

9:30 a.m. - 10:00 a.m. 5LOr1C-07: **[Invited] Coated conductor Roebel cable at magnet applications – past, presence and the future**

Anna Kario[1], Andrea Kling[1], Simon Otten[1], Wilfried Goldacker[1], Alexander Usoskin[2], Alexander Molodyk[3], Nicholas Long[4], Christopher Kovacs[5], Glyn Kirby[6], Jeroen van Nugteren[6], Luca Bottura[6], Lucio Rossi[6], Clément Lorin[7], Thibault Lécrevisse[7] and Maria Durante[7]

[1]Karlsruhe Institute of Technology, Institute for Technical Physics (ITEP), Eggenstein-Leopoldshafen, Germany, [2]Bruker HTS GmbH (Bruker EST Group), Hanau, Germany, [3]SuperOx, Moscow, Russian Federation, [4]Victoria University of Wellington, Robinson Research Institute, Gracefield, Lower Hutt, New Zealand, [5]The Center for Superconducting and Magnetic Materials, The Ohio State University, Columbus, Ohio, US, [6]CERN, Geneva, Switzerland, [7]CEA Saclay, Gif-sur-Yvette, Cedex, France

5MOr1A - Artificial Structures, Thin Films, and Multilayers
615-617; 8:00 a.m. - 9:45 a.m.
Moderators: Grover Larkins, Florida International University & Maycon Motta, Universidade Federal de Sao Carlos

8:00 a.m. - 8:15 a.m. 5MOr1A-01: **Distinguishing Dielectric Loss from Superconductor Loss Using Flexible Thin Film Superconducting Resonator Structures**

Vaibhav Gupta[1], Bhargav Yelamanchili[1], Simin Zou[1], Tamara Isaacs-Smith[1], John Sellers[1], David Tuckerman[2] and Michael Hamilton[1]

[1]Auburn University, Auburn, Alabama, US, [2]Microsoft Research, Redmond, Washington, US

8:15 a.m. - 8:30 a.m. 5MOr1A-02: **Stranger APCs: Study of different surface decoration material for YBCO films**

Achille Angrisani Armenio[1], Laura Piperno[2], Gianluca De Marzi[1], Valentina Pinto[1], Antonella Mancini[1], Alessandro Rufoloni[1], Andrea Augieri[1], Francesco Rizzo[1], Angelo Vannozzi[1], Ramona Mos[3], Lelia Ciontea[3], Traian Petrisor[3], Traian Petrisor[3], Giovanni Sotgiu[2] and Giuseppe Celentano[1]

[1]ENEA, Frascati, Roma, Italy, [2] Roma Tre University, Roma, Italy, [3]Centre for Superconductivity, Spintronics and Surface Science, Technical University of Cluj-Napoca, Cluj-napoca, Romania

8:30 a.m. - 8:45 a.m. 5MOr1A-03: **Fabrication of REBCO coated conductor doped with $BaHfO_3$ nanorod as artificial pinning center using liquid-phase in the PVD growth**

Yutaka Yoshida[1], Yusuke Ichino[1], Yuji Tsuchiya[1], Tomohiro Ito[1], Ataru Ichinose[2], Kaname Matsumoto[3], Satoshi Awaji[4], Teruo Izumi[5] and Shuya Tajiri[1]

[1]Department of Electrical Engineering, Nagoya, Japan, [2]Central Research Institute of Electric Power Industry, Yokosuka, Japan, [3]Kyushu Institute of Technology, Kitakyuushu, Japan, [4]Tohoku University, Sendai, Japan, [5]National Institute of Advanced Industrial Science and Technology Tsukuba, Tsukuba, Japan

8:45 a.m. - 9:00 a.m. 5MOr1A-04: **Thin Superconducting Films of Magnesium Diboride, Their Preparation and Properties**

Tetiana Prikhna[1], Michael Eisterer[3], Anton Shaternik[1], Vladimir Shaternik[2], Vladimir Sokolovsky[4], Viktor Moshchil[1], Andrii Shapovalov[1], Valeriy Kovylaev[5] and Paul Seidel[6]

[1]V. Bakul Institute for Superhard Materials, Kyiv, Ukraine, [2]G.V.Kurdyumov Institute for Metal Physics, Kyiv, Ukraine, [3]Atominstitut,TU , Wien, Austria, [4]Ben-Gurion University of the Negev, Beer-Sheva , Israel, [5]Proton 21, Kyiv, Ukraine, [6]Institut für Festkörperphysik, Jena, Germany

9:00 a.m. - 9:15 a.m. 5MOr1A-05: **Transport properties of ultrathin $BaFe_{1.84}Co_{0.16}As_2$ superconducting nanowires**

Pusheng Yuan[1,2], Zhongtang Xu[2] and Yanwei Ma[2]

[1]Shanghai Institute of Microsystem and Information Technology, Shanghai, China, [2]Key Laboratory of Applied Superconductivity, Institute of Electrical Engineering, Chinese Academy of Sciences, Beijing, China

9:15 a.m. - 9:30 a.m. 5MOr1A-06: **Application of metamaterial nano-engineering for increasing the superconducting critical temperature**

Michael Osofsky[1], Vera Smolyaninova[2], Joseph Prestigiacomo[1], Heungsoo Kim[1], Nabil Bassim[3], Richard Greene[4], Xiaoxing Xi[5] and Igor Smolyaninov[4]

[1]Naval Research Laboratory, Washington, District of Columbia, US, [2]Towson University, Towson, Maryland, US, [3]McMaster University, Hamilton, Ontario, Canada, [4]University of Maryland, College Park, Maryland, US, [5]Temple University, Philadelphia, Pennsylvania, US

9:30 a.m. - 9:45 a.m. 5MOr1A-07: **Evidence of Superconductivity and Magnetic Vortices in Phosphorous Doped Graphene at Temperatures up to Approximately 260K.**

Nalat Sornkhampan[1], Julian Gil-Pinzon[1], Justin Ponce-Zuniga[1], Yuri Vlasov[1] and Grover Larkins[1]

[1]Florida International University, Miami, Florida, US

5MOr1B - Synthesis of Cuprate Superconductors

608-609; 8:00 a.m. - 10:00 a.m.

Moderators: Kaname Matsumoto, Kyushu Institute of Technology & Cornelia Pop, Institut de Ciencia de Materials de Barcelona

8:00 a.m. - 8:15 a.m. 5MOr1B-01: **Addressing a long-standing seeding problem for the growth of single grain (RE)BCO and (RE)BCO-Ag bulk superconductors**

Devendra Namburi[1], Yunhua Shi[1], Antony Dennis[1], John Durrell[1] and David Cardwell[1]

[1]University of Cambridge, Cambridge, United Kingdom

8:15 a.m. - 8:30 a.m. 5MOr1B-02: **IG processed $YBa_2Cu_3O_y$ produced by $YbBa_2Cu_3O_y$+Liquid Phase as a Liquid Source**

Sushma Miryala[1,2] and Masato Murakami[1]

[1]Shibaura Institute of Technology, Tokyo, Japan, [2]Seisen International School, Tokyo, Japan

8:30 a.m. - 8:45 a.m. 5MOr1B-03: **Large tuning of the depairing current density at $YBa_2Cu_3O_{7-x}$ low angle grain boundaries using ionic liquid gating**

Alexandre Fête[1] and Carmine Senatore[1]

[1]University of Geneva, Geneva, Switzerland

8:45 a.m. - 9:00 a.m. 5MOr1B-04: **The successful incorporation of nanoparticles into Transient Liquid Assisted Growth YBCO films**

Júlia Jareño[1], Laia Soler[1], Juri Banchewski[1], Natalia Chamorro[2], Roger Guzman[1], Susagna Ricart[1], Josep Ros[2], Cristian Mocuta[3], Jordi Farjas[4], Pere Roura[4], Xavier Obradors[1] and Teresa Puig[1]

[1]Institut de Ciència dels Materials de Barcelona (ICMAB-CSIC), Bellaterra, Barcelona, Spain, [2]Universitat Autònoma de Barcelona (UAB), Bellaterra, Spain, [3]Soleil Synchrotron, Gif-sur-Ivette, France, [4]Universitat de Girona (UdG), Girona, Spain

9:00 a.m. - 9:15 a.m. 5MOr1B-05: **Development of REBCO tapes on non-metallic substrates for RF applications**

Yuan Zhang[1], Sicong Sun[1], Jain Rohit[1], Vasish Narayan Mohan[1], Jarek Wosik[2] and Venkat Selvamanickam[1]

[1]University of Houston, Houston, Texas, US, [2]University of Houston, Houston, Texas, US

9:15 a.m. - 9:30 a.m. 5MOr1B-06: **YBCO seed layer grown by polymer assisted deposition for the further growth of MOD propionate-based YBCO film**

Mircea Nasui[1], Ramona Mos[1], Traian Petrisor[1], Mihai Gabor[1], Amalia Mesaros[1], Lelia Ciontea[1] and Traian Petrisor[1]

[1]Technical University of Cluj-Napoca, Cluj-Napoca, Romania

9:30 a.m. - 9:45 a.m. 5MOr1B-07: **Tl-1223 superconducting coatings for beam impedance mitigation in the Future Circular Collider**

Alessandro Leveratto[1], Carlo Ferdeghini[1], Marina Putti[2,1], Ruggero Vaglio[1], Emilio Bellingeri[1], Sigrid Holleis[3], Thomas Baumgartner[3], Michael Eisterer[3], Johannes Bernardi[4] and Sergio Calatroni[5]

[1]CNR-SPIN, Genova, Italy, [2]University of Genoa, Genoa, Italy, [3]TU Wien, Wien, Austria, [4]TU Wien, Wien, Austria, [5]CERN, Geneva, Switzerland

9:45 a.m. - 10:00 a.m. 5MOr1B-08: **Revival of the Thallium-based Cuprates: Microstructure and Current Transport of Tl-1223 Thin Films**

Sigrid Holleis[1], Thomas Baumgartner[1], Johannes Bernardi[2], Alessandro Leveratto[3], Emilio Bellingeri[3], Marina Putti[3], Carlo Ferdeghini[3], Sergio Calatroni[4] and Michael Eisterer[1]

[1]TU Wien, Vienna, Austria, [2]TU Wien, Vienna, Austria, [3]CNR SPIN, Genoa, Italy, [4]CERN, Geneva, Switzerland

Coffee Break
6th Level ABC Lobby; 10:00 a.m. - 10:30 a.m.

Plenary Sessions
Ballroom 6ABC

5PL1A - Plenary 1
Ballroom 6ABC; 10:30 a.m. - 11:15 a.m.
Moderators: Iain Dixon, National High Magnetic Field Laboratory & Seungyong Hahn, Seoul National University

5PL1A-01: Applications of Superconductivity in the Detection of Axions

Professor Yannis Semertzidis[1]

[1]Korea Advanced Institute of Science and Technology, Daejeon, Korea (the Republic of)

5PL1B - Late-breaking Plenary
Ballroom 6ABC; 11:15 a.m. - 11:35 a.m.
Moderators: Luisa Chiesa, Tufts University & Joseph Minervini, Massachusetts Institute of Technology

5PL1B-01: New Results from the G2 Axion Dark Matter Experiment

Professor Gray Rybka[1]

[1]University of Washington, Seattle, Washington, US

5PL1C - Plenary 3 – sponsored by Commonwealth Scientific and Industrial Research Organisation (CSIRO)
Ballroom 6ABC; 11:35 a.m. - 12:20 p.m.
Moderators: Luisa Chiesa, Tufts University & Joseph Minervini, Massachusetts Institute of Technology

5PL1C-01: Probing the Universe with Gravitational Waves

Professor Rainer Weiss[1]

[1]Massachusetts Institute of Technology, Cambridge, Massachusetts, US

ASC Closing & ASC 2020 Announcement
Ballroom 6ABC; 12:30 p.m.

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Please note: For poster presentations, the number in brackets represents the poster board number at the conference, for example: 2LPo1D-08 [L36], where 36 is the poster board number.

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Abdkader, Anwar: 2LOr1A-02, 5LOr1B-02
Abdulsalam, Anvar V.: **2LPo1D-08 [L36]**, **4LPo1D-09 [L36]**
Abdyukhanov, Ildar M.: 1MOr2B-01, 3MPo2A-04 [M4]
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Arumugam, Sonachalam: 1MPo2D-10 [M43]
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Asayama, Shin'ichiro: 2EPo2A-06 [E5]
Ascade, Massimo: 2LPo1E-06 [L46]
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Asif, Mansoor: 2MPo1D-06 [M39], 3LPo2D-09 [L40], 4MPo1C-04 [M21]
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Ball, Steven: 4LOr2A-03
Ballarino, Amalia: 1LOr1D-03, 1MOr2A-01, **1MOr2B-01**, 1MOr2B-02, 1MOr2B-07, 1MOr2B-08, 1MOr2B-09, 1MPo2A-04 [M4&5], 1MPo2A-06 [M7], 2LPo2F-01 [L42], 2MOr3A-05, 3LOr2A-06, 3LPo1D-06 [L35], 3LPo1D-09 [L38], 3LPo1D-10 [L39], 3MPo2A-01 [M1], **4LOr2C-07**, 4LOr3A-01, 4LOr3C-02, 4MPo1A-04 [M4]
Balvin, Manuel: 2EPo2D-09 [E40], 3EPo2B-09 [E21]
Banchewski, Juri: 1MOr2A-06, 2MPo1A-03 [M3], **4MOr2B-05**, 5MOr1B-04
Bandler, Simon R.: 1EOr2C-02, 1EOr2C-05, 2EOr1A-02, 2EOr1A-05, 2EOr2B-05, 2EPo1C-01 [E20], 2EPo1C-09 [E29], 2EPo2D-06 [E37], 2EPo2D-07 [E38], 2EPo2D-08 [E39], 2EPo2D-09 [E40], 2EPo2D-11 [E42], 3EPo1C-03 [E20], 3EPo2B-09 [E21]
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Bang, Jeseok: 2LPo1K-08 [L96], 2LPo2F-04 [L45], 3LPo1J-01 [L75&76], 4LPo1E-08 [L45], **4LPo1E-09 [L46]**
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Banno, Nobuya: **1MPo2A-10 [M11]**, 3MPo2A-07 [M6], **4LPo1G-03 [L60]**
Bao, Dingli: 1LPo2H-07 [L74], 2EPo1B-07 [E19]
Bao, Rui: 3MPo2D-07 [M31]
Barba, Maria: 1LPo2H-03 [L71]
Barber, Zoe: 3EPo2C-04 [E28]
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Barusco, Pedro: 1MOr2A-05, 4MOr2A-02
Barzi, Emanuela: 1LOr1D-02, 1LOr1D-03, **1LPo2A-02 [L2]**, 1LPo2F-07 [L56], 1MPo2A-05 [M6], 2LPo2K-09 [L91], **3MPo1A-03 [M3]**, 4LOr2C-05
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Batalu, Dan: 2MPo2A-03 [M3]
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Baumgartner, Thomas: 1MOr2B-01, 1MOr2B-02, 5MOr1B-07, 5MOr1B-08
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Behr, Ralf: 4EOr2A-04
Bei, Xiaomin: 2MPo2C-10 [M31]
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Benato, G: 2EPo1C-03 [E22], 3EPo2B-12 [E24]
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Bennett, Douglas: 1EOr1B-01, 1EOr1B-04, 1EOr1B-07, 1EOr2C-03, 2EOr1A-06, 2EOr2B-01, 2EOr2B-02, 2EOr2B-03, 2EOr3B-01, 3EPo1B-01 [E9&10], 3EPo1C-01 [E18], **3EPo1C-05 [E23]**, 3EPo1C-09 [E27], 3EPo2B-03 [E14], 3EPo2B-08 [E20], 3EPo2B-10 [E22]
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Berger, Anne: 5LOr1B-02
Berger, Kévin: 1LPo2B-08 [L17], 1LPo2E-07 [L46], 1LPo2E-08 [L47], 1LPo2H-08 [L75], 1MPo2D-03 [M36], 2MPo1B-01 [M11]
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Berriaud, Christophe: 2LOr1D-04, 2LPo1J-08 [L88]
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Bhushan, Manjul: **3EPo2A-11 [E11]**, 3EPo2D-04 [E39]
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Bocchi, Marco: 2LPo1E-06 [L46], 2LPo2J-07 [L79]
Bochi, Shuhei: 1MPo2D-12 [M44]
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Bocquel, Clement: 2MPo2A-01 [M1], 5LOr1B-04, 5LOr1B-05
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Boll, Martin: 2MOr1B-03, 2MPo2A-05 [M5]
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Bong, Uijong: **1LOr1B-04**, 2LPo1K-08 [L96], 2LPo2E-06 [L38], 3LPo2L-08 [L101]
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Bonifetto, Roberto: 1LOr2A-07, 2LPo2C-03 [L19], **3LPo2J-08 [L78&79]**, 4LPo1B-01 [L11]
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Bonne, François: 1LOr2A-03
Bonura, Marco: **1LPo2D-10 [L37]**, 1MPo2A-06 [M7], 2MOr3A-02, **4MOr3B-06**
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Bordini, Bernardo: 1LOr1D-01, 1LOr1D-03, 1MOr2B-01, 1MOr2B-07, 1MOr2B-08, **1MOr2B-09**, 1MPo2A-06 [M7], 1MPo2A-09 [M10], 2LPo1H-02 [L74], 2MOr1A-01, 2MOr1A-02, 3LPo1D-09 [L38], 3LPo2G-01 [L56&57], 3MPo2A-01 [M1], 4LOr3A-01, 4LOr3A-02, 4MPo1A-04 [M4]
Borges, Ricardo: 3EPo2C-09 [E33]
Borgnic, Benjamin: 2LOr2A-04, 2LPo2A-05 [L5]
Borisov, Vladimir: 1LPo2J-01 [L77&78]
Bortot, Lorenzo: 2LOr3B-02, 2LPo1K-06 [L94], 4LOr3A-03
Bosque, Ernesto S.: **1MPo2B-11 [M23]**, 2LOr3A-01, 2LOr3B-01, 3LPo1J-03 [L78], 3LPo2H-05 [L67], 3MPo2D-01 [M26], 4LOr2A-04
Bossert, Rodger: 4LOr3A-01
Botha, Matthys M.: 4EOr2B-02, 4EPo1E-02 [E39]
Bottura, Luca: 1LOr1D-01, 1LOr1D-03, 1LPo2A-10 [L10], 1MOr2A-01, 1MOr2B-01, 2LOr1B-01, 2LPo2D-03 [L25], 3LOr2C-02, 3LPo1D-09 [L38], 3LPo2E-05 [L44], 3LPo2G-01 [L56&57], 3LPo2G-06 [L61], 3LPo2H-03 [L65], 4LOr3A-02, 5LOr1C-07
Bouchet, Florent: 1LPo2H-03 [L71]
Bourcey, Nicolas: 1LOr1D-01, 1LPo2G-01 [L61], 1LPo2G-03 [L62], 2LPo1H-02 [L74], 2LPo1H-03 [L75], 2MPo2B-03 [M12], 3LOr2B-07, 3LPo2E-08 [L47], 3LPo2G-03 [L58], 3LPo2G-04 [L59], 3LPo2G-05 [L60], 3LPo2G-07 [L62], 4LPo1F-04 [L52]
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Bovone, Gianmarco: 2MPo1E-07 [M48], **2MPo2D-08 [M39]**
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Braggio, Caterina: 1LOr1A-01
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Brandel, Julia: 3EPo2E-01 [E45]
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Breitschopf, Jeffrey: 1LPo2J-07 [L84], 1LPo2J-11 [L87]
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Briggs, Ryan M.: 2EOr1C-01
Brindza, Paul D.: 3LPo2A-04 [L4]
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Brouwer, Lucas: 1LOr1D-03, 2LOr1B-02, 2LOr1B-04, 2LOr3A-04, 2LOr3B-01, 2LPo1H-01 [L73], 2LPo2D-03 [L25], 3LPo2H-05 [L67], 4LPo1F-06 [L54], **4LPo1F-08 [L56]**, **5LOr1A-04**
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Brownsey, Paul: 3MOr2A-01
Bruce, Romain: **1LPo2H-03 [L71]**
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Burdusel, Mihail: 2MPo2A-03 [M3]
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Burzler, Raphaela: 3MOr2A-05
Buta, Florin: **1MPo2A-06 [M7]**
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Cantor, Robin: 1EOr1A-05, 2EOr3B-04, **2EOr3C-04**, 3EPo1B-06 [E14], 3EPo2B-07 [E19], 3EPo2B-10 [E22]
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Carcagno, Ruben: 2LOr1B-05, 4LOr3A-01
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Carmichael, Justin R.: 1LOr1D-02, 2LPo1H-04 [L76], 2LPo2K-09 [L91]
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Du, Qingqing: 3LPo1D-01 [L30], 3LPo1F-02 [L51]
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Duff, Shannon M.: 1EOr1B-04, **1EOr2C-01**, 2EOr3B-01, 2EPo1C-02 [E21], 3EOr2B-04, 3EOr2B-06, 3EPo1E-07 [E44]
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Elenskiy, Ilya: 3EPo2C-06 [E30], 4EOr3B-03
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Fazilleau, Philippe: 2LOr2A-04, 2LPo2A-05 [L5], 3LPo2F-03 [L50]
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Feuvrier, Jerome: 1LOr1D-01, 2LPo1H-02 [L74], 3LPo2G-01 [L56&57]
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Ishii, Hirotaka: 1MOr1B-06, 2LOr2C-06, 2MPo1B-02 [M12]
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Ishii, Yusuke: 2LOr3A-03, 3LPo1J-11 [L86], 3LPo2H-04 [L66]
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Ishiyama, Atsushi: 2LPo1K-02 [L90], 2LPo2E-04 [L36], 3LPo1B-04 [L15], 3LPo1B-05 [L16], 3LPo1C-01 [L22], 3LPo2J-01 [L71], 3LPo2L-04 [L97]
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Itoh, Yoshitaka: 1LOr1B-02, 1MPo2B-08 [M20]
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Juchno, Mariusz: 1LOr1D-03, 1LPo2G-03 [L62], 3LPo2G-03 [L58], **4LPo1F-06 [L54]**
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Kaijuan, Yan: 3MPo2A-10 [M9], **3MPo2A-11 [M10]**
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Kang, Hyoungku: 2LPo2A-07 [L7], 2LPo2G-03 [L56], 2LPo2K-07 [L89], 3LPo1A-07 [L7], **3LPo1D-04 [L33]**, 3LPo2H-02 [L64], 4LPo1E-10 [L47]
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Kang, Lin: 2EPo1B-03 [E15], 2EPo1B-04 [E16], 2EPo1B-05 [E17], 2EPo2E-11 [E54], 3EPo1A-05 [E3], 3EPo1E-03 [E41], 3EPo2C-07 [E31], 3EPo2E-04 [E48], 3EPo2E-09 [E53]
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Karlemo, Ben: 1MOr2B-01
Karlsen, B.: 4EOr2A-04
Karpel, Ethan: 1EOr1B-04
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Kato, Hiroyuki: 1MPo2A-02 [M2]
Kato, Masahiro: 4LOr2A-07
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Kawamata, Hiroshi: 2LPo2K-05 [L87], 3LOr2B-05, 3LPo2E-04 [L43]
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Kim, Chul H.: 1LOr2B-05, 2LPo1C-02 [L22&23], 2MPo1D-01 [M34], 3LOr2A-02, 3LOr2A-04, 3LPo1C-02 [L23], **3LPo1C-03 [L24]**, 3LPo1C-05 [L25], 4MOr3A-01, 4MOr3A-02
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Kim, Eung-zu: 4MPo1A-04 [M4]
Kim, Geon-Bo: 2EOr3B-04
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Matsumoto, Kaname: **1MOr2A-02**, 2MPo1B-10 [M20], 3MPo1C-04 [M25], 4MOr2B-04, 5MOr1A-03
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Matsumoto, Shinji: 1LOr1C-07, 4LPo1E-06 [L43], 4LPo1G-07 [L64], **4LPo1G-09 [L66]**
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McDermott, Robert: 3EOr2A-01, 4EPo1A-03 [E2]
McGeehan, Ryan: 5EOr1B-03
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McKenney, Christopher M.: 1EOr2B-03, 3EPo1E-07 [E44]
McMahon, Jeff: 3EOr2B-04, 3EOr2B-06
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Melbourne, Thomas: 1EPo2B-02 [E5], 1EPo2B-05 [E8]
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Mentink, Matthias: 1LPo2G-01 [L61], 2LOr3B-02, 2LPo1J-02 [L82], 2LPo1J-08 [L88], 2LPo1K-06 [L94], 3LOr2B-06, 4LOr3A-03
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Mohansundaram, Girupaakaran: 4MOr2A-08
Molinié, Frédéric: 2LOr1D-04
Möller, Marcel: 2LOr1A-02
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Zhou, Difan: 2MOr1B-03, 2MPo2A-05 [M5], 2MPo2D-10 [M41]
Zhou, Fang: 2MOr3B-02
Zhou, Hui: **3EPo2E-11 [E55]**
Zhou, Kangmin: 1EOr2B-05
Zhou, PengBo: **1MPo2C-07 [M29]**, 2LPo2L-01 [L92], 2LPo2L-11 [L102]
Zhou, Pengyan: **1LPo2F-01 [L50]**
Zhou, Qiaogen: 1LPo2F-05 [L54]
Zhou, Tingzhi: 3LPo1D-01 [L30], 3LPo1D-02 [L31]
Zhou, Wei: 3LPo1G-05 [L63]
Zhou, Weiwei: 1LPo2K-14 [L102]
Zhou, Xianjing: 4EOr3A-06, 4EOr3B-06
Zhou, Xiao: 2LPo1G-07 [L70]
Zhou, Xiaoying: 3EPo2E-09 [E53]
Zhou, Xingxiang: 2EPo1C-07 [E27], 2EPo2D-10 [E41]
Zhou, Yong: **3LPo2B-08 [L17]**
Zhou, You: **2LPo1A-02 [L2]**
Zhou, Yuchao: 1EOr1A-04
Zhu, Di: 2EOr1C-05, 2EOr2C-05, 2EPo2C-07 [E25], 3EPo1A-03 [E2], **3EPo1A-07 [E5]**, 3EPo1A-08 [E6], **3EPo1E-01 [E39]**, 3EPo1E-06 [E43]
Zhu, Guanghao: 2EPo1B-03 [E15]
Zhu, He: 1LPo2A-01 [L1]
Zhu, Jiahui: 1LPo2C-08 [L28], 3LOr2C-06, **3LPo1E-09 [L48]**, 3LPo1F-02 [L51], **3LPo1H-07 [L72]**, 3MPo1B-03 [M13]
Zhu, Jiamin: 1LOr1B-06
Zhu, Kai: **4LPo1A-11 [L10]**
Zhu, Lijun: 4EOr2A-01
Zhu, Xiaobo: **4EOr2C-02**
Zhu, Yidong: 3LPo1E-09 [L48]
Zhu, Yingwei: 4LPo1C-03 [L21]
Zhu, Yu: 3LPo1F-02 [L51]
Zhu, Zian: 3LPo1B-02 [L13], 3LPo1J-07 [L82]
Zhu, Zixuan: **1LPo2E-05 [L44]**, 2LPo1D-06 [L34], **2LPo2F-11 [L52]**, 4LPo1K-11 [L97]
Zhuravel, Alexander P.: 3EPo2C-03 [E27]
Zichi, Julien: 2EOr2C-02, 2EPo2C-06 [E24]
Ziegler, Mario: 3EPo2E-01 [E45]
Zlobin, Alexander: **1LOr1D-02**, 1LOr1D-03, 1LPo2A-02 [L2], 1LPo2F-07 [L56], 1MPo2A-05 [M6], 1MPo2A-08 [M9], 2LOr1B-03, 2LPo1H-04 [L76], 2LPo2K-09 [L91], 2MPo2B-04 [M13], 4LOr2C-05, 4LPo1F-06 [L54]
Zmuidzinas, Jonas: 3EOr2B-01, 5EOr1B-03
Zoboli, Lorenzo: 1LOr2A-07
Zobrist, Nicholas: **1EOr2B-07**
Zolotov, Philipp: 2EPo2C-09 [E27]
Zong, Zhanguo: 3LPo2E-07 [L46]
Zou, Chunlong: 3LPo2J-10 [L82], 3LPo2L-01 [L94]
Zou, Guihong: 2LPo1K-10 [L98]
Zou, Kai: 2EOr2C-02, **2EPo2C-06 [E24]**
Zou, Simin: 3MPo1A-07 [M7], 5MOr1A-01
Zou, Xiaofeng: 4MPo1A-07 [M7]
Zurmuehle, Damien: 1MPo2A-09 [M10]
Zwiller, Val: 2EOr2C-02, 2EPo2C-06 [E24]

ASC 2018 Program - Schedule at a Glance

****Unless otherwise noted, all sessions and events take place at the Washington State Convention Center (WSCC), Level 4 (Exhibits & Posters) and Level 6 (Registration & Oral Sessions).****

	Sunday, 10/28/18	Monday, 10/29/18	Tuesday, 10/30/18	Wednesday, 10/31/18	Thursday, 11/1/18	Friday, 11/2/18
AM 7:00						
7:15						
7:30	**ASC Short Courses Registration** AM: 7:30 a.m. - 8:30 a.m. PM: 12:30 p.m. - 1:30 p.m. WSCC - Level 2	**Exhibits Open** 1:00 p.m. - 4:00 p.m.	**Exhibits Open** 8:45 a.m. - 3:30 p.m.	**Exhibits Open** 9:00 a.m. - 3:30 p.m.	**Exhibits Open** 9:00 a.m. - 11:45 a.m.	
7:45						
8:00		**Opening** (starts at 8:00 a.m.) **IEEE & CSA Awards** Ballroom 6ABC	**Plenary 2** (8:00 a.m. - 8:45 a.m.) **Dr. Tabea Arndt** Ballroom 6ABC	**Plenary 3** (8:00 a.m. - 8:45 a.m.) **Dr. Peter Lee**	**Plenary 4** (8:00 a.m. - 8:45 a.m.) **Prof. Robert Schoelkopf**	**Oral Sessions** 8:00 a.m. - 10:00 a.m. Rooms 6A, 6B, 6C, 602-604, 606-607, 608-609, 615-617
8:15			In Memoriam & Jan Evetts SUST Award			
8:30		**Plenary 1** (8:45 a.m. - 9:30 a.m.) **Prof. Barry Barish** Ballroom 6ABC	**Poster Sessions** 8:45 a.m. - 10:45 a.m. Coffee Break: 9:15 a.m. - 9:45 a.m. Exhibit Hall	**Roundtable Discussion** 8:45 - 9:30 a.m. **Young Scientist Plenary** 9:30 - 10:00 a.m. Ballroom 6ABC	**Plenary 5** (8:45 a.m. - 9:30 a.m.) **Dr. Hideaki Maeda** Ballroom 6ABC	
8:45					**Graduate Study Fellowship & Best Paper Awards**	
9:00	**ASC Short Courses** full day short courses 8:30 a.m. - 4:30 p.m. half-day short courses 8:30 a.m. - 12:00 p.m. 1:00 p.m. - 4:30 p.m.	**Coffee Break** (9:30 a.m. - 10:00 a.m. Level 4 Atrium			**Poster Sessions** 9:45 a.m. - 11:45 a.m. Coffee Break: 10:15 a.m. - 10:45 a.m. Exhibit Hall	**Coffee Break** (10:00 a.m. - 10:30 a.m.) Level 6, ABC Lobby
9:15		**Oral Sessions** 10:00 a.m. - 12:00 p.m. Rooms 6A, 6B, 6C, 602-604, 606-607, 608-609, 611-612, 613-614, 615-617	**Oral Sessions** 10:45 a.m. - 12:15 p.m. Rooms 6A, 6B, 6C, 602-604, 606-607, 608-609, 611-612, 613-614, 615-617	**Poster Sessions** 10:00 a.m. - 12:00 p.m. Coffee Break: 10:30 a.m. - 11:00 a.m. Exhibit Hall		**Plenary 6** (10:30 a.m. - 11:15 a.m.) **Prof. Yannis Semertzidis**
9:30						**Late-breaking Plenary** (11:15 a.m. - 11:35 a.m.) Prof. Gray Rybka
9:45						**Plenary 7** (11:35 a.m. - 12:20 p.m.) **Prof. Rainer Weiss**
10:00						Ballroom 6ABC
10:15						**Closing**
10:30						
10:45						
11:00		**Lunch** 12:00 p.m. - 2:00 p.m.	**Lunch** 12:15 p.m. - 1:30 p.m.	**Lunch** (12:00 p.m. - 1:30 p.m.) **Student Career Box Lunch Session** 12:00 p.m. - 1:30 p.m. Room 608-609 **Editors Lunch - *by invitation only***	**Lunch** 11:45 a.m. - 1:15 p.m.	
11:15						
11:30						
11:45						
PM 12:00						
12:15						
12:30	**Science Communication Workshop** 1:00 p.m. - 4:30 p.m. Pacific Science Center Museum					
12:45						
1:00		**Poster Sessions** 2:00 p.m. - 4:00 p.m. Coffee Break: 2:30 p.m. - 3:00 p.m. Exhibit Hall	**Poster Sessions** 1:30 p.m. - 3:30 p.m. Coffee Break: 2:00 p.m. - 2:30 p.m. Exhibit Hall	**Poster Sessions** 1:30 p.m. - 3:30 p.m. Coffee Break: 2:00 p.m. - 2:30 p.m. Exhibit Hall	**Oral Sessions** 1:15 p.m. - 3:15 p.m. Rooms 6A, 6B, 6C, 602-604 606-607, 608-609, 611-612, 615-617	
1:15						
1:30						
1:45						
2:00			**Oral Sessions** 3:30 p.m. - 5:00 p.m. Rooms 6B, 6C, 602-604, 606-607, 608-609, 611-612, 613-614, 615-617	**Oral Sessions** 3:30 p.m. - 5:30 p.m. Rooms 6A, 6B, 6C, 602-604, 606-607, 608-609, 611-612, 615-617	**Oral Sessions** 3:30 p.m. - 5:00 p.m. Rooms 6A, 6B, 6C, 602-604, 606-607, 608-609, 611-612, 613-614, 615-617	
2:15						
2:30	**Registration** 4:00 p.m. - 7:00 p.m. Level 6, ABC Lobby	**Oral Sessions** 4:00 p.m. - 6:00 p.m. Rooms 6A, 6B, 6C, 602-604, 606-607, 608-609, 611-612, 613-614, 615-617	**Oral Sessions** 5:15 p.m. - 6:45 p.m. Rooms 6A, 6B, 6C, 602-604, 606-607, 608-609, 615-617			
2:45						
3:00				**Student Competition** 6:00 p.m. - 8:00 p.m. Electronics: Room 602-604 Large Scale: Room 606-607 Materials: Room 608-609		
3:15						
3:30						
3:45						
4:00		**Welcome & Exhibitor Reception** 6:30 p.m. - 8:30 p.m. Level 4 Atrium and Exhibit Hall	**ASC/CWsWiSE Diversity in Science & Engineering Event** 7:00 p.m. - 8:30 p.m. Level 3, Room 3AB	**Student Pub Crawl** Meet at 8:00 p.m. outside room 601	**ASC Evening at MoPOP** 7:00 p.m. - 9:00 p.m. Museum of Pop Culture 325 5th Avenue N., Seattle ASC Entrance - use Harrison Street	
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