CEC/ICMC 2021 Conference Program
(Final)

All times are listed in US Eastern Time (EDT). Click here for time zone conversions.

Sunday, July 11, 2021

***ICMC* Short Course**	**8:00 AM - 11:00 AM**	**High-field Superconducting Materials & Conductors**

Saturday, July 17, 2021

***ICMC* Short Course**	**8:00 AM - 11:00 AM**	**Quantum Information Science**

Sunday, July 18, 2021

***ICMC* Short Course**	**8:00 AM - 11:00 AM**	**Properties of Structural Materials and Introduction to Additive Manufacturing for Cryogenic Applications**
***CSA* Short Course**	**8:00 AM - 12:00 PM**	**Theory, Modeling and Design of Regenerative Cryocoolers**
***CSA* Short Course**	**8:00 AM - 12:00 PM**	**Aspects of Cryostat Design**
***CSA* Short Course**	**12:00 PM - 4:00 PM**	**Getting Started with Cryogenic Fuels—Liquefied Hydrogen and Natural Gas**
	1:00 PM - 3:00 PM	**Welcome & SpatialChat Intro**
	7:00 PM - 9:00 PM	**Welcome & SpatialChat Intro**

Monday, July 19, 2021

Awards	**8:00 AM - 8:15 AM**	**Opening and ICMC Awards Presentations**	
ICMC Plenary	**8:15 AM - 9:00 AM**	**Prof. Irfan Siddiqi (LBNL & UCB) – The Promise of Superconducting Quantum Information Processing - *sponsored by Cryomech, Inc.***	
	Session Chairs: *Tengming Shen, Lawrence Berkeley National Lab & Mike Sumption, The Ohio State University*		
CEC - Oral	**9:15 AM - 10:15 AM**	**C1Or1A - Cryoplant Construction and Design I**	
	Session Chairs: *Benjamin Hansen, Fermilab & John Jurns, National Institute of Standards and Technology*		
	~~9:15 AM~~	C1Or1A-01 - *WITHDRAWN*	
	9:15 AM	C1Or1A-02 - Analysis of Oxygen Liquefaction with Transient Flow Rates for ISRU Systems	Ryan Grotenrath
	9:30 AM	C1Or1A-03 - Design and procurement of the 35 g/s Helium liquefaction system for the SM-18 facility at CERN	Manuel Messmer; Philipp Treite
	9:45 AM	C1Or1A-04 - SHINE - Cryogenic Plant basic design presentation	Yannick Fabre
	10:00 AM	C1Or1A-05 - Status of the PIP-II cryoplant	Yi Jia
CEC - Oral	**9:15 AM - 10:15 AM**	**C1Or1B - Non-Aerospace Coolers I**	
	Session Chairs: *Peter Bradley, National Institute of Standards and Technology, NIST & John Pfotenhauer, University of Wisconsin - Madison*		
	9:15 AM	C1Or1B-01 - Advanced exergy analysis of reverse Brayton cryocooler for 10 kW cooling capacity at 65 K	Aman Kumar Dhillon
	9:30 AM	C1Or1B-02 - The Development Status of Sunpower DS 10 Cryocooler	Yongsu Kim
	9:45 AM	C1Or1B-03 - The GTLT Cryocooler, A Low Temperature Variant of CryoTel® GT	Yongsu Kim
	10:00 AM	C1Or1B-04 - Heat switch ratio limitation of superconducting heat switches on the continuous stage of ADRs	Ping Liu
CEC - Oral	**9:15 AM - 10:30 AM**	**C1Or1C - Cryocooler Components I: Expanders, Pumps, Compressors and Regenerators**	
	Session Chairs: *Mark Zagarola, Creare LLC & Franklin Miller, University of Wisconsin - Madison*		
	9:15 AM	C1Or1C-01 - Improvement of the regenerator performance working at liquid-helium temperatures with a variable cross-sectional area	Qiang Cao
	~~9:30 AM~~	C1Or1C-02 - *WITHDRAWN*	
	9:30 AM	C1Or1C-03 - Drawn-Polymer Recuperative Heat Exchangers for use in Cryocoolers.	Jacob Adams
	~~10:00 AM~~	C1Or1C-04 - *moved to another session*	
	9:45 AM	C1Or1C-05 - Remote Cooling Systems with Mesh-based Heat Exchangers for Cryogenic Applications	Aleksandra Onufrena
	~~10:00 AM~~	C1Or1C-06 - *WITHDRAWN*	

	10:00 AM	C1Or1C-07 - Efficiency increase of cryoplants by retrofitting with state-of-the-art turbine technology	Robert Herrmann
	~~10:15 AM~~	C1Or1C-08 - *WITHDRAWN*	
ICMC - Oral	**9:15 AM - 11:15 AM**	**M1Or1A - Focus Session: REBCO Coated Conductor - Industrial Development**	
	Session Chairs: *Tengming Shen, Lawrence Berkeley National Lab & David Larbalestier, ASC / NHMFL / FSU*		
	9:15 AM	M1Or1A-01 -[Invited] Expansion of SuperOx 2G HTS wire industrial production to a multi-tonne level	Alexander Molodyk
	9:35 AM	M1Or1A-02 - [Invited] Scaling-up and R&D of 2G-HTS Tapes Fabricated by Ultra-fast PLD Process at Shanghai Superconductors Technology	Yue Zhao
	9:55 AM	M1Or1A-03 - [Invited] Ongoing 2G HTS Wire Development at SuperPower	Drew Hazelton
	10:15 AM	M1Or1A-04 - [Invited] Development of long-length and uniform 2G HTS wire at Fujikura	Satoru Hanyu
	10:35 AM	M1Or1A-05 - [Invited] In-field Critical Current Improvement, Recent Progress and Future Plan of Coated Conductor Development at SuNAM	Seung-Hyun Moon
	10:55 AM	M1Or1A-06 - [Invited] Low temperature, high magnetic field performance of REBCO tapes	Venkat Selvamanickam
Joint - Oral	**9:15 AM - 11:15 AM**	**M1Or1B - Focus Session: Joint - Superconducting Quantum Systems I**	
	Session Chairs: *Mollie Schwartz, MIT Lincoln Laboratory & Eric Holland, Keysight Technonolgies*		
	9:15 AM	M1Or1B-01 - [Invited] Superconducting Quantum Materials and Systems Center, a new DOE National Quantum Information Science Research Center	Anna Grassellino
	9:45 AM	M1Or1B-02 - [Invited] Refrigeration for quantum information processing	Scott Holmes
	10:15 AM	M1Or1B-03 - [Invited] Challenges in scaling up Cryogenic Solutions for Quantum Information Systems	Ziad Melhem
	10:45 AM	M1Or1B-04 - [Invited] Cryogenic Infrastructure for Quantum Computing	Matthew Hollister
ICMC - Oral	**11:30 AM - 1:30 PM**	**M1Or2A - Focus Session: Flux Pinning I**	
	Session Chairs: *Boris Maiorov, Los Alamos National Laboratory & Chiara Tarantini, ASC/NHMFL/FSU*		
	11:30 AM	M1Or2A-01 - [Invited] Ultrafast transient liquid assisted growth (TLAG): a new YBa2Cu3O7 growth method with novel vortex pinning scenarios	Teresa Puig
	12:00 PM	M1Or2A-02 - [Invited] Growth, microstructure and pinning properties of CSD REBCO films and nanocomposites	Jens Hänisch
	12:30 PM	M1Or2A-03 - [Invited] Advanced (RE)-Ba-Cu-O bulk superconductors with improved superconducting and mechanical properties	David Cardwell
	1:00 PM	M1Or2A-04 - [Invited] Effect of ion irradiation on cuprate and iron-based superconductors	Qiang Li
ICMC - Oral	**11:30 AM - 1:35 PM**	**M1Or2B - Focus Session: Low Temperature Electronics and Materials I**	
	Session Chairs: *Richard Klemm, University of Central Florida & Thomas Bullard, UES, Inc.*		
	11:30 AM	M1Or2B-01 - [Invited] Cold Electronics System Integration for Cryogenic Applications	Marcos Turqueti
	11:55 AM	M1Or2B-02 - [Invited] Cryogenic electronics for superconducting magnet instrumentation	Maxim Marchevsky
	12:20 PM	M1Or2B-03 - [Invited] R&D needs for "cold" electronics for superconducting magnets - Fermilab perspective	Stoyan Stoynev
	12:45 PM	M1Or2B-04 - [Invited] An Update on Optically Triggered Microwave Emission from an Inductively Charged Superconducting Ring	Tom Bullard
	1:10 PM	M1Or2B-05 - [Invited] Progress in the design of a compact array of superconducting terahertz emitters	Richard Klemm
CEC - Poster	**11:30 AM - 1:30 PM**	**C1Po1A - Large Scale Liquid Air and LNG**	
	Session Chairs: *John Jurns, National Institute of Standards and Technology & Renzhuo Wang, Fermi National Accelerator Laboratory*		
	~~11:30 AM~~	C1Po1A-01 - *WITHDRAWN*	
	11:30 AM	C1Po1A-02 - A comparative study of two liquid air energy storage systems with LNG cold energy recovery	Xiaoyu Fan
	11:30 AM	C1Po1A-03 - Study on the selection method of solid cold energy storage medium for liquid air energy storage	Luna Guo
	11:30 AM	C1Po1A-04 - Thermodynamic analysis of the non-ideal cryogenic packed bed regenerator for the liquid air energy storage system	Luna Guo
	11:30 AM	C1Po1A-05 - Technical and economic evaluation of a liquid air energy storage system with air precooling for compressor inlet	Zhaozhao Gao
	11:30 AM	C1Po1A-06 - Thermodynamic analysis of a liquid air energy storage system with off-peak electric heat storage and reutilization	Xiaoyu Fan
CEC - Poster	**11:30 AM - 1:30 PM**	**C1Po1B - Large Scale Cryogenic Systems**	
	Session Chairs: *Grzegorz Tatkowski, Fermilab & Aman Kumar Dhillon, Indian Institute of Technology Kharagpur*		

	11:30 AM	C1Po1B-01 - SNS Carbon Bed Research Project Design, Commissioning, and Initial Results	Brian DeGraff
	11:30 AM	C1Po1B-02 - Sub-atmospheric Re-pressurization Analysis of FRIB LINAC Segment 2 Cryogenic Distribution System	Jonathon Howard
	11:30 AM	C1Po1B-03 - Development of a volatile organic compounds cryogenic condensation recovery system cooled by liquid nitrogen	Hao Xu
	11:30 AM	C1Po1B-04 - Cryogenic Infrastructure for the Mainz Energy-recovering Superconducting Accelerator (MESA)	Timo Stengler
	~~11:30 AM~~	C1Po1B-05 - *WITHDRAWN*	
	11:30 AM	C1Po1B-06 -Maintenance of the first NBI vacuum system for the KSTAR tokamak	Young Ju Lee; Jongsu Kim
	11:30 AM	C1Po1B-07 - PIP-II Cryogenic Distribution System (CDS) thermodynamic design	Andrew Dalesandro
	11:30 AM	C1Po1B-08 - Thermohydraulic simulation of quenches and pressure relief system for the HL-LHC IT String test bench at CERN	Gabriella Rolando
CEC - Poster	**11:30 AM - 1:30 PM**	**C1Po1C - Superconducting RF Systems, Power Cables, and Leads I**	
	Session Chair: *Abhay Singh Gour, IIT Kharagpur*		
	~~11:30 AM~~	C1Po1C-01 - *WITHDRAWN*	
	11:30 AM	C1Po1C-02 - Operation of Cryogenic Cooling System with Inverter Compressors for 23 kV-2 kA SFCL	Ho-Myung Chang
	11:30 AM	C1Po1C-03 - Effect Analyses of Thermal Deformation on Magnetic Performance of the CPMU Prototype in SSRF	Jian Wang; Li Wang
	11:30 AM	C1Po1C-04 - Feasibility study of capacitance based quench detection technique for HTS power transmission cables	Harris K. Hassan
	11:30 AM	C1Po1C-05 - Analytic prediction of maximum temperature in two-way cooling channel of long-distance HTS cable	Bokeum Kim
CEC - Poster	**11:30 AM - 1:30 PM**	**C1Po1D - Applications I: Fuel, Transportation, Medical and Food**	
	Session Chair: *Pavitra Sandilya, IIT Kharagpur*		
	11:30 AM	C1Po1D-01 - Theoretical comparison of the thermo-mechanical fatigue characteristics of a tension rod and a coil used as dewar supports	Pavitra Sandilya
	11:30 AM	C1Po1D-02 - Cryogenic thermal energy storage for boil-off gas reliquefaction	Ghiwa Shakrina
	11:30 AM	C1Po1D-03 - Analysis of the factors influencing the precooling process of cryogenic compressed hydrogen storage tank	Ming He
	~~11:30 AM~~	C1Po1D-04 - *WITHDRAWN*	
CEC - Poster	**11:30 AM - 1:30 PM**	**C1Po1E - Aerospace Applications I**	
	Session Chairs: *Wesley Johnson, NASA Glenn Research Center & Seth Potratz, Linde Inc*		
	11:30 AM	C1Po1E-01 - Development of a Thermal Control Coating Optimized for Cryogenic Space Applications	Angela Krenn
	11:30 AM	C1Po1E-02 - A Composite Thermal Insulation System with Aerogel and Multilayer Insulation for Liquid Hydrogen Storage	Xiafan Xu
	11:30 AM	C1Po1E-03 - Effect of wall materials on the self-pressurization behavior of a liquid nitrogen tank with a transient thermal diffusion model	Xujin Qin
	11:30 AM	C1Po1E-04 - Thrust estimation for HTS-magnet based Magneto Plasma Dynamic Thrusters (MPDT)	Lokesh Meena; Ankit Anand
	~~11:30 AM~~	C1Po1E-05 - *WITHDRAWN*	
	11:30 AM	C1Po1E-06 - Numerical Prediction of Side Loads in Cryogenic Rocket Nozzle at Sea Level Operation	Tapas Kumar Nandi
CEC - Poster	**11:30 AM - 1:30 PM**	**C1Po1F - Thermal-Fluid Transport and Properties I**	
	Session Chair: *Biju Kuzhiveli, NIT Calicut*		
	11:30 AM	C1Po1F-01 - Residual Entropy for Scaling the Reduced Viscosity of Quantum Fluids	Erin Espeland
	11:30 AM	C1Po1F-02 - Liquid Hydrogen Pool-Boiling Correlations for Polymer Tank Applications	Matthew Shenton
	11:30 AM	C1Po1F-03 - Relationship between cooling surface condition and heat transfer characteristics during cryopreservation of living tissue	Masakazu Nozawa
	11:30 AM	C1Po1F-04 - Experimental study on the pool boiling heat transfer of slush nitrogen under triple point to atmospheric pressure	Qidong Wang
	11:30 AM	C1Po1F-05 - Two-phase pressure drop study for cryosurgical probes using one-dimensional homogeneous model	Anish Gunjal
	11:30 AM	C1Po1F-06 - Flow of Neon-Nitrogen-Hydrocarbon mixture through adiabatic capillary tube at cryogenic temperatures	Darshit Parmar
	11:30 AM	C1Po1F-07 - Numerical simulation of sinusoidal corrugated fins and serrated fins performance at low temperature	Zhigang Jiang
ICMC - Oral	**2:00 PM - 4:30 PM**	**M1Or3A - Focus Session: Topological Materials for Electronics I**	

	Session Chairs: *Chris Palmstrom, University of California, Santa Barbara & Kang Wang, UCLA*		
	2:00 PM	M1Or3A-01 - [Invited] Understanding the Link Between Magnetism and Topology	Matthew Gilbert
	2:30 PM	M1Or3A-02 - [Invited] Epitaxial Growth and Studies of Topological Materials	Chris Palmstrom
	3:00 PM	M1Or3A-03 - [Invited] Topological materials for cryogenic electronics and spintronics	Kang Wang
	3:30 PM	M1Or3A-04 - [Invited] Topological order driven under interface magnetic exchange field	Peng Wei
	4:00 PM	M1Or3A-05 - [Invited] Exploring the topological phase of narrow-gap materials via magneto-spectroscopy	Zhigang Jiang
CEC - Poster	**6:00 PM - 7:30 PM**	**C1Po2A - Large Scale Liquid Helium Facilities**	
	Session Chairs: *John Jurns, NIST & William Soyars, Fermi National Accelerator Laboratory*		
	6:00 PM	C1Po2A-01 - Preliminary structural design and analysis of the horizontal cold box for CFETR 25 kW@4.5 K helium refrigerator	Zhigang Zhu
	6:00 PM	C1Po2A-02 - Preliminary Design of a 4kW@4.5K Helium Refrigerator for CFETR Toroidal Field superconducting magnet	Zhiwei Zhou
	~~6:00 PM~~	C1Po2A-03 - *WITHDRAWN*	
	6:00 PM	C1Po2A-04 - Dynamic simulation of the cool down Process of double-pressure helium liquefaction cycle	Huikun Su
	6:00 PM	C1Po2A-05 - LCLS-II Warm Helium Compressor Commissioning	Viswanath Ravindranath
	6:00 PM	C1Po2A-06 - LCLS-II Helium Cryoplant and Cryo Distribution System Installation	Dirk Pflueckhahn
CEC - Poster	**6:00 PM - 7:30 PM**	**C1Po2B - Large Scale Liquid Hydrogen Systems**	
	Session Chairs: *Jacob Leachman, Washington State University & John Jurns, NIST*		
	6:00 PM	C1Po2B-01 - Static and dynamic characteristics of externally pressurized gas bearing for high-speed hydrogen turbo-expander	Han Yan
	6:00 PM	C1Po2B-02 - Failure analysis of leaks due to cracks in hydrogen transfer lines of ESS cryogenic moderator	Hideki Tatsumoto
	6:00 PM	C1Po2B-03 - Design of a hydrogen vent system for ESS cryogenic moderator system	Hideki Tatsumoto
	6:00 PM	C1Po2B-04 - Design of an in situ real-time measurement of the ortho-para fractions of liquid hydrogen at ESS	Hideki Tatsumoto
	6:00 PM	C1Po2B-05 - Operation Scheme of Three-Stage OP Conversion in 0.5 T/d Hydrogen Liquefaction System	Ho-Myung Chang
CEC - Poster	**6:00 PM - 7:30 PM**	**C1Po2C - Large Scale Cryo Test Stands and Facilities**	
	Session Chairs: *Jaroslaw Polinski, Wroclaw University of Science and Technology & Matthew Hollister, Fermilab*		
	6:00 PM	C1Po2C-01 - An Upgraded Cryogenic Test Stand for HL-LHC Cryo-Assemblies	Roger Jon Rabehl
	~~6:00 PM~~	C1Po2C-02 - *WITHDRAWN*	
	6:00 PM	C1Po2C-03 - Commissioning and cryogenic performance of the UKRI STFC Daresbury Vertical Test Facility for jacketed SRF cavities	Andrew May
	6:00 PM	C1Po2C-05 - Cryogenic Accelerated Fatigue Tester for Additive Manufactured Polymer Composite Mechanical Property Determination	Reece Adams
	6:00 PM	C1Po2C-06 - Design of the cryostat for High Field Vertical Magnet Testing Facility at Fermilab	Sergey Koshelev
	6:00 PM	C1Po2C-07 - Cryogenic System Upgrade of the Fermilab IB1 Test Facility - Phase I	Benjamin Hansen
	6:00 PM	C1Po2C-08 - PIP-II Injector Test Cryogenic System Commission and Operation Experience	Renzhuo Wang
CEC - Poster	**6:00 PM - 7:30 PM**	**C1Po2D - Non-Aerospace Coolers II**	
	Session Chair: *Angela Krenn, NASA Kennedy Space Center*		
	6:00 PM	C1Po2D-01 - Thermodynamic Process and analysis of Dilution Refrigerator	Maowen Zheng
	6:00 PM	C1Po2D-02 - Characteristics of reciprocating speed of a low power consumption 4 K G-M cryocooler	Shinji Masuyama
	~~6:00 PM~~	C1Po2D-03 - *WITHDRAWN*	
CEC - Poster	**6:00 PM - 7:30 PM**	**C1Po2E - Superconducting RF Systems, Power Cables, and Leads II**	
	Session Chair: *Abhay Singh Gour, IIT Kharagpur*		
	6:00 PM	C1Po2E-01 - Cryogenic design of the crab cavity modules for the High Luminosity LHC at CERN.	Krzysztof Brodzinski
CEC - Poster	**6:00 PM - 7:30 PM**	**C1Po2F - Aerospace Applications II**	

	Session Chair: *Ryan Grotenrath, NASA Glenn Research Center*		
	6:00 PM	C1Po2F-01 - Preliminary Investigation of Liquid Nitrogen Removal of Lunar Regolith Simulant from Spacesuit Simulants	Ian Wells
	6:00 PM	C1Po2F-02 - Enriching heavy noble gases in Titan atmosphere by cryogenic condensation	Alvin Yew
	6:00 PM	C1Po2F-03 - Thermally Efficient Structural Members for Cryogenic Tanks	Dorjan Scott
	6:00 PM	C1Po2F-04 - Improved Modelling of Magnetic Splitting in a Chrome Alum below 300 mK	Chloe Gunderson
ICMC - Poster	**6:00 PM - 7:30 PM**	**M1Po1A - Composite Materials: Testing, Thermal, and Radiation Properties**	
	Session Chairs: *Robert Walsh, NHMFL/FSU & Dhanushkodi Mariappan, GE Research*		
	6:00 PM	M1Po1A-01 - Exploring uses of carbon fibre composites at cryogenic temperatures	Paul McInnes
	~~6:00 PM~~	M1Po1A-02 - *WITHDRAWN*	
	6:00 PM	M1Po1A-03 - Fiber Bragg Grating Sensors to Monitor Strain Response of Epoxy resin during curing and cryogenic temperature	Chushu Fang
	6:00 PM	M1Po1A-04 - Improved Breakdown Strength at Cryogenic Temperature in Epoxy Nanocomposites by a Small Amount of SiC Nanoparticles	Zhicong Miao
	6:00 PM	M1Po1A-05 - Preparation and research of insulation materials with high thermal conductivity for superconducting magnets	Zhicong Miao
	6:00 PM	M1Po1A-06 - Thermal Conductivity Measurements of Nano-Particle-Filled Epoxies	Jacob Adams
	6:00 PM	M1Po1A-07 - Numerical Simulation and Experimental Investigation of the Thermal Insulation Performance of Multi-layer Insulation Material at 77-300 K	Yuchen Zhao
	~~6:00 PM~~	M1Po1A-08 - *WITHDRAWN*	
	6:00 PM	M1Po1A-09 - Finite element simulation of internal heat flow of SiC/AlN/Epoxy composites	Zhengrong Zhou
ICMC - Poster	**6:00 PM - 7:30 PM**	**M1Po1B - Superconducting Wires and Tapes**	
	Session Chairs: *David Smathers, H. C. Starck Solutions & Danlu Zhang, The Ohio State University*		
	6:00 PM	M1Po1B-01 - Progress of developing advanced Nb3Sn conductors in Hyper Tech	Xuan Peng
	6:00 PM	M1Po1B-02 - Nb3Sn conductors with high specific heat	Xingchen Xu
	~~6:00 PM~~	M1Po1B-03 - *WITHDRAWN*	
	6:00 PM	M1Po1B-04 - MgB2 cables made of wires manufactured by PIT and IMD process	Pavol Kovac
	6:00 PM	M1Po1B-05 - Performance Variation within Operational Temperature Range for MgB2 strands	Jin Kwon
	6:00 PM	M1Po1B-06 - Extrusion and drawing of multi-filament textured-powder Bi-2212/Ag wire	Gareth May
	6:00 PM	M1Po1B-07 - Magnetization creep measurements of Bi-2212 cable	Shengchen Xue
	6:00 PM	M1Po1B-08 - Temperature dependence pinning efficiency in multilayer and single layer BZO/YBCO nanocomposite films	Mohan Panth
	6:00 PM	M1Po1B-09 - Interface Engineering for Enhanced Magnetic Vortex Pinning by 1D-BZO APCs in a Wide Angular Range	Victor Ogunjimi
ICMC - Poster	**6:00 PM - 7:30 PM**	**M1Po1C - Composites and Alloys: Mechanical, Thermal, and Radiation Properties**	
	Session Chairs: *Ignacio Aviles Santillana, CERN & Andrea Haight, Composite Technology Development, Inc.*		
	~~6:00 PM~~	M1Po1C-01 - *WITHDRAWN*	
	6:00 PM	M1Po1C-02 - Interlaminar shear strength of vacuum pressure impregnated coils with epoxy resin for high field magnet at cryogenic temperature	Chundong Wang
	6:00 PM	M1Po1C-03 - Thermoelectric properties of chalcogenide at cryogenic temperature	Haojian Su
	6:00 PM	M1Po1C-04 - Fatigue life characterization of hand folded and vacuum formed Kresling origami bellows at 77 K	Francis Dunne
	6:00 PM	M1Po1C-05 - Radiation effects on REBCO coated conductors and implications for Fusion Magnets.	Christopher Reis
	6:00 PM	M1Po1C-06 - Neutron irradiation effect on critical current and critical temperature of Nb3Sn wire	Arata Nishimura
CEC - Oral	**7:30 PM - 8:30 PM**	**C1Or2A - Cryoplant Construction and Design II**	
	Session Chairs: *Sastry Pamidi, CAPS/FSU & John Weisend, European Spallation Source ERIC*		
	~~7:30 PM~~	C1Or2A-01 - *WITHDRAWN*	
	7:30 PM	C1Or2A-02 - Testing and Analysis of Stand-by Operating Modes for FRIB Helium Refrigeration System	Duncan Kroll

	7:45 PM	C1Or2A-03 - Preliminary Design of a Helium Cryogenic System for SAND Detector at LBNF-DUNE Near Site	Li Wang | David Montanari
	8:00 PM	C1Or2A-04 - Commissioning of a Replacement Subatmospheric Cold Box for Jefferson Lab's Central Helium Liquefier	Brian Mastracci
	8:15 PM	C1Or2A-05 - Reconstruction and Operation of the Helium Purification System in the Cryogenic System for EAST Tokamak	Zhiwei Zhou
CEC - Oral	**7:30 PM - 8:45 PM**	**C1Or2B - Non-Aerospace Coolers III**	
	Session Chairs: *Peter Kittel, Retired & John Pfotenhauer, University of Wisconsin - Madison*		
	7:30 PM	C1Or2B-01 - Bottom-up Design Methodology for the Regenerator of a Co-axial 150 W, 90 K Pulse Tube Cryocooler	Alana Homa
	7:45 PM	C1Or2B-02 - A Continuous 1K Twin Helium Interleaved Adsorption (THeIA) Refrigerator	Andrew Oriani
	8:00 PM	C1Or2B-03 - Development of a Vibration-Free Cryocooler for the Operation of the 3G Gravitational Wave Detector on the Einstein Telescope Pathfinder	Arvi Xhahi
	8:15 PM	C1Or2B-04 - Comprehensive Optimization Design of Low-temperature Insulation System of Regeneration Cryocooler	Zekun Wang
	8:30 PM	C1Or2B-05 - Optimal absorption of distributed and conductive heat loads with cryocooler regenerators	Ryan Snodgrass
Joint - Oral	**7:30 PM - 9:45 PM**	**M1Or4A - Focus Session: Joint - Superconducting Quantum Systems II**	
	Session Chairs: *Matthew Hollister, Fermi National Accelerator Laboratory & Charles Rong, U.S. Army Research Laboratory*		
	7:30 PM	M1Or4A-01 - [Invited] Cryogenic Platforms for Quantum Information Systems	Scott Backhaus
	8:00 PM	M1Or4A-02 - [Invited] Enabling Scalable Superconducting Quantum Computing using Reproducible Materials Measurements	Corey Rae McRae
	8:30 PM	M1Or4A-03 - [Invited] A large millikelvin platform at Fermilab for quantum computing applications	Matthew Hollister
	9:00 PM	M1Or4A-04 - [Invited] 3D integration for superconducting qubits	Mollie Schwartz
	9:30 PM	M1Or4A-05 - Large fluctuations in T1 in long-lived transmons	Kungang Li
ICMC - Oral	**7:30 PM - 9:15 PM**	**M1Or4B - Focus Session: Flux Pinning II**	
	Session Chairs: *Judy Wu, University of Kansas & Mary Ann Sebastian, University of Dayton Research Institute*		
	7:30 PM	M1Or4B-01 - [Invited] Glassy and plastic vortex creep regimes in superconducting (Y,Gd)Ba2Cu3Oy films and coated conductors	Leonardo Civale
	8:00 PM	M1Or4B-02 - Investigation of the Combined Effects of Ca-Doped YBa2Cu3O7-δ and BaZrO3 Nano-Rod Additions in Multilayer YBa2Cu3O7-δ Thin Films Produced with Varying Pulsed Laser Deposition Conditions	Mary Ann Sebastian
	8:15 PM	M1Or4B-03 - [Invited] Control of nanocomposite structure for improving vortex pinning in YBCO films: hybrid pinning and interface structure	Tomoya Horide
	8:45 PM	M1Or4B-04 - [Invited] Improvement of In-field Critical Current of Coated Conductor for Applications	Teruo Izumi

Tuesday, July 20, 2021

Awards	**8:00 AM - 8:15 AM**	**CEC Awards Presentations**	
CEC Plenary	**8:15 AM - 9:00 AM**	**Eric Hinterman (MIT) – The Mars Oxygen In-Situ Resource Utilization Experiment (MOXIE)**	
	Session Chairs: *Wesley Johnson, NASA Glenn Research Center & Robbi McDonald, Westport Fuel Systems*		
CEC - Oral	**9:15 AM - 10:45 AM**	**C2Or1A - Large Scale Cryogenic System Design**	
	Session Chairs: *Shrikant Pattalwar, UKRI-STFC & Michael White, Fermilab*		
	9:15 AM	C2Or1A-01 - Design and Analysis of the Helium Purification System for the NSRRC Cryogenic System	Ping-Shun Chuang
	9:30 AM	C2Or1A-02 - Experiment and Optimization of a Large Scale Xe/Kr Cryogenic Distillation System	Zhou Wang
	9:45 AM	C2Or1A-03 - Conceptual design of S3FEL cryogenic system	Liangbing Hu
	10:00 AM	C2Or1A-04 - Functional analysis and design of the cryogenic system for the HL-LHC IT String test bench at CERN	Gabriella Rolando
	10:15 AM	C2Or1A-05 - Design Aspects of the Feed Boxes of the Super-FRS Local Cryogenics System	Jaroslaw Polinski
	10:30 AM	C2Or1A-06 - Conceptual layout of a helium cooling system for the Einstein Telescope	Lennard Busch
CEC - Oral	**9:15 AM - 10:30 AM**	**C2Or1B - Aerospace Coolers I**	
	Session Chairs: *Angela Krenn, NASA Kennedy Space Center & Arjun Garva, IIT Kharagpur*		
	9:15 AM	C2Or1B-01 - A three-stage nitrogen - activated carbon sorption compressor for driving Joule-Thomson cryocoolers	Nir Tzabar

	9:30 AM	C2Or1B-02 - Development of a 2-4K Closed-Cycle JT Cryocooler for Space Application	Xiaoshan Pan
	9:45 AM	C2Or1B-03 - Performance Testing and temperature fluctuations of a 4.4K@150 mW Joule-Thomson closed cycle Cryocooler for space applications	Zhichao Chen
	10:00 AM	C2Or1B-04 - An 880 mW@15 K thermal coupled pulse tube cryocooler with active phase shifter	Wang Yin
	10:15 AM	C2Or1B-05 - Parasitic heat load in a Miniature Pulse Tube Cooler	Diane Dherbecourt
CEC - Oral	**9:15 AM - 10:45 AM**	**C2Or1C - Superconducting RF Systems, Power Cables, and Leads III**	
	Session Chairs: *Peter Cheetham, Center for Advanced Power Systems & Jonathan Demko, LeTourneau University*		
	9:15 AM	C2Or1C-01 - [Invited] Conduction-cooled SRF cavities: experiments and compact accelerator development at Fermilab	Ram Dhuley
	9:45 AM	C2Or1C-02 - Cryogenic testing of a RIS bushing	Stefan Fink
	10:00 AM	C2Or1C-03 - Improvement of Magnet and Cavities cooling at Heavy Ion or Rare Isotopes Accelerators due to Application of sub-cooled Superfluid Helium	Sergiy Putselyk
	10:15 AM	C2Or1C-04 - Design of Injectors and stay-alone Cryostats with Superconducting Cavities for high RF Powers Applications	Sergiy Putselyk
	10:30 AM	C2Or1C-05 - Low Level RF development for ESS High Beta Cavity Test	Keith Dumbell
ICMC - Oral	**9:15 AM - 11:15 AM**	**M2Or1A - Focus Session: LTS and HTS Cables for Fusion I**	
	Session Chairs: *Yuhu Zhai, Princeton Plasma Physics Laboratory & Pierluigi Bruzzone, EPFL*		
	9:15 AM	M2Or1A-01 - [Invited] Performance degradation in Nb3Sn cable-in-conduit conductors	Pierluigi Bruzzone
	9:45 AM	M2Or1A-02 - [Invited] The Research on LTS and HTS CICC for Fusion Reactor at ASIPP	Jinggang Qin and conductor team
	10:15 AM	M2Or1A-03 - [Invited] Recent advances at ENEA on LTS and HTS Cable-in-Conduit Conductors for fusion	Luigi Muzzi
	10:45 AM	M2Or1A-04 - [Invited] Development of large-current HTS conductors for the next-generation helical fusion experimental device	Nagato Yanagi
ICMC - Oral	**9:15 AM - 11:15 AM**	**M2Or1B - Focus Session: Flux Pinning III**	
	Session Chairs: *Teresa Puig, ICMAB-CSIC & Toshinori Ozaki, Kwansei Gakuin University*		
	9:15 AM	M2Or1B-01 - [Invited] Numerical Evaluation of Elementary Pinning Force due to Spherical Pinning Center - Focusing on Anomalous Angular dependence of Critical Current-	Tatsunori Okada
	9:45 AM	M2Or1B-02 - [Invited] Flux pinning engineering by low-energy heavy ion irradiation for GdBa2Cu3Oy coated conductors	Toshinori Ozaki
	10:15 AM	M2Or1B-03 - [Invited] New discoveries and opportunities for superconductors in high magnetic fields	Boris Maiorov
	10:45 AM	M2Or1B-04 - [Invited] Enabling coherent BaZrO3 nanorods/YBa2Cu3O7-x interface for enhanced pinning through dynamic lattice enlargement in BaZrO3/YBa2Cu3O7-x nanocomposites	Judy Wu
CEC - Oral	**11:30 AM - 1:00 PM**	**C2Or2A - Large Scale Operational Systems**	
	Session Chairs: *Robert Duckworth, ORNL & Jaroslaw Polinski, Wroclaw University of Science and Technology*		
	11:30 AM	C2Or2A-01 - Operational experience with the proto-DUNE NP02 and NP04 large volume liquid argon cryostats and their cryogenic systems at CERN.	Johan Bremer
	11:45 AM	C2Or2A-02 - Automatic LHC accelerator warm-up and cool-down experience during the Long Shutdown 2	Benjamin Bradu
	12:00 PM	C2Or2A-03 - Cryogenic Performance of a Heat Exchanger Prototype Suitable for the Superconducting HL-LHC Recombination Dipole D2	Bernard Rousset
	12:15 PM	C2Or2A-04 - Assessment of the operation safety margin of the HL-LHC superconducting Recombination Dipole D2 in case of helium filling failure	Bernard Rousset
	12:30 PM	C2Or2A-05 - 43+ T Grenoble Hybrid Magnet: Commissioning Tests of the Current leads and Cryogenic Satellite producing the Pressurized Superfluid He at 1.8 K	Pierre Pugnat
	12:45 PM	C2Or2A-06 - Heat Loads measurements at the XFEL cold linac	Rajinikumar Ramalingam
CEC - Oral	**11:30 AM - 1:15 PM**	**C2Or2B - Superconducting Magnet Systems I**	
	Session Chairs: *Peter Bradley, NIST & Sastry Pamidi, Center for Advanced Power Systems*		
	11:30 AM	C2Or2B-01 - [Invited] Final design of the cryostat for the high luminosity LHC magnets	Delio Duarte Ramos
	12:00 PM	C2Or2B-02 - Scanning SQUID microscope for imaging magnetic flux trapping in large superconducting circuits	Brandon Boiko
	12:15 PM	C2Or2B-03 - Design optimization of 50 kJ HTS SMES using real coded genetic algorithm	Ankit Anand
	12:30 PM	C2Or2B-04 - Comparative study on HTS magnet coil design approach for 1.0 T @ 65 K with 80 mm DSV	Sumit Kumar Chand
	12:45 PM	C2Or2B-05 - Methods of speeding up the Cool-down of Superconducting Magnets that are Cooled using Small Coolers at Temperatures below 30 K	Michael Green
	1:00 PM	C2Or2B-06 - Hardware Evaluation of the Frequency Loss Induced Quench Protection System Superconducting Magnets	Kikelomo Ijagbemi

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ICMC - Oral	**11:30 AM - 1:30 PM**	**M2Or2A - Focus Session: Transportation I - Power Cables, Busbars**	
	Session Chairs: *Sonja Schlachter, Karlsruhe Institute of Technology & Sastry Pamidi, CAPS/FSU*		
	11:30 AM	M2Or2A-01 - [Invited] Development of high-temperature superconducting CORC® power cables for use on Navy ships and electric aircraft	Danko van der Laan
	12:00 PM	M2Or2A-02 - [Invited] Test of a DC-HTS Busbar Demonstrator for Power Distribution in Hybrid-Electric Propulsion Systems for Aircraft	Sonja Schlachter
	12:30 PM	M2Or2A-03 - A Pressurized, Flexible, Variable Temperature Aerospace Cable Demonstration	Chris Kovacs
	12:45 PM	M2Or2A-04 - DEMO200 – Conceptual Design of a 200 kA DC Busbar Demonstrator	Sonja Schlachter
	1:00 PM	M2Or2A-05 - Superconducting liquid cryogen insulated power cables for medium voltage applications	Hebert Lopez
	1:15 PM	M2Or2A-06 - Numerical studies on two-phase flow of liquid nitrogen to cool HTS power cables	Isaac de Souza and Harris Hassan
ICMC - Oral	**11:30 AM - 1:30 PM**	**M2Or2B - Focus Session: Joint - Superconducting Quantum Systems III**	
	Session Chairs: *Marina Kudra, Chalmers University of Technology & Ziad Melhem, Oxford Quantum Solutions*		
	11:30 AM	M2Or2B-01 - [Invited] A modular quantum computer based on 3-wave mixing	Chao Zhu
	12:00 PM	M2Or2B-02 - [Invited] Generating nonclassical states for continuous-variable quantum computation in high quality three dimensional aluminum cavities	Marina Kudra
	12:30 PM	M2Or2B-03 - [Invited] Fabricating coherent superconducting qubits without shadow mask techniques	Martin Weides
	1:00 PM	M2Or2B-04 - [Invited] New opportunities for superconducting circuits using hybrid graphene Josephson junctions.	Jonathan Prance
Exhibit	**11:15 AM - 11:30 AM**	**DEMACO HOLLAND B.V. - Exhibitor Presentation**	
ICMC - Oral	**2:00 PM - 4:30 PM**	**M2Or3A - Focus Session: Topological Materials for Electronics II**	
	Session Chairs: *Mingzhong Wu, Colorado State University & Kaya Wei, NHMFL / FSU*		
	2:00 PM	M2Or3A-01 - [Invited] Recent results on the electrodynamics of topological semimetals: Mn3Sn, Cd3As2, Pr2Ir2O7 and beyond…	N. Peter Armitage
	2:30 PM	M2Or3A-02 - [Invited] Topological, Chern and Mott insulators in semiconductor moire materials	Liang Fu
	~~3:00 PM~~	M2Or3A-03 - *WITHDRAWN*	
	3:30 PM	M2Or3A-04 - [Invited] Tuning the Chern Number in Quantum Anomalous Hall insulators	Cui-Zu Chang
	4:00 PM	M2Or3A-05 - [Invited] Interface-driven topologically nontrivial magnetism in Cr2Te3 ultrathin films	Hang Chi
CEC - Oral	**6:00 PM - 7:30 PM**	**C2Or3A - Large Scale Cryogenic Facilities**	
	Session Chairs: *Andrew Dalesandro, Fermilab & Shrikant Pattalwar, UKRI-STFC*		
	6:00 PM	C2Or3A-01 - Design, Fabrication, and Installation of the Cryogenic Distribution System for FRIB Fragment Separator	Nusair Hasan
	6:15 PM	C2Or3A-02 - Status of LBNF Near Site Liquid Argon proximity and external cryogenics systems development	Joaquim Creus Prats
	6:30 PM	C2Or3A-03 - Overview and Status of the Long-Baseline Neutrino Facility Far Site Cryogenics System	David Montanari
	6:45 PM	C2Or3A-04 - Conceptual design of DALS test facility cryogenic system	Zheng Sun
	7:00 PM	C2Or3A-05 - Fabrication and installation of the Mu2e cryogenic distribution system	Michael White
	7:15 PM	C2Or3A-06 - Energy Efficient Large-Scale Storage of Liquid Hydrogen	James Fesmire
CEC - Oral	**6:00 PM - 6:30 PM**	**C2Or3B - Aerospace Coolers II**	
	Session Chairs: *Michael Baldwin, NASA & Franklin Miller, University of Wisconsin-Madison*		
	6:00 PM	C2Or3B-01 - Random Vibration, Exported Vibration and Passive Isolation Testing of the Ricor K508N Cryocooler	Lucas Anderson
	~~6:15 PM~~	C2Or3B-02 - *WITHDRAWN*	
	~~6:15 PM~~	C2Or3B-03 - *WITHDRAWN*	
	6:15 PM	C2Or3B-04 - The Effect of Transfer Line Length and Heat Rejection Temperature Distribution on the Thales LPT Cryocoolers	Ian McKinley
ICMC - Oral	**6:00 PM - 7:40 PM**	**M2Or4A - Focus Session: Low Temperature Electronics and Materials II**	
	Session Chairs: *Carl Grace, Lawrence Berkeley National Laboratory & Marcos Turqueti, Lawrence Berkeley National Laboratory*		
	6:00 PM	M2Or4A-01 - [Invited] Optimization and Standardization to Accelerate Broad Acceptance of Cryo-electronics Systems	Anna Leese de Escobar

	6:25 PM	M2Or4A-02 - [Invited] Advances in Cryogenic Integrated Circuits at Lawrence Berkeley National Laboratory	Carl Grace
	7:15 PM	M2Or4A-03 - [Invited] DUNE Far Detector 2 Photon Detector System cold electronics R&D path	Ryan Allen Rivera
	7:40 PM	M2Or4A-04 - [Invited] Approaches for High Performance and Thermally Optimized Flexible Cryogenic Microwave Ribbon Cables	Sherman Peek
ICMC - Oral	**6:00 PM - 8:00 PM**	**M2Or4B - Nb3Sn, MgB2, and Bi2212 Superconducting Wires**	
	Session Chairs: *Xingchen Xu, Fermilab & Xifeng Pan, Fujian Normal University*		
	6:00 PM	M2Or4B-01 - [Invited] Improvement of the pinning performance in Nb3Sn for high field applications	Chiara Tarantini
	6:30 PM	M2Or4B-02 - Nb3Sn conductors with artificial pinning centers	Xingchen Xu
	6:45 PM	M2Or4B-03 - Effects of Microstructure on Flux Pinning in APC Nb3Sn Wires	Jacob Rochester
	7:00 PM	M2Or4B-04 - Niobium Rod Quality and Its Impact on the Production of Nb3Sn Strand for the Divertor Tokamak Test Facility Toroidal Field Coils	David Smathers
	7:15 PM	M2Or4B-05 - MgB2 formation analysis between low-temperature and high-temperature reactions in advanced internal magnesium infiltration (AIMI) processed MgB2 wires	Danlu Zhang
	7:30 PM	M2Or4B-06 - High Critical Current Six-filamentary Advanced-Internal-Magnesium-Infiltration (AIMI) MgB2 Wires via a low Temperature Vapor-Solid Reaction	Fang Wan
	7:45 PM	M2Or4B-07 - Advances in Bi-2212 round wire conductor	Eric Hellstrom
CEC - Oral	**8:15 PM - 9:45 PM**	**C2Or4A - Aerospace Applications III**	
	Session Chairs: *Jonathan Stephens, NASA & Chul Kim, Florida State University*		
	8:15 PM	C2Or4A-01 - Results of Use of Heat Flux Sensors on Liquid Hydrogen Tanks	Wesley Johnson
	8:30 PM	C2Or4A-02 - Development of a Space Irradiance Simulator for Advanced Studies and Materials Research	Adam Swanger
	8:45 PM	C2Or4A-03 - Experimental and numerical investigation of self-pressurization with different methods of insulation for ground and space applications	Vishnu S B
	9:00 PM	C2Or4A-04 - Numerical investigation of two-phase fluid-transient induced cavitation in the cryogenic propellant feedlines	Arjun Garva
	9:15 PM	C2Or4A-05 - Numerical Modeling of Helium Bubbling in a Cryogenic Propellant Tank	Michael Baldwin
	9:30 PM	C2Or4A-06 - Vapor Cooling of a Structural Skirts for a Large-Scale Hydrogen Tank	Wesley Johnson
ICMC - Oral	**8:15 PM - 10:15 PM**	**M2Or5A - Focus Session: Transportation II - Energy Storage, Rotating Machines**	
	Session Chairs: *Chris Kovacs, Air Force Research Laboratory & Thomas Bullard, UES Inc.*		
	8:15 PM	M2Or5A-01 - [Invited] Design and Optimization of Rotating Cryogenic Machine Topologies for a HydrogenPowered, Electric Propulsion Commercial Aircraft	Thanatheepan Balachandran
	8:45 PM	M2Or5A-02 - [Invited] High Power Density Induction Motors and Drives for Aircraft Propulsion	Matt Rindfleisch
	9:15 PM	M2Or5A-03 - Issues Relating to Use of CORC Cable for Stator Windings of a Superconducting Motor	Swarn Kalsi
	9:30 PM	M2Or5A-04 - Investigation on Effect of Shape of High Temperature Superconducting (HTS) Field Coil on Airgap Magnetic Field of HTS Synchronous Motor	Divya Kumar Sharma
	9:45 PM	M2Or5A-05 - YBaCuO-based Superconducting Magnetic Energy Storage magnets with Zylon formers – FEM modeling	Milan Majoros
	10:00 PM	M2Or5A-06 - Development of Arduino based power conditioning unit for Superconducting Magnet Energy Storage (SMES) system used as UPS for load levelling during charging of Electric Vehicle	Abhik Sarkar
	~~10:15 PM~~	M2Or5A-07 - *WITHDRAWN*	
ICMC - Oral	**8:15 PM - 9:45 PM**	**M2Or5B - Cryogenic Property Measurement**	
	Session Chairs: *Karl T. Hartwig, Texas A&M University & Matthew Jewell, University of Wisconsin - Eau Claire*		
	8:15 PM	M2Or5B-01 - A Test Rig for Experimental Characterization of Cryogenic Bulk Conductivity and Thermal Contact Resistance	Kacie Salmon
	8:30 PM	M2Or5B-02 - Influence of Pressure, Temperature, and Electroplating on Interstrand Contact Resistance in ReBCO Stacks	Shengchen Xue
	8:45 PM	M2Or5B-03 - Physical property measurement system of thin film material in wide low temperature area	Qiufu Xu
	9:00 PM	M2Or5B-04 - In-situ measurements of the effect of radiation damage on the superconducting properties of coated conductors.	William Iliffe
	9:15 PM	M2Or5B-05 - Experimental evaluation of dielectric losses of PPLP for single phase HTS cable at sub cooled LN2 temperatures	Maalika Sarkar
	9:30 PM	M2Or5B-06 - SU-8 Microstructures on Molybdenum Substrates: Fabrication and Cryogenic Temperature Reliability	Vaibhav Gupta
Wednesday, July 21, 2021			
Awards	**8:00 AM - 8:15 AM**	**Cryogenic Society of America (CSA) & Cryogenics (Elsevier) Best Paper Awards Presentations**	

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ICMC Plenary	**8:15 AM - 9:00 AM**	**Ludovic Ybanez (Airbus SAS) – ASCEND - A First Step Towards Cryogenic Electric Propulsion for Aircraft? - *sponsored by Linde Engineering***	
	Session Chair: *Timothy Haugan, U.S. Air Force Research Laboratory & Sonja Schlachter, Karlsruhe Institute of Technology*		
CEC - Oral	**9:15 AM - 11:15 AM**	**C3Or1A - Applications II: Fuel, Transportation, Medical and Food**	
	Session Chair: *Marcel ter Brake, University of Twente & Jacob Leachman, Washington State University*		
	9:15 AM	C3Or1A-01 - Dynamic modeling and analysis of bunkering and pressurization for marine LNG fuel tank	Cheng Wang
	9:30 AM	C3Or1A-02 - Numerical study on pressure variation and thermodynamic performance of marine liquefied natural gas (LNG) fuel tanks under sloshing excitation	Wu Sixian
	9:45 AM	C3Or1A-03 - Numerical computation of Boil off (BoR) Rate in shipboard LNG tanks	Arun Kishore Eswara
	10:00 AM	C3Or1A-04 - [Invited] Physics of absorption and evaporation of liquid nitrogen in a porous medium	Rick Spijkers
	10:30 AM	C3Or1A-05 - [Invited] Liquid hydrogen tank design for medium and long range all-electric-airplanes	Wolfgang Stautner
	11:00 AM	C3Or1A-06 - Experimental Investigation of Valve Driven Transient Effect in Liquid Nitrogen Pipeline	Bhuvana R G
CEC - Oral	**9:15 AM - 11:15 AM**	**C3Or1B - Aerospace Applications IV**	
	Session Chairs: *Wolfgang Stautner, GE Research & James Fesmire, NASA Kennedy Space Center*		
	9:15 AM	C3Or1B-01 - Architectural Impacts of In-Situ Resource Utilization Production of Oxygen for Use as Propellant in a Mars Ascent Vehicle	Angela Krenn
	9:30 AM	C3Or1B-02 - Development of a Surface Cryogenic Propellant Transfer Concept for Martian Operations	Angela Krenn
	9:45 AM	C3Or1B-03 - A Mechanical Heat Switch Operating at 50-70 K for Cryogenic Systems on Satellites	Makiko Ando
	10:00 AM	C3Or1B-04 - Three-dimensional Fluid-structural Interaction and Thermal stress analysis of a large diameter horizontal Cryogenic transfer line	Kailash Lohar
	10:15 AM	C3Or1B-05 - Analysis of Heat Transfer from a Local Heat Source at Cryogenic Temperatures	Wesley Johnson
	10:30 AM	C3Or1B-06 - Design and Analysis of Cryogenic Cooling System for Superconducting Motor	Abhijit Khare
	10:45 AM	C3Or1B-07 - Integrated Modular Design and Analysis of Liquid Propellant Rocket Engine working on Liquid Oxygen-Methane Expander Cycle	Biju Kuzhiveli
	11:00 AM	C3Or1B-08 - The effect of external heat inflow to the cryogenic liquid pressurized discharge process	Seungwhan Baek
ICMC - Oral	**9:15 AM - 11:15 AM**	**M3Or1A - Focus Session: LTS and HTS Cables for Fusion II**	
	Session Chairs: *Stephen Gourlay, PNTZ Consulting Group, LLC & Luigi Muzzi, ENEA*		
	9:15 AM	M3Or1A-01 - [Invited] Low cost, simpler HTS cable conductors for fusion energy systems	Yuhu Zhai
	9:45 AM	M3Or1A-02 - [Invited] Forced flow cooling of high field, HTS magnets for fusion reactors using supercritical hydrogen, helium, and neon	Joseph Minervini
	10:15 AM	M3Or1A-03 - [Invited] FES/HEP Cable Test Facility Nb3Sn Dipole Superconductor - Lessons Learnt and Key Challenges	Ian Pong; Paolo Ferracin
	10:45 AM	M3Or1A-04 - Characterization of MgB2 subsize CICC cables with optimized design: experiments and modeling	Anvar V Abdulsalam
	11:00 AM	M3Or1A-05 - Development of a MgB2 CICC-type sub-size cable and conductor for fusion magnet application	Peng Gao
ICMC - Oral	**9:15 AM - 11:15 AM**	**M3Or1B - Focus Session: Transportation III - System Level**	
	Session Chairs: *Timothy Haugan, U.S. Air Force Research Laboratory & Sonja Schlachter, Karlsruhe Institute of Technology*		
	9:15 AM	M3Or1B-01 - [Invited] System-level Considerations for Electric Aircraft Fueled by Liquid Hydrogen and Liquefied Natural Gas	Srikar Telikapalli
	9:45 AM	M3Or1B-02 - [Invited] Comparison of Cryogenic Technologies for Electric Aircraft Power Transmission	Mary Ann Sebastian
	10:15 AM	M3Or1B-03 - [Invited] Polymer Matrix Composites for Light-weighting of Cryogenic Electric Propulsion System	Sreenivasa Voleti; Parag Kshirsagar
	10:45 AM	M3Or1B-04 - [Invited] The Case for Liquid Natural Gas Fuel for Aviation	D. Dudis
ICMC - Oral	**11:30 AM - 1:15 PM**	**M3Or2A - Focus Session: Joint - SRF Materials and Systems I**	
	Session Chairs: *Mohammed Fouaidy, IJCLab/CNRS & Peter Lee, ASC / NHMFL / FSU*		
	11:30 AM	M3Or2A-01 - [Invited] Material characterization of SRF cavity cutouts	Arely Cano
	12:00 PM	M3Or2A-02 - Effect of crystal orientation on recrystallization in rolled multicrystals of pure niobium	Thomas Bieler
	~~12:15 PM~~	M3Or2A-03 - WITHDRAWN	

	12:15 PM	M3Or2A-04 - The Influence of Forming on Local Deformation and Recovery and Recrystallization in Deformed Polycrystal Niobium SRF Cavities	Elizabeth Nicometo
	12:30 PM	M3Or2A-05 - [Invited] Development and Optimization of Sputtered Nb3Sn Films	Md. Nizam Sayeed
	12:45 PM	M3Or2A-06 - Growth of Nb3Sn on Sapphire and Cu substrates using a bronze route inspired technique	Wenura Withanage
ICMC - Oral	**11:30 AM - 1:30 PM**	**M3Or2B - Focus Session: Transportation IV - Power Electronics A**	
	Session Chairs: *Chris Kovacs, Air Force Research Laboratory & Fang Luo, Brookhaven National Lab*		
	11:30 AM	M3Or2B-01 - [Invited] Cryogenic Performances Comparisons Among Si MOSFET, SiC MOSFET, Cascode GaN, and GaN Devices	Alan Mantooth
	12:00 PM	M3Or2B-02 - [Invited] Static and Dynamic Characterization of Wide-Band Gap Semiconductors at Room and Cryogenic Temperatures	Mahmoud Mehrabankhomartash
	12:30 PM	M3Or2B-03 - [Invited] Conceptual design of a wide band gap based cryogenically cooled MW-class inverter	Soumen Kar
	1:00 PM	M3Or2B-04 - Electrical characterization of a 1200V GaN HEMT at cryogenic temperatures	Md Maksudul Hossain
	~~1:15 PM~~	M3Or2B-05 - *WITHDRAWN*	
CEC - Poster	**11:30 AM - 1:30 PM**	**C3Po1A - Non-Aerospace Coolers IV**	
	Session Chairs: *John Pfotenhauer, University of Wisconsin - Madison & Yongsu Kim, Sunpower Inc.*		
	~~11:30 AM~~	C3Po1A-02 - *WITHDRAWN*	
	11:30 AM	C3Po1A-03 - Investigation of Regenerator Mesh Characteristics for a Pulse Tube Cryocooler	Biju Kuzhiveli
	11:30 AM	C3Po1A-04 - Application of Pulse Tube Cryocoolers in High Temperature Superconducting Systems	Yanbo Duan
	11:30 AM	C3Po1A-05 - Development of a 20K two-stage Stirling pulse tube cryocooler with precooling inside secondary pulse tube	Ziwei Li
	11:30 AM	C3Po1A-06 - Numerical simulation of three-stage gas coupledpulse tube refrigerator	Chushu Fang
	11:30 AM	C3Po1A-07 - Preliminary test of the integrated sorption cooler for an adiabatic demagnetization refrigerator (ADR)	Dohoon Kwon
CEC - Poster	**11:30 AM - 1:30 PM**	**C3Po1B - Aerospace Coolers III**	
	Session Chairs: *Carl Kirkconnell, West Coast Solutions & Michael Meyer, NASA*		
	11:30 AM	C3Po1B-01 - Experimental study on a helium-4 sorption cryocooler	Xiaotong Xi
	11:30 AM	C3Po1B-02 - Helium gas-gap heat switch for Sub-Kelvin refrigeration system	Xiaotong Xi
	11:30 AM	C3Po1B-03 - Numerical analysis and experimental research of a 2W/35 K high-frequency pulse tube cryocooler	Zhaozhao Gao
	11:30 AM	C3Po1B-04 - A thermal-coupled/gas-coupled hybrid stirling-type pulse tube cryocooler attaining the liquid-helium temperature	Biao Yang
	11:30 AM	C3Po1B-05 - Investigation on the dynamic adsorption characteristics of activated carbon to helium-4 for 4-20 K regenerator of cryocoolers	Biao Yang
	11:30 AM	C3Po1B-06 - Adiabatic Demagnetization Refrigerator Development for future Astronomy Observation Missions	Jin Hai
CEC - Poster	**11:30 AM - 1:30 PM**	**C3Po1C - Cryocooler Components II: Expanders, Pumps, Compressors and Regenerators**	
	Session Chairs: *Peter Kittel, Retired & Srinivas Vanapalli, University of Twente*		
	11:30 AM	C3Po1C-02 - Calculation analysis and preparation optimization of silver powder sintered heat exchangers at extremely low temperature	Maowen Zheng
	11:30 AM	C3Po1C-03 - Experimental investigation of vertical neon pulsating heat pipe for superconducting magnet cooling application	Tisha Dixit
	11:30 AM	C3Po1C-05 - Design and Performance Analysis of the Thrust Gas Bearing with Single Orifice for Helium Turbine	Shanshan Li
	11:30 AM	C3Po1C-06 - Extended Length Helium Pulsating Heat Pipes	Logan Kossel
	11:30 AM	C3Po1C-07 - Experimental and computational investigation of a novel ceramic regenerator	Ali Ghavami
	11:30 AM	C3Po1C-09 - Design of cryogenic test platform for the seal structure in superfluid helium temperature	Zhiwei Zhou
	11:30 AM	C3Po1C-10 - Experimental Study of Different Structural Parameters on Gas-Lubricated Spiral Groove Thrust Bearing for Cryogenic Turbo Expander	Xiaohua Zhang
	~~11:30 AM~~	C3Po1C-11 - *WITHDRAWN*	
CEC - Poster	**11:30 AM - 1:30 PM**	**C3Po1D - Applications III: Instrumentations, Visualization and Controls**	
	Session Chair: *Ted Conrad, Teledyne FLIR*		
	11:30 AM	C3Po1D-01 - Thermodynamic analysis of ideal thermocompressor based on Euler view	Shanshan Wu

	11:30 AM	C3Po1D-02 - Analysis and optimization of radiant heat for cryogenic optical window	Shanshan Wu
	~~11:30 AM~~	C3Po1D-03 - WITHDRAWN	
	11:30 AM	C3Po1D-04 - Development of Next-generation Solid-state NMR Probe using HTS Antenna on Substrate: Design and Fabrication of Transmitting Antenna Optimized by Genetic Algorithm	Techit Tritrakarn
	11:30 AM	C3Po1D-05 - A novel system for measuring magnetic shielding effectiveness of shields in liquid helium using a fluxgate magnetometer	Jia Quan
	11:30 AM	C3Po1D-06 - Design of a cryogenic two-phase flow visualization system for cryogenic Pulsating Heat Pipe	Bingkun Lyu
	11:30 AM	C3Po1D-07 - Analysis of the pump speed in a sorption cooler	Jia Quan
CEC - Poster	**11:30 AM - 1:30 PM**	**C3Po1E - Applications IV: Safety, Reliability and Standards**	
	Session Chair: *Jacob Leachman, Washington State University*		
	11:30 AM	C3Po1E-01 - Experience from the long period operation of cryogenic valves at NSRRC	Hsing-Chieh Li
	11:30 AM	C3Po1E-02 - Introduction of the liquid nitrogen transfer line for TPS beamline endstation	Hsing-Chieh Li
	~~11:30 AM~~	C3Po1E-03 - *WITHDRAWN*	
	11:30 AM	C3Po1E-04 - Special requirements of components for hydrogen applications	Miralem Okanovic; Pascal Erni
	~~11:30 AM~~	C3Po1E-05 - *WITHDRAWN*	
	~~11:30 AM~~	C3Po1E-06 - *WITHDRAWN*	
	11:30 AM	C3Po1E-07 - Liquid Hydrogen – System design and safety	Calvin Winter
ICMC - Oral	**2:00 PM - 3:30 PM**	**M3Or3A - Focus Session: Transportation V - Power Electronics B**	
	Session Chairs: *Tengming Shen, Lawrence Berkeley National Lab & Alan Mantooth, University of Arkansas*		
	2:00 PM	M3Or3A-01 - [Invited] Comparative Evaluation of Different DC-AC Converter Topologies for Cryogenic Applications Utilizing Superconducting Materials	Mustafeez ul Hassan
	2:30 PM	M3Or3A-02 - [Invited] A Cryogenically-Cooled Circuit Breaker for Electrified Aircraft Propulsion: Research Challenges, Requirements and Protection	Parikshith Channegowda
	3:00 PM	M3Or3A-03 - Cryogenic Polypropylene Film Capacitors	Alfonso Cruz
	~~3:15 PM~~	M3Or3A-04 - *WITHDRAWN*	
	3:15 PM	M3Or3A-05 - Characterization of Magnetic Cores for Cryogenic Inductors	Shiyuan Yin
ICMC - Oral	**2:00 PM - 3:30 PM**	**M3Or3B - Focus Session: Topological Materials for Electronics III**	
	Session Chair: *Zhigang Jiang, Georgia Tech*		
	2:00 PM	M3Or3B-01 - [Invited] Pre-Recording Eric Hinterman (MIT) – The Mars Oxygen In-Situ Resource Utilization Experiment (MOXIE)	Nadya Mason
	2:30 PM	M3Or3B-02 - [Invited] Damping Enhancement and Magnetization Switching in a Ferromagnet Induced by Surface States in a Topological Dirac Semimetal	Mingzhong Wu
	3:00 PM	M3Or3B-03 - [Invited] Magnetoelectric behavior via a spin state transition	Shalinee Chikara
ICMC - Oral	**3:30 PM - 5:30 PM**	**M3Or3C - Panel Session: Reflection, Insight, and Perspective on Topological Phenomena Exhibited/Enabled in the Space of Solid State Matters**	
	Session Chair: *Marc Ulrich, Army Research Office*		
	Panel Speakers include: Chris Palmstron, Peng Wei, Zhigang Jiang, N. Peter Armitage, Liang Fu, Cui-Zu-Chang, Hang Chi, Mingzhong Wu, Ramesh Budhani, Luis Balicas, Ritesh Agarwal, Cheng Gong, Ki Wook Kim. **Please visit the CEC/ICMC website for details.**		
Joint - Oral	**4:00 PM - 5:30 PM**	**J3Or1A - Joint Focus Session: Hydrogen Technologies for Transportation I**	
	Session Chairs: *Wesley Johnson, NASA Glenn Research Center & Timothy Haugan, U.S. Air Force Research Laboratory*		
	4:00 PM	J3Or1A-01 - [Invited] Cryogenically Cooled Electric Power Train for Electrified Aircraft Propulsion	Parag Kshirsagar
	4:30 PM	J3Or1A-02 - [Invited] Cryogenic Fuel Tanks as Applicable to Multiple Transportation Applications	Tony Skaff, Larry Knauer
	5:00 PM	J3Or1A-03 - [Invited] High power density electric motors for large-scale transport	Rod Badcock
CEC - Poster	**6:00 PM - 7:30 PM**	**C3Po2A - Aerospace Coolers IV**	
	Session Chairs *: David Glaister, Ball Aerospace & Ali Kashani, ASRC*		
	6:00 PM	C3Po2A-01 - Status and development trends of space 2K mechanical cryocooler	Jia Quan

	~~6:00 PM~~	C3Po2A-02 - *WITHDRAWN*	
	~~6:00 PM~~	C3Po2A-03 - *WITHDRAWN*	
	6:00 PM	C3Po2A-04 - The influence of precooling temperature on the cooling performance of pulse tube cryocooler	Yanbo Duan
	~~6:00 PM~~	C3Po2A-05 - *WITHDRAWN*	
CEC - Poster	**6:00 PM - 7:30 PM**	**C3Po2B - Cryocooler Components III: Expanders, Pumps, Compressors and Regenerators**	
	Session Chair: *Carl Kirkconnell, West Coast Solutions*		
	~~6:00 PM~~	C3Po2B-01 - *WITHDRAWN*	
	6:00 PM	C3Po2B-02 - Effect Of Trailing Edge Bending And Sweeping On Brake Impeller Of Low-Temperature Turbo-Expander	Yanwei Liang
	~~6:00 PM~~	C3Po2B-03 - *WITHDRAWN*	
	6:00 PM	C3Po2B-04 - Design and analysis of helium turbine for large refrigerator	Shanshan Li
	6:00 PM	C3Po2B-05 - Performance study of preloaded cryogenic bearings in liquid hydrogen pump	He Su
	6:00 PM	C3Po2B-06 - Analysis of the effect of friction of hybrid ball bearings on grease evaporation in cold compressors	He Su
	6:00 PM	C3Po2B-07 - Experimental Research on Performance of a novel oil-free dual piston Compressor driven by a Moving Coil Linear motor for J - T Throttle Refrigerator	Yuanli Liu
	6:00 PM	C3Po2B-08 - Requirements and conceptual design for full flow purifier at Muon Campus	Jeewan Subedi
	6:00 PM	C3Po2B-09 - Mathematic prediction and experiment research of gas thrust bearing for high-speed turbo-expander involving hydrogen, helium, nitrogen and air working fluids	Han Yan
	6:00 PM	C3Po2B-10 - Study on regenerator matrix optimization of space free piston Stirling generator	Yuanli Liu
CEC - Poster	**6:00 PM - 7:30 PM**	**C3Po2C - Superconducting Magnet Systems II**	
	Session Chairs: *Michael Green, Lawrence Berkeley Laboratory & Lance Cooley, ASC / NHMFL - Florida State University*		
	6:00 PM	C3Po2C-01 - Short Review on Cryostats with Superconducting Magnets	Sergiy Putselyk
	6:00 PM	C3Po2C-02 - Design and manufacture of cryostat for superconducting magnet system used in accelerator magnetic field calibration	Hangsheng Feng
	~~6:00 PM~~	C3Po2C-03 - *WITHDRAWN*	
	6:00 PM	C3Po2C-04 - A Cryostat for a 6T conduction-cooled no-insulation multi-pancake HTS solenoid	James Barkas
CEC - Poster	**6:00 PM - 7:30 PM**	**C3Po2D - Superconducting Magnet Systems III**	
	Session Chair: *Michael Green, Lawrence Berkeley Laboratory & Stoyan Stoynev*		
	6:00 PM	C3Po2D-01 - Numerical analysis on delamination degradation of epoxy-impregnated superconducting coils wound with REBCO tapes caused by thermal stress	Masayoshi Ohya
	6:00 PM	C3Po2D-02 - Commercial Winding for Superconducting Cables and Magnets	Glenn Knierim
CEC - Poster	**6:00 PM - 7:30 PM**	**C3Po2E - Applications V: Instrumentations, Visualization and Controls**	
	Session Chairs: *Shiran Bao, National High Magnetic Field Laboratory & Rajinikumar Ramalingam, Deutsches Elektronen-Synchrotron DESY*		
	6:00 PM	C3Po2E-01 - Simulation and experimental research on the thermal resistance of Cernox sensors in different bonding ways based on a high-precision cryogenic temperature measuring system	Hailing Qin
	6:00 PM	C3Po2E-02 - Simulation and experimental research on the influence of thermal boundary conditions and mounting ways of thermometers on the accuracy of high-precision cryogenic temperature measurement at 4.2~20K	Hailing Qin
	6:00 PM	C3Po2E-03 - Visualization study of a cryostat with a large diameter flow channel for flowing high-pressure cryogenic fluid	Shiyong Xie
	6:00 PM	C3Po2E-04 - An innovative approach for the design of cryogenic electrical and process control systems at CERN: the cryogenic Continuous Integration project.	Thomas Barbe
	6:00 PM	C3Po2E-05 - A Feasible Design of Gas and Liquid Xenon Management System for Large Dark Matter Experiment	Xiuli Wang
	~~6:00 PM~~	C3Po2E-06 - *WITHDRAWN*	
CEC - Poster	**6:00 PM - 7:30 PM**	**C3Po2F - Applications VI: Fuel, Transportation, Medical and Food**	
	Session Chairs: *Wolfgang Stautner, GE Research*		
	6:00 PM	C3Po2F-01 - Heat load measurements of additively manufactured liquid hydrogen tanks with vapor cooled shielding	Drew Boettner
	6:00 PM	C3Po2F-02 - Autogenous burst testing of additively manufactured liquid hydrogen tanks	Drew Boettner

ICMC - Poster	**6:00 PM - 7:30 PM**	**M3Po1A - Superconducting Cables and Superconducting Devices**	
	Session Chair: *Takanobu Kiss, Kyushu University*		
	6:00 PM	M3Po1A-01 - Flux Creep in Bi:2212 Rutherford Cables for Particle Accelerator Applications	Jacob Rochester
	~~6:00 PM~~	M3Po1A-02 - *WITHDRAWN*	
	6:00 PM	M3Po1A-03 - 2D H-formulation modelling of HTS triaxial cables	Matthew Clegg
	6:00 PM	M3Po1A-04 - How twist pitch effect the critical current density distribution in multilayer CORC cable	Muhammad Umar Fareed
	6:00 PM	M3Po1A-05 - Investigation of critical current estimation for high-temperature superconducting coil by means of pick-up coils	Junya Omura
	~~6:00 PM~~	M3Po1A-06 - *WITHDRAWN*	
	6:00 PM	M3Po1A-07 - Influence of cooling temperature on load-carrying performance of a radial HTS magnetic bearing	Xiang Guan
	~~6:00 PM~~	M3Po1A-08 - *WITHDRAWN*	
	~~6:00 PM~~	M3Po1A-09 - *WITHDRAWN*	
	6:00 PM	M3Po1A-10 - SIS100 Bypass Line bus bars stability and its clamping system under AC current load	Artur Iluk
	6:00 PM	M3Po1A-11 - Design of warm dielectric terminations and electrical breaks for high temperature superconducting power cables	Paul Mensah
ICMC - Poster	**6:00 PM - 7:30 PM**	**M3Po1B - Measurement Methods and New Materials**	
	Session Chairs: *Jun-ichi Shimoyama, Aoyama Gakuin University & Takanobu Kiss, Kyushu University*		
	6:00 PM	M3Po1B-01 - TThe experiment measurement of thermal emissivity of the black coating from 50K to 300K	Siyi Zhang
	6:00 PM	M3Po1B-02 - Development of a testing device for breakdown characteristics of insulating materials in cryogenic vacuum environment	Jun Huang
	6:00 PM	M3Po1B-03 - Performance of Custom, Chip-Level Magnetic Shielding at Cryogenic Temperatures	Stephen Bankson
	6:00 PM	M3Po1B-04 - A review of devices and methods for measuring thermal emissivity at cryogenic temperatures	Siyi Zhang
	6:00 PM	M3Po1B-05 - A non-contact Method to measure the Electrical conductivity of metals down to cryogenic temperatures, utilizing system of linear equation interpretation of eddy current analysis	Abhay Singh Gour
	6:00 PM	M3Po1B-06 - Magnetism and superconductivity in oxygen-implanted graphite and diamond-like thin coatings	Nadina Gheorghiu
	~~6:00 PM~~	M3Po1B-07 - *WITHDRAWN*	
	6:00 PM	M3Po1B-08 - The Zeeman, Spin-Orbit, and Quantum Spin Hall Interactions in Anisotropic and Low-Dimensional Conductors	Aiying Zhao
	6:00 PM	M3Po1B-09 - Influence of magnetron sputtering process parameters on low-temperature electrical transport characteristics of zirconium oxynitride thin films	Xiaomin Sun
	6:00 PM	M3Po1B-10 - Advanced Cryogenic Testing Systems and Methods	Garrett Tranquillo
	~~6:00 PM~~	M3Po1B-11 - *WITHDRAWN*	
CEC - Oral	**7:30 PM - 9:30 PM**	**C3Or2A - Cryocooler Components IV: Expanders, Pumps, Compressors and Regenerators**	
	Session Chairs: *Ram Dhuley, Fermilab & Srinivas Vanapalli, University of Twente*		
	7:30 PM	C3Or2A-01 - Comparison of two Nitrogen Pulsating Heat Pipes with different Adiabatic Section Lengths	Uzoma Mmeje
	7:45 PM	C3Or2A-02 - CFD Modeling of a helium cryogenic pulsating heat pipe	Chen Xu
	8:00 PM	C3Or2A-03 - Research on the thermal performance of heat exchanger with twisted helical tube bundles	Yaning Wang
	8:15 PM	C3Or2A-04 - Stability analysis on gas-lubricated bearing for high speed cryogenic turbo-expander	Liangwei Zheng
	8:30 PM	C3Or2A-05 - A 4He Convective Heat Switch	Fangqiu Yu
	~~8:45 PM~~	C3Or2A-06 - *WITHDRAWN*	
	9:00 PM	C3Or2A-07 - Design of Cryogenic Heat Exchangers and associated Sub-Systems for Controlled Cool-down and Testing of Superconducting Magnets at FRIB	Nusair Hasan
	9:15 PM	C3Or2A-08 - Entropy optimizing an additively manufactured heat exchanger with a dual stage Gifford-McMahon cryogenic refrigerator for hydrogen liquefaction	Jacob Leachman; Jordan Raymond
ICMC - Oral	**7:30 PM - 9:30 PM**	**M3Or4A - Focus Session: Joint - SRF Materials and Systems II**	
	Session Chair: *Wenura Withanage, ASC/NHMFL/FSU*		
	7:30 PM	M3Or4A-01 - [Invited] C-RFX Instrument	Giulia Lanza

	8:00 PM	M3Or4A-02 - [Invited] High-Q development for medium-velocity 5-cell elliptical ~650 MHz superconducting cavities for hadron linacs	Kellen McGee
	8:15 PM	M3Or4A-03 - [Invited] LCLS-II-HE cryomodule production status at Fermilab	Joshua Kaluzny
	8:45 PM	M3Or4A-04 - [Invited] Studies on the Fundamental Mechanisms of Niobium Electropolishing	Eric Viklund
	9:00 PM	M3Or4A-05 - [Invited] Application of the ASME Boiler and Pressure Vessel Code in the Analysis of Dressed SRF Cavities at Fermilab	Colin Narug
	9:15 PM	M3Or4A-06 - First Cryogenic Test Result of 3D-printed Resonators for Quantum Bits	Paul Carriere
ICMC - Oral	**7:30 PM - 9:30 PM**	**M3Or4B - Focus Session: Mechanical Properties of HTS Wires and Cables I**	
	Session Chairs: *Hyung-Seop Shin, Andong National University & Arnaud Badel, Tohoku University*		
	7:30 PM	M3Or4B-01 - [Invited] Selected Issues on Magnetic Stress in HTS Magnet	Seungyong Hahn
	8:00 PM	M3Or4B-02 - [Invited] Toward efficient use of REBCO Coated Conductor's tensile strength in high field magnet insert: Mechanical Modelling and Experiments	Arnaud Badel
	8:30 PM	M3Or4B-03 - [Invited] Investigation on electromechanical behaviors in static-fatigued GdBa2Cu3Oy coated conductor tapes at 77 K	Michael de Leon
	9:00 PM	M3Or4B-04 - [Invited] Edge damage induced by mechanical slitting on REBCO HTS tapes	Yifei Zhang

Thursday, July 22, 2021

CEC - Oral	**8:00 AM - 9:00 AM**	**C4Or1A - Cryoplant Construction and Design III**	
	Session Chairs: *Michael DiPirro, NASA / GSFC & Steven Van Sciver, Florida State University*		
	8:00 AM	C4Or1A-01 - Dynamic simulation of the target moderator cryoplant and cryogenic transfer line at the European Spallation Source	Yijun Chao
	8:15 AM	C4Or1A-02 - Process analysis and control flow design of the 1kW @ 4.5K helium refrigerator for NNBI	Jieqi Li
	~~8:30 AM~~	C4Or1A-03 - *WITHDRAWN*	
	8:30 AM	C4Or1A-04 - Large-scale 20K Helium Refrigeration System for the European Spallation Source ERIC	Nikolay Kolev
	8:45 AM	C4Or1A-05 - EU Demo Cryogenic system and cryodistribution pre-study	Jean-Marc Bernhardt
CEC - Oral	**8:00 AM - 9:30 AM**	**C4Or1B - Applications VII: Instrumentations, Visualization and Controls**	
	Session Chairs: *Benjamin Bradu, CERN & Rajinikumar Ramalingam, Deutsches Elektronen-Synchrotron DESY*		
	8:00 AM	C4Or1B-01 - Beam induced heat load instrumentation installed in LHC during the Long Shutdown 2	Benjamin Bradu
	8:15 AM	C4Or1B-02 - Investigation of thermal stratification above a pool of liquid nitrogen using Schlieren imaging	Abhishek Purandare
	8:30 AM	C4Or1B-03 - In-situ ortho-parahydrogen compositional analysis via Raman spectroscopy	Carl Bunge
	8:45 AM	C4Or1B-04 - [Invited] Detection of hot spots on accelerator cavities via flow visualization in superfluid 4He (He II)	Shiran Bao
	9:15 AM	C4Or1B-05 - Novel Fiber Optics Sensing Arrays with Enhanced Sensitivity in Cryogenic Temperature	Hon Chan
Joint - Oral	**8:00 AM - 9:30 AM**	**J4Or1A - Joint Focus Session: Hydrogen Technologies for Transportation II**	
	Session Chairs: *Sonja Schlachter, Karlsruhe Institute of Technology & Peter Cheetham, FSU/NHMFL*		
	8:00 AM	J4Or1A-01 - [Invited] Proof of concept testing for a cryogenic propulsion unit	Min Zhang
	8:30 AM	J4Or1A-02 - [Invited] New National Project for Development of Electric Propulsion System using Superconducting Technologies for Airplane in Japan	Teruo Izumi
	9:00 AM	J4Or1A-03 - [Invited] A U.S. Department of Energy Perspective on Hydrogen Fuel Cells for Aviation	Peter Devlin, Asha-Dee Celestine
ICMC - Oral	**8:00 AM - 9:30 AM**	**M4Or1A - Focus Session: Low Temperature Materials Database**	
	Session Chairs: *Robert Walsh, NHMFL / FSU & Klaus-Peter Weiss, Karlsruhe Institute of Technology*		
	8:00 AM	Introduction	Robert Walsh
	8:05 AM	Staus of ICMC Digital Library	Richard Reed
	8:15 AM	Interface and Input of Data for FEM Applications	Klaus-Peter Weiss
	8:25 AM	Present Status of Personal Archives and Comments on Database	Arata Nishimura
	8:35 AM	NHMFL and NSF Data Management Plans	David Butcher
	8:45 AM	Panel Discussion - Open discussion on Vital Topics and Issues Related to the Creation of a Open, Uniform, Web-searchable Cryogenic Materials Database	

CEC/ICMC 2021 Conference Program
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ICMC - Oral	**8:00 AM - 9:30 AM**	**M4Or1B - MgB2 and Fe-based Bulks and Wires**	
	Session Chairs: *Yanwei Ma, Institute of Electrical Engineering, CAS & Jun-ichi Shimoyama, Aoyama Gakuin University*		
	8:00 AM	M4Or1B-01 - Microstructure and transport properties of Cu/Ag composite sheathed 122-type iron-based superconducting wires and tapes	Chao Yao
	8:15 AM	M4Or1B-02 - Fabrications and properties of composite iron-based superconducting wires and tapes	Chiheng Dong
	8:30 AM	M4Or1B-03 - Harmonic generation and inter-grain nature of high-Tc and Chevrel-Phase superconductors	Ioseb Metskhvarishvili
	8:45 AM	M4Or1B-04 - Effect of oxides additions on structure and characteristics of magnesium diboride based bulks and wires	Tetiana Prikhna
	9:00 AM	M4Or1B-05 - Modeling and Experiments of AC loss for a Conduction-Cooled MgB2 Coil	Danlu Zhang
	9:15 AM	M4Or1B-06 - Magnetic shielding properties of a machinable MgB2 cup-shaped bulk	Michela Fracasso
CEC - Oral	**9:45 AM - 10:15 AM**	**C4Or2A - Large Scale Cryogenic Systems for Space Applications**	
	Session Chairs: *Mark Zagarola, Creare LLC & Franklin Miller, University of Wisconsin - Madison*		
	9:45 AM	C4Or2A-01 - Conceptual Design of Cryostat for Cryo-cooled 37 Elements Phased Array Radar System for Space Surveillance	Andreas Froehlich
	~~10:00 AM~~	C4Or2A-02 - *WITHDRAWN*	
	10:00 AM	C4Or2A-03 - Cryogenic Test Bench for the Experimental Investigation of Cryogenic Injection in Rocket Combusters Under High-Altitude Conditions	Andreas Rees
CEC - Oral	**9:45 AM - 11:15 AM**	**C4Or2B - Applications VIII: Instrumentations, Visualization and Controls**	
	Session Chairs: *Andrew May, STFC Daresbury Laboratory & Al Zeller, NHMFL/FSU*		
	9:45 AM	C4Or2B-01 - A tensile performance test device of low-dimensional material based on a pulse tube cryocooler	Haoying Qi
	10:00 AM	C4Or2B-02 - Study on reducing the impact to EAST cryogenic system caused by the failure of load devices	Qiang Yu
	10:15 AM	C4Or2B-03 - [Invited] Liquid helium level regulation improvement in the LHC electrical distributed feedboxes	Benjamin Bradu
	10:45 AM	C4Or2B-04 - Small Scale Time Projection Chamber Setup to Test the Purity of Liquid Krypton from the NA62 Experiment at CERN	Torsten Koettig
	11:00 AM	C4Or2B-05 - In-flow measurement of the composition of a binary gas mixture	Nando Tolboom
Joint - Oral	**9:45 AM - 11:15 AM**	**J4Or2A - Joint Focus Session: Hydrogen Technologies for Transportation III**	
	Session Chairs: *Michael Sumption, The Ohio State University & Wesley Johnson, NASA Glenn Research Center*		
	9:45 AM	J4Or2A-01 - [Invited] Sustainability through Cryogenic Hydrogen-Electric Aviation: Research of the Center for High-Efficiency Electrical Technologies for Aircraft (CHEETA)	Phillip Ansell
	10:15 AM	J4Or2A-02 - [Invited] Using cryogenic hydrogen as an aviation fuel: energy system implications and airport ground infrastructure requirements	Florian Allroggen
	10:45 AM	J4Or2A-03 - [Invited] Design, construction, and commissioning of a deployable liquid hydrogen production and fueling system for unmanned aerial systems	Ian Richardson
Joint - Oral	**11:15 AM - 12:00 PM**	**J4Or3A - Joint Focus Session: Hydrogen Technologies for Transportation IV - Targeted Discussion, Question, and Answer**	
	Session Chairs: *Wesley Johnson, NASA Glenn Research Center; Peter Cheetham, CAPS/FSU; Michael Sumption, The Ohio State University and Timothy Haugan, U.S. Air Force Research Laboratory*		
ICMC - Oral	**9:45 AM - 11:15 AM**	**M4Or2A - Focus Session: 3D Printing Materials I**	
	Session Chairs: *Klaus-Peter Weiss, Karlsruhe Institute of Technology / ITEP & Karl T. Hartwig, Texas A&M University*		
	9:45 AM	M4Or2A-01 - [Invited] Cryogenic property evaluation of composite materials fabricated by FDM 3D printer	Seokho Kim
	10:15 AM	M4Or2A-02 - [Invited] 3D printing Nb, Tungsten, Ti-alloy	Tim Horn
	10:45 AM	M4Or2A-03 - [Invited] Using 3D printing technologies in high-field accelerator magnet coils	Igor Novitski
	11:45 AM - 2:00 PM	**Networking in SpatialChat**	
ICMC - Oral	**2:00 PM - 4:30 PM**	**M4Or3A - Focus Session: Topological Materials for Electronics IV**	
	Session Chairs: *Luis Balicas, NHMFL/FSU & Ryan Baumbach, NHMFL/FSU*		
	2:00 PM	M4Or3A-01 - [Invited] Spin Transport in Cd3As2 and Topological Materials	Adam Friedman
	2:30 PM	M4Or3A-02 - [Invited] Spin Pumping into Thin Films of Topological Insulator BiSb	Ramesh Budhani
	3:00 PM	M4Or3A-03 - [Invited] Magnetic field-induced non-trivial electronic topology in Fe3GeTe2	Luis Balicas

	3:30 PM	M4Or3A-04 - [Invited] Novel Band Structures of Topological Metals with the Tetradymite Structure	Ryan Baumbach
	4:00 PM	M4Or3A-05 - [Invited] Fermi Surfaces of Flat-Band Intermetallic APd3 (A = Pb, Sn)	Kaya Wei
ICMC - Oral	**6:00 PM - 8:00 PM**	**M4Or4A - REBCO and BSCCO Cables and Conductors**	
	Session Chairs: *Eric Hellstrom, Florida State University & Yifei Zhang, Superpower, Inc.*		
	6:00 PM	M4Or4A-01 - Solder-free flexible low resistance REBCO coated conductor joints realized by sound energy bonding process	Takanobu Kiss
	6:15 PM	M4Or4A-02 - Stability and current sharing in YBCO tapes and cables containing broken elements - FEM modeling	Milan Majoros
	6:30 PM	M4Or4A-03 - Strategies for conformal REBCO windings	John Rogers
	6:45 PM	M4Or4A-04 - Research progress of ReBCO CICC for high field magnet application	Huan Jin
	7:00 PM	M4Or4A-05 - [Invited] High Strength Bi-2212 Wires and Cables	Alexander Otto
	7:30 PM	M4Or4A-06 - Quantification of Magnetization of Round RebCo Conductors and Bi:2212 cables, Models of Magnetization and Creep for use in Magnet Field error Estimations	Mike Sumption
	7:45 PM	M4Or4A-07 - The effects of Lorentz force and gamma ray irradiation on Bi2212	Zhenchuang Zhang
ICMC - Oral	**8:15 PM - 9:30 PM**	**M4Or5A - Composite Materials**	
	Session Chair: *Shreyas Balachandran, NHMFL/FSU/ASC*		
	8:15 PM	M4Or5A-01 - Study on Irradiation Effect of Insulating Materials for Fusion Superconducting Magnet -Effect of low temperature irradiation-	Yuta Kunitoku
	8:30 PM	M4Or5A-02 - Characterization of Candidate Insulation Resins for Training Reduction in High Energy Physics Magnets	Andrea Haight
	8:45 PM	M4Or5A-03 - Epoxy Electret: A Remedy for Partial Discharge at Cryogenic Temperature	Farhina Haque
	9:00 PM	M4Or5A-04 - Microwave Characterization of Gamma Ray Irradiated Thin Film Embedded and Non-Embedded Nb Resonators	Bhargav Yelamanchili
	9:15 PM	M4Or5A-05 - Indigenous development of epoxy resin system for cryogenic services and Fusion Application	Rajiv Sharma

Friday, July 23, 2021

Awards	**8:00 AM - 8:15 AM**	**CEC & ICMC Awards Presentations**	
CEC Plenary	**8:15 AM - 9:00 AM**	**David Grillot (ITER Organization) – ITER Cryogenic Systems – the Scale, Complexity, and Innovation - *sponsored by FormFactor Inc.***	
	Session Chairs: *John Weisend II, European Spallation Source ERIC & Jay Theilacker, Fermi National Accelerator Laboratory*		
CEC - Oral	**9:15 AM - 10:30 AM**	**C5Or1A - Applications IX: Safety, Reliability and Standards**	
	Session Chairs: *Andrew May, STFC Daresbury Laboratory & Biju Kuzhiveli, NIT Calicut*		
	9:15 AM	C5Or1A-01 - [Invited] Evaluation and mitigation of anoxia risks on Helium liquefaction and refrigeration systems equipped with liquid Helium dewars	Anne Barbier
	9:45 AM	C5Or1A-02 - [Invited] Failure mode analysis of 200W/4.5K helium refrigerator in CRAFT cryogenic system	Yiwen Zong
	10:15 AM	C5Or1A-03 - Understanding the freeze-out length for gas propagation in a liquid-helium-cooled tube	Shiran Bao
CEC - Oral	**9:15 AM - 10:45 AM**	**C5Or1B - Thermal-Fluid Transport and Properties II**	
	Session Chairs: *Franklin Miller, University of Wisconsin - Madison & Seungwhan Baek, KARI - Korean Aerospace Research Institute*		
	9:15 AM	C5Or1B-01 - Experimental analysis on the transient boiling characteristics of a single YBCO superconducting tape in saturated liquid nitrogen	Ziying Luo
	9:30 AM	C5Or1B-02 - Heat and Mass Transfer of a Liquid Nitrogen Leidenfrost Droplet on a Water Pool	Zhuo Zhang
	~~9:45 AM~~	C5Or1B-03 - *WITHDRAWN*	
	9:45 AM	C5Or1B-04 - Experimental study on the interfacial temperature distribution of evaporating liquid oxygen	Zhongqi Zuo
	~~10:00 AM~~	C5Or1B-05 - *WITHDRAWN*	
	10:00 AM	C5Or1B-06 - Numerical study on the flow and heat transfer characteristics of natural convection in CFETR cryostat	Jianhong Huang
	~~10:15 AM~~	C5Or1B-07 - *WITHDRAWN*	
	10:30 AM	C5Or1B-08 - Vapor-liquid equilibrium of the nitrogen-argon system	Jens Tamson
ICMC - Oral	**9:15 AM - 11:15 AM**	**M5Or1A - Focus Session: Mechanical Properties of HTS Wires and Cables II**	

	Session Chairs: *Herman ten Kate, CERN & Satoshi Awaji, Tohuku University*		
	9:15 AM	M5Or1A-01 - [Invited] Development of high-strength CORC® conductors with record-breaking irreversible axial tensile strain limit exceeding 7 %	Jeremy Weiss
	9:45 AM	M5Or1A-02 - [Invited] Electromechanical properties of STAR REBCO wires	Venkat Selvamanickam
	10:15 AM	M5Or1A-03 - [Invited] Endurance strain limit of reinforced BSCCO tapes with lamination techniques obtained from mechanical properties	Shutaro Machiya
	10:45 AM	M5Or1A-04 - Structural Finite Element Analysis of HTS Delamination with Solid-Shell Element under Various Loads	Zijia Zhao
	11:00 AM	M5Or1A-05 - Low Temperature Tensile and Fatigue Properties of Hastelloy C276	Robert Walsh
ICMC - Oral	**9:15 AM - 10:45 AM**	**M5Or1B - Mechanical and Thermal Properties of Metals and Alloys**	
	Session Chairs: *Ignacio Aviles Santillana, CERN & Shreyas Balachandran, NHMFL/FSU/ASC*		
	9:15 AM	M5Or1B-01 - Effects of grain size and strain rate on the low-temperature tensile properties of ferrite-austenite duplex stainless steel	Norimutsu Koga
	9:30 AM	M5Or1B-02 - Deep Cryogenic Treatment of AISI 431 and AISI 52100 Steels	Patricia Jovičević-Klug
	9:45 AM	M5Or1B-03 - Tensile Properties of 22Cr-12Ni Austenitic Stainless Steel Thick Plates and Bars at Cryogenic Temperatures	Tetsuya Kato
	10:00 AM	M5Or1B-04 - Thermal Property Measurements of Al-alloy for Space Cryogenic Missions	Keisuke Shinosaki
	10:15 AM	M5Or1B-05 - Friction stir welding of AISI 316LN high strength austenitic stainless steel for cryogenic application	Ignacio Aviles Santillana
	10:30 AM	M5Or1B-06 - Thermal conductivity of niobium and thermally sprayed copper at cryogenic temperature	Mohammed Fouaidy
ICMC - Oral	**11:30 AM - 1:30 PM**	**M5Or2A - Focus Session: Transportation VI - Cables, Connectors, AC Loss Wire**	
	Session Chairs: *Peter Ferara, US Navy & Danko van der Laan, Advanced Conductor Technologies*		
	11:30 AM	M5Or2A-01 - [Invited] Electro-Thermal Modeling of HTS Power Lines for Cryogenically-Cooled Electric Aircraft Design	Meaghan Podlaski
	12:00 PM	M5Or2A-02 - Metal Composite T-Junction Terminals for Power Distribution	Chris Kovacs
	12:15 PM	M5Or2A-03 - Properties of Ultra-Pure Aluminum Wires and Materials for Electric Power Components at Cryogenic Temperatures	Timothy Haugan
	12:30 PM	M5Or2A-04 - [Invited] AC losses in superconductors at high frequencies: Skin depth regimes and harmonics in MgB2 Superconductors and Superconductor coils, and comparisons to Litz wire	Mike Sumption
	12:45 PM	M5Or2A-05 - [Invited] Critical advances on low loss HTS wire, cable and coil development with the Bi2212 superconductor	Alexander Otto
	1:00 PM	M5Or2A-06 - Characterization of Litz Wire at Cryogenic Temperature	Shiyuan Yin
	1:15 PM	M5Or2A-07 - Current Sharing and Stability in an Extremely Low AC Loss MgB2 Conductor	Chris Kovacs
ICMC - Oral	**11:30 AM - 1:00 PM**	**M5Or2B - Focus Session: 3D Printing Materials II**	
	Session Chairs: *Tim Horn, North Carolina State University & Ignacio Aviles, CERN*		
	11:30 AM	M5Or2B-01 - [Invited] Dynamics and Vibrations of Rotors of Electrical Drives with Additively Manufactured Materials at Cryogenic Temperatures	Finn Steegers
	12:00 PM	M5Or2B-02 - [Invited] Cryogenic material properties of additive manufactured 316L stainless steel	Klaus-Peter Weiss
	12:30 PM	M5Or2B-03 - [Panel] Design and manufacturing challenges in additively made cryogenics components	Dhanushkodi D. Mariappan