

Tuesday, September 12, 2023

7:30 AM – 6 PM Registration Hours

8:00 AM Registration /Breakfast /Exhibits

9:15 AM Opening Plenary
Grand Ballroom Welcome & Overview
 John Juhasz - INCOSE / Telepath Systems CEO
 Chris Ciuca - Sr. VP Programs, SAE International
 Edward Orcutt - Brook Park City Mayor

10:00 AM Dr Jimmy Kenyon Director – NASA Glenn Research Center
Grand Ballroom Robert Pearce - Associate Administrator NASA Aeronautics Research Mission Directorate
 Christine Andrews - Executive GE Aerospace Advanced Technology
 Michael Sinnett - VP /GM Boeing Product Development
 Graham Webb - Pratt & Whitney Chief Sustainability Officer
 John Nairus - Alr Force Research Laboratory Chief Engineer - Power & Control Division

11:30 AM Luncheon

12:30 PM TUESDAY E&M Technical Sessions

	<u>Track</u>	<u>Session</u>	<u>Speakers / Topic</u>
Room 15	Energy & Infrastructure	Advanced Power Generation	Mr. Shawn Bennett, Battelle Hydrogen Hubs- Accelerating the Adoption of Hydrogen in the U.S Dr. (PhD) John Jackson, Idaho National Laboratory The Department of Energy Microreactor Program and the MARVEL microreactor project Ms. Lindsay Kaldon, NASA Glenn Research Center NASA Fission Surface Power Project
Room 17	Powering Mobility	Electric Propulsion	Dr. Rodger Dyson, NASA GRC Nuclear Electric Strayton Propulsion Mr. Ian Jakupcka, NASA Glenn Research Center Electrified Aircraft Propulsion Integration Concepts: Primary Fuel Cells and Cryogenic Hydrogen Storage
Room 16	Mobility Technology	Mobility Technology	Mr. Michael Mulzer, DuPont Enabling the development of next-generation e-mobility applications Mr. Justin Scheidler, NASA GRC Progress in Magnetic Gearing for Aeronautics and Space Applications Dr. (PhD) Stanley Young, National Renewable Energy Laboratory Research Findings for the Automation of Public Transport Systems with Battery-Electric Vehicles Operating Within Dense Urban Settings of Future Automated Mobility Districts
Room 18	Value Chain & Systems Integration	Digital Models: Hybrid Electric	Mr. Spencer Furin, NASA GRC Modeling Spacecraft Power Systems Using the SPACE Code Mr. Donald Simon, NASA GRC Initial Development of a Digital Twin Model for an Electrified Aircraft Propulsion Emulation Rig

2:00 PM Refreshments and Networking

2:30 PM TUESDAY E&M Technical Sessions

	<u>Track</u>	<u>Session</u>	<u>Speakers / Topic</u>
Room 15	Energy & Infrastructure	Power Quality	Mr. Nicolas Carbone, NASA GRC Gateway Power Quality Lessons Learned Mr. Xavier Collazo-Fernandez, NASA GRC High Voltage DC (HVDC) Inverter & Permanent Magnet (PM) Motor Input Performance Evaluation
Room 17	Powering Mobility	SAF / Hydrogen	Dr. (PhD) Gurhan Andac, GE Aerospace Qualification efforts on future SAF pathways Mr. Matthew Moran, Moran Innovation LLC Hydrogen Systems Development: Past, Present, and Future Mr. Jeff Trudell, NASA GRC Dual Hydrogen-Jet Fuel Aircraft - a path to low carbon emissions
Room 16	Mobility Technology	Materials Research	Ms. Jennifer Chickola, DuPont Polyimide for Hydrogen Wear and Sealing Applications Mr. Alex Leary, NASA GRC The Impact of Soft Magnetic Materials in Electrified Aircraft Applications Dr. Andrew Woodworth, NASA GRC Electrifying Aircraft Propulsion: Thermal issues of megawatt scale power dense electric machines and material solutions
Room 18	Value Chain & Systems Integration	MBSE/ Sim DIGITAL XFM	Ms. Sachin Aggarwal, Safran Power USA LLC Role of Computational Fluid Dynamics in Electrification of Air Travel Mr. Matthew Hause, SSI How to Fail at Digital Engineering

4:00 PM PANEL - Energy Generation & Storage Moderator: Dr Ajay Misra 45 min

PANEL - Hydrogen/ SAF Alternate Fuel Moderator: Mr Matt Moran 45 min

5:30 PM Welcome Celebration / Cocktail Mixer - Open to all attendees

Wednesday, September 13, 2023: NASA AVIATION DAY (Free public access)

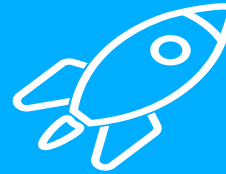
7:30 AM – 6 PM Registration Hours

8:00 AM Registration /Breakfast /Exhibits

8:30 AM NASA Glenn Ctr Leadership

NASA Aeronautics Mission Directorate
Four Transformations for Sustainability, Greater Mobility, and Economic Growth
Timothy McCartney - Director, GRC Aeronautics
Moderated Panel Discussions
– High-Speed Commercial Flight
– Ultra-Efficient Transportation
– Future Airspace and Safety
– Advanced Air Mobility
Summary & Wrapup

sustainable aviation exhibits



DRONE DEMONSTRATIONS

EXHIBITOR HIGHLIGHTS

11:30 AM Attendee Luncheon

12:30 PM WEDNESDAY E&M Technical Sessions

Track	Session	Speakers / Topic
Room 15 Energy & Infrastructure	Energy Storage/ Research	Dr. (PhD) Eric Gratz, Ascend Elements The Economics of EV Battery Recycling: Comparing Methods of Returning Recycled Battery Materials Back to the Lithium-ion Battery Supply Chain Mr. Alex Kosyakov, Natrion Solid-State Lithium-Metal Batteries using Natrion's Lithium Solid Ionic Composite (LISIC) Dr. Rocco Viggiano, NASA GRC Solid-state Architecture Batteries for Enhanced Rechargeability and Safety (SABERS) Beyond Li-Ion: Technology to Enable Sustainable Electric Aviation
Room 17 Powering Mobility	Hi Voltage Design	Mr. Joe Fakult, Safran Advanced High Voltage DC Generator System for Aerospace with Rapid Dynamic Response Dr. (PhD) Pengyu Fu, The Ohio State University High Voltage for Electrified Aircraft: Trends, Challenges, Research Needs and Recent Advances Mr. Gian_Carlo Montanari, FSU Ctr for Advanced Power Systems Innovative insulation system design and partial discharge detection to optimize resilience of electrical transportation assets: aircrafts and aerospace
Room 16 Mobility Technology	Control / Communication	Mr. Hunter Heiferling, Bluetronix Inc. Vehicle-to-vehicle (V2V) - 'vehicle to everything' V2X Communications using Unsupervised Reinforcement Learning through Swarm Intelligence Dr. Daniel Raible, NASA GRC Some Aeronautical Communications Experiments
Room 18 Value Chain & Systems Integration	AAM System Analysis, Tools & Methods	Mr. David Genter, Cummins, Inc. An approach for incorporating learning into system design: System Level Assessment Methodology Mr. Jonathan Litt, NASA GRC Harnessing the Digital Transformation for Development of Hybrid Electric Aircraft Propulsion Control Systems

NASA Day Afternoon Business Sessions

12:00 PM - 12:30 PM
NASA/NASA Glenn Overview/Partnerships/Funding Opportunities

12:30 PM - 1:00 PM
NASA T2X, Technologies and Licensing Opportunities

1:00 PM - 1:30 PM
Small Business Procurements

2:00 PM - 2:45 PM
Panel - Space Technology Research Grants/Small Business Innovation Research/ Small Business Technology Transfer

DRONE DEMONSTRATION

2:00 PM Attendee Refreshments and Networking

2:30 PM WEDNESDAY E&M Technical Sessions

Track	Session	Speakers / Topic
Room 15 Energy & Infrastructure	MicroGrids & Power Distribution	Dr. (PhD) Narasimha Prasad, NASA Alternating Direct Current- A New Form of Efficient Energy Transmission for Renewable Sources Mr. Shelby Tyne, Hawthorne Caterpillar Utilization of waste electricity in microgrid environments
Room 17 Powering Mobility	Hi Voltage Aero Safety	Mr. Florian Bruder-Mandler, Bender GmbH & Co. KG Insulation monitoring devices for aerospace applications Dr. (PhD) Ian Cotton, The University of Manchester Safety monitoring of high voltage cables in aerospace electrical systems Dr. (PhD) Jeffrey Ewanchuk, Raytheon Experimental Validation of a 1.2 kV/1kA DC Solid-state Circuit Breaker at Emulated High-Altitude Conditions
Room 16 Mobility Technology	Airborne Systems Urban eVTOL	Mr. Prashanth Ramesh, The Ohio State University - Center for Automotive Research HIL testing of a Real-Time Propulsion, Thermal and Flight Controller for Hybrid-Electric Regional Aircraft Applications Mr. Bill Tomek, NASA-Langley NASA/Boeing Transonic Truss-Braced Wing High-Lift Test Phase II
Room 18 Value Chain & Systems Integration	Systems Methods & Verification	Dr. (PhD) Christopher Barth, NASA GRC Progress and Next Steps on the Demonstration of a Kilowatt-Class Stirling PMAD System Mr. Eric Hendricks, NASA Glenn Research Center Model-based Systems Analysis and Engineering (MBSA&E) for the Sustainable Flight National Partnership Mr. Dave Sadey, NASA GRC Electronic Load Evaluation for Aerospace Power System Verification

2:45 PM - 3:30 PM
Panel - Educational Outreach, Space Technology Research Grants, University Leadership Initiative

3:30 PM - 4:00 PM
Networking Session NETWORKING

DRONE COMPETITION

4:00 PM PANEL - Advanced Air Mobility Moderator: Dr Marla Perez- Davis 45 min

PANEL - Hybrid Electric Aircraft EPFD Moderator: Mr Ralph Jansen 45 min

5:30 PM Adjourn

Thursday, September 14, 20237:30 AM – 6 PM *Registration Hours*

7:30 AM Continental breakfast

8:00 AM Opening Plenary

Grand Ballroom

Terry Boston - fmr PJM CEO

Todd Price - AlphaStruxure Senior VP of Development

Paul Stith - VP Global Transportation Black & Veatch

Peter DeBock - Program Director Advanced Research Projects Agency -- Energy

9:30 AM *Refreshments and Networking*10:00 AM *THURSDAY E&M Technical Sessions*

	Track	Session	Speakers / Topic
Room 15	Energy & Infrastructure	Microgrids, Hydrogen & Infrastructure	Dr. Peter Lilienthal, UL SOLUTIONS Microgrids: The Key Link between Clean Energy and Mobility Mr. Charles Manto, Instant Access Networks, LLC Car-charging Microgrids to the Rescue! -- How growing EV-charging systems that threaten to overload commercial power grids might be just the thing to save them. -
Room 17	Powering Mobility	Space Power Systems	Mr. John H Scott, NASA Space Technology Mission Directorate Toward an Electric Power Utility on the Lunar Surface Mr. George Thomas, NASA A Modular AC to DC Interface Converter to Enable Lunar Surface Power Transmission Mr. Wayne Weaver, Sandia National Laboratories Energy Storage Requirements and Implementation for a Lunar Base Microgrid
Room 16	Mobility Technology	Hybrid Propulsion Systems	Mr. Trevor Kramer, Tennessee Tech University Zero Emission Commercial Aircraft Powered by Solid Oxide Fuel Cell Turbogenerator Hybrid Cycle Mr. Shantanu Mishra, Rolls-Royce Hybridization of CS-23 commuter aircraft platform -- An overview of challenges and opportunities ahead of us -
Room 18	Value Chain & Systems Integration	Safety, Cyber & Risk Management	Mr. Nihanth Adina, The Ohio State University Model-Based Fault Diagnostic Strategy for Microgrids Ms. Brianna DeMattia, NASA GRC Advanced Battery Health Approaches for Electric Aircraft Mr. Matthew Hause, SSI Tilting at Windmills: Drivers, Risk, Opportunity, Resilience and the 2021 Texas Electricity Grid Failure

11:30 AM *Luncheon*12:30 PM *THURSDAY E&M Technical Sessions*

	Track	Session	Speakers / Topic
Room 15	Energy & Infrastructure	Power Electronics	Ms. Kristen Boomer, NASA Glenn Research Center Wide Bandgap (WBG) Power Electronics in NASA Missions Dr. (PhD) Matthew Granger, NASA GRC Design and Test Results for a High Efficiency, High Power Density, Low Output Ripple 1kV, 250kW Aerospace Motor Drive Mrs. Alison Michalke, NASA GRC Hard Fault Protection for a 1kV Silicon Carbide-based Aerospace Motor Drive
Room 17	Powering Mobility	Artemis Lunar Microgrids	Mr. Nihanth Adina, The Ohio State University Three-Layered Design, Protection & Control of Lunar DC Microgrids utilizing WBG based Flexible Dc Energy Router Dr. Lee Rashkin, Sandia National Laboratories Analysis and Testing of Optimal Power Control Strategy for NASA Moon Base Interconnected DC Microgrid System
Room 16	Mobility Technology	Autonomy and Mobility	Mr. Jonah Sachs-Wetstone, NASA GRC SUSAN Power/Propulsion System Emulation Test Predictions Dr. (PhD) Stanley Young, National Renewable Energy Laboratory (NREL) A Multi-Dimensional Benefit Assessment of Automated Mobility Platforms (AMP) for Large Facilities: Mobility, Energy, Equity, and Facility Management; Design -
Room 18	Value Chain & Systems Integration	Value Chain, IP & Data Analytics	Mr. Adam Maxam, P3 Adaptive Harnessing Power BI for Performance Benchmarking and Best Practices Sharing in the Energy Industry: A Case Study Mr. Daniel McMullen, Calfee Intellectual Property Rights in and Responsibilities for Emerging Technologies in Energy; Mobility Mr. Raymond Wolfgang, LCW Enterprises Improve your Value Chain with Systems Engineering

2:00 PM *Refreshments and Networking*

2:30 PM PLENARY SESSION--Norman Campbell - Siemens Exec

Grand Ballroom

PANEL-- Microgrids & the GREAT GRID TRANSFORMATION Moderator: Mr. Charles Manto

PANEL -- Systems & Models DIGITAL ENTERPRISE Moderator: Mr. David Long

5:00 PM *Rock n Roll Hall of Fame Mixer Event*



Friday, September 15, 2023

7:30 AM – 6 PM Registration Hours

7:30 AM Continental breakfast

8:00 AM Opening Plenary

Grand John Wharton - Major General US Army (ret)

Ballroom Laura Parkan - VP Hydrogen Energy, Air Liquide

Jigar Shah - Head - Energy Services Electrify America

David Long - INCOSE past President, Director of Strategy

9:30 AM Refreshments and Networking

10:00 AM FRIDAY E&M Technical Sessions

	Track	Session	Speakers / Topic
Room 15	Energy & Infrastructure	Power Components	Mr. Arman Mirhashemi, NASA Glenn Research Center Operability Influenced Design of Turbine Engine Components Ms. Nuha Nawash, NASA GRC High-Power DC Switchgears Protection for Megawatt Electrified Powertrain Systems -
Room 17	Powering Mobility	Artemis Power Management	Dr. Marc Carbone, NASA GRC Adaptive Zonal Protection for Space Microgrids Dr. Geoffrey Landis, NASA GRC Thermoradiative Conversion for Space Power Systems Mr. Yuzhou Yao, Ohio State University Modular Multilevel GaN Based Ultra-high Power Density Electric Power Conversion and Transmission on the Lunar Surface
Room 16	Mobility Technology	Thermal / Insulation	Mr. Nicholas Faenza, Exponent Understanding the Fundamental Mechanisms Of Battery Thermal Runaway Propagation and Mitigation Mr. Wesley Johnson, NASA GRC Assessment of Insulation Systems for Aircraft Liquid Hydrogen Tanks
Room 18	Value Chain & Systems Integration	EV Economics & Infrastructure	Mr. Jason Brewington, Kitu Systems, Inc. The EV's Grid Future - Navigating the Challenges and Opportunities Mr. Shelby Tyne, Hawthorne Caterpillar Utilization of waste electricity in microgrid environments -

11:30 AM Luncheon

12:30 PM CLOSING SESSION - Plenary

Grand Track Leads Reports Best Paper Award

Ballroom STUDENT PANEL - Education / Academic Focus Moderator: Dr Navid Goudarzi

2:00 PM Refreshments and Networking

Sebastien Dubois - Clean Aviation (video)

2:30 PM

Grand CLOSING PANEL: State of Energy & Mobility Moderator: Dr Ajay Misra

Ballroom

~ 4 PM Adjourn – until E&M24!