

2022 Conference on Advanced Power Systems for Deep Space Exploration - Detailed Agenda

***Times are listed as Eastern Daylight Savings (EDT) (USA and Canada)**

Tuesday, 30 August 2022			
10:00 - 10:05	Conference Introduction and Review of Conference Logistics, Dr. Erik Brandon, Jet Propulsion Laboratory		
10:05 - 10:35	Keynote: NASA Planetary Science Division: Today and Into the Future, Mr. Eric Ianson, Deputy Director, Planetary Science Division, NASA		
10:35 - 10:40	Transition to Two Tracks		
	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; background-color: #4a7c9c; color: white; padding: 5px;"> Track 1: Power Systems and Architectures (Deep Space Missions) Session Chair: Dr. Christopher Iannello, NASA Kennedy Space Center Co-Chair: Dr. Ansel Barchowsky, Jet Propulsion Laboratory </td> <td style="width: 50%; background-color: #4a7c9c; color: white; padding: 5px;"> Track 2: Power Sources (Fission and Radioisotope Power Sources) Session Chair: Dr. Vladimir Jovicic, Jet Propulsion Laboratory Co-Chair: Dr. Sabah Bux, Jet Propulsion Laboratory </td> </tr> </table>	Track 1: Power Systems and Architectures (Deep Space Missions) Session Chair: Dr. Christopher Iannello, NASA Kennedy Space Center Co-Chair: Dr. Ansel Barchowsky, Jet Propulsion Laboratory	Track 2: Power Sources (Fission and Radioisotope Power Sources) Session Chair: Dr. Vladimir Jovicic, Jet Propulsion Laboratory Co-Chair: Dr. Sabah Bux, Jet Propulsion Laboratory
Track 1: Power Systems and Architectures (Deep Space Missions) Session Chair: Dr. Christopher Iannello, NASA Kennedy Space Center Co-Chair: Dr. Ansel Barchowsky, Jet Propulsion Laboratory	Track 2: Power Sources (Fission and Radioisotope Power Sources) Session Chair: Dr. Vladimir Jovicic, Jet Propulsion Laboratory Co-Chair: Dr. Sabah Bux, Jet Propulsion Laboratory		
10:40 - 11:05	Dragonfly Mission Electrical Power Subsystem (EPS) Architecture Mr. Kyle Weber, The Johns Hopkins University Applied Physics Laboratory		
11:05 - 11:30	Power Electronics Design for the Mars Helicopter Mr. Joseph Zitkus, Jet Propulsion Laboratory		
11:30 - 11:55	Power Distribution Assembly for the Psyche Asteroid Mission Mr. Rufus Simon, Jet Propulsion Laboratory		
11:55 - 12:20	Power Structure System for PSYCHE/MULTISPECTRAL IMAGER – CAMERA Mr. Brandon Witcher, VPT, Inc.		
12:20 - 12:45	HALO Battery System Mr. Louis Levine, Northrop Grumman Systems Corporation, Tactical Space Systems Division		
12:45 - 1:15	Lunch Break		
1:15 - 1:40	Gateway Power Quality Lessons Learned Mr. Nicolas Carbone, NASA		
1:40 - 2:05	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; background-color: #4a7c9c; color: white; padding: 5px;"> Track 1: Power Systems and Architectures (Lunar Surface Power and Grids) Session Chair: Mr. Brent Gardner, NASA Glenn Research Center Co-Chair: Dr. Wesley Fuhrman, The Johns Hopkins University Applied Physics Laboratory NASA's Technology Priorities for Lunar Surface Power Mr. John Scott, NASA Space Technology Mission Directorate </td> <td style="width: 50%; padding: 5px;"> Track 2: Power Sources (Radioisotope Thermoelectric Generators) Session Chair: Dr. Jean-Pierre Fleurial, Jet Propulsion Laboratory Co-Chair: Dr. Jonathan Grandidier, Blue Origin Comparative Analysis of Some Thermal Energy Conversion Technologies for Deep Space Applications Dr. Sabah Bux, Jet Propulsion Laboratory </td> </tr> </table>	Track 1: Power Systems and Architectures (Lunar Surface Power and Grids) Session Chair: Mr. Brent Gardner, NASA Glenn Research Center Co-Chair: Dr. Wesley Fuhrman, The Johns Hopkins University Applied Physics Laboratory NASA's Technology Priorities for Lunar Surface Power Mr. John Scott, NASA Space Technology Mission Directorate	Track 2: Power Sources (Radioisotope Thermoelectric Generators) Session Chair: Dr. Jean-Pierre Fleurial, Jet Propulsion Laboratory Co-Chair: Dr. Jonathan Grandidier, Blue Origin Comparative Analysis of Some Thermal Energy Conversion Technologies for Deep Space Applications Dr. Sabah Bux, Jet Propulsion Laboratory
Track 1: Power Systems and Architectures (Lunar Surface Power and Grids) Session Chair: Mr. Brent Gardner, NASA Glenn Research Center Co-Chair: Dr. Wesley Fuhrman, The Johns Hopkins University Applied Physics Laboratory NASA's Technology Priorities for Lunar Surface Power Mr. John Scott, NASA Space Technology Mission Directorate	Track 2: Power Sources (Radioisotope Thermoelectric Generators) Session Chair: Dr. Jean-Pierre Fleurial, Jet Propulsion Laboratory Co-Chair: Dr. Jonathan Grandidier, Blue Origin Comparative Analysis of Some Thermal Energy Conversion Technologies for Deep Space Applications Dr. Sabah Bux, Jet Propulsion Laboratory		
2:05 - 2:30	Establishing a Lunar Surface Power Grid Mr. George Thomas, NASA Glenn Research Center		
2:30 - 2:55	High Efficiency Modular Resonant Power Converters Dr. Ahmadreza Amirahmadi, Jet Propulsion Laboratory		
2:55 - 3:20	Autonomous Power Control for the Lunar Power Grid Mr. Jeffrey Csank, NASA Glenn Research Center		
3:20 - 3:30	Break		
3:30 - 3:55	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; background-color: #4a7c9c; color: white; padding: 5px;"> Track 1: Power Systems and Architectures (Standards and Design for Deep Space) Session Chair: Dr. Wesley Fuhrman, The Johns Hopkins University Applied Physics Laboratory Co-Chair: Mr. Brent Gardner, NASA Glenn Research Center Space Power Consortium Mr. Brent Gardner, NASA Glenn Research Center </td> <td style="width: 50%; padding: 5px;"> Manufacturing Hybrid Critical Point Dried Aerogel for RTG Thermoelectric Modules Dr. Ying Song, Teledyne Energy Systems, Inc. </td> </tr> </table>	Track 1: Power Systems and Architectures (Standards and Design for Deep Space) Session Chair: Dr. Wesley Fuhrman, The Johns Hopkins University Applied Physics Laboratory Co-Chair: Mr. Brent Gardner, NASA Glenn Research Center Space Power Consortium Mr. Brent Gardner, NASA Glenn Research Center	Manufacturing Hybrid Critical Point Dried Aerogel for RTG Thermoelectric Modules Dr. Ying Song, Teledyne Energy Systems, Inc.
Track 1: Power Systems and Architectures (Standards and Design for Deep Space) Session Chair: Dr. Wesley Fuhrman, The Johns Hopkins University Applied Physics Laboratory Co-Chair: Mr. Brent Gardner, NASA Glenn Research Center Space Power Consortium Mr. Brent Gardner, NASA Glenn Research Center	Manufacturing Hybrid Critical Point Dried Aerogel for RTG Thermoelectric Modules Dr. Ying Song, Teledyne Energy Systems, Inc.		
3:55 - 4:20	Modular Open Systems Approach (MOSA) for a Robust Commercial Lunar Ecosystem Mr. Matt DeMinico, NASA Glenn Research Center		
4:20 - 4:45	Historical Duration of Use Power Figure Research and Update Mr. Marc Hayhurst, The Aerospace Corporation		
4:45 - 5:10	Radiation and the Next Wave of Power Electronics in Space Mr. Jason Osheroff, NASA Goddard Space Flight Center		
5:10 - 5:35	Total Dose Modeling of the Transit through the Van Allen Belts Dr. Thomas Carstens, NASA Goddard Space Flight Center		
5:35 - 5:40	Preview for Next Day & Adjourn		

2022 Conference on Advanced Power Systems for Deep Space Exploration - Detailed Agenda

***Times are listed as Eastern Daylight Savings (EDT) (USA and Canada)**

Wednesday, 31 August 2022			
10:00 - 10:05	Conference Introduction and Review of Conference Logistics, Dr. Erik Brandon, Jet Propulsion Laboratory		
10:05 - 10:35	Keynote: The Mars Sample Return Mission: Challenges and Constraints, Mr. Rob Manning, Chief Engineer, Jet Propulsion Laboratory		
10:35 - 10:40	Transition to Two Tracks		
	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Track 1: Energy Storage (Li-ion Technologies) Session Chair: Dr. William West, Jet Propulsion Laboratory Co-Chair: Mr. Thomas Miller, NASA Glenn Research Center </td> <td style="width: 50%; vertical-align: top;"> Track 2: Power Conversion, Switching and Transfer (Wide Bandgap Semiconductors) Session Chair: Ms. Shelly Sposato, Jet Propulsion Laboratory Co-Chair: Mr. Brent Gardner, NASA Glenn Research Center </td> </tr> </table>	Track 1: Energy Storage (Li-ion Technologies) Session Chair: Dr. William West, Jet Propulsion Laboratory Co-Chair: Mr. Thomas Miller, NASA Glenn Research Center	Track 2: Power Conversion, Switching and Transfer (Wide Bandgap Semiconductors) Session Chair: Ms. Shelly Sposato, Jet Propulsion Laboratory Co-Chair: Mr. Brent Gardner, NASA Glenn Research Center
Track 1: Energy Storage (Li-ion Technologies) Session Chair: Dr. William West, Jet Propulsion Laboratory Co-Chair: Mr. Thomas Miller, NASA Glenn Research Center	Track 2: Power Conversion, Switching and Transfer (Wide Bandgap Semiconductors) Session Chair: Ms. Shelly Sposato, Jet Propulsion Laboratory Co-Chair: Mr. Brent Gardner, NASA Glenn Research Center		
10:40 - 11:05	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> The Use of Li-ion Batteries for a 50-Year Space Flight Dr. Hector Beltran, Universitat Jaume I </td> <td style="width: 50%; vertical-align: top;"> Next Generation Radiation Hard GaN Power Devices Mr. Sean Morrison, EPC-Space and Dr. Robert Strittmatter, EPC-Space </td> </tr> </table>	The Use of Li-ion Batteries for a 50-Year Space Flight Dr. Hector Beltran, Universitat Jaume I	Next Generation Radiation Hard GaN Power Devices Mr. Sean Morrison, EPC-Space and Dr. Robert Strittmatter, EPC-Space
The Use of Li-ion Batteries for a 50-Year Space Flight Dr. Hector Beltran, Universitat Jaume I	Next Generation Radiation Hard GaN Power Devices Mr. Sean Morrison, EPC-Space and Dr. Robert Strittmatter, EPC-Space		
11:05 - 11:30	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Health Monitoring and Prognostics in Li-ion Batteries Dr. Chetan Kulkarni, KBR, Inc., NASA Ames Research Center </td> <td style="width: 50%; vertical-align: top;"> Wide Bandgap (WBG) Embedded Drain High Voltage Superjunction MOSFET (mSJMS-CD)[™]: Enabling High Voltage DC Power Distribution and Conversion Efficiency for Reduced Power Consumption in Power Systems In Deep Space Applications Mr. Samuel Anderson, IceMOS Technology Corporation </td> </tr> </table>	Health Monitoring and Prognostics in Li-ion Batteries Dr. Chetan Kulkarni, KBR, Inc., NASA Ames Research Center	Wide Bandgap (WBG) Embedded Drain High Voltage Superjunction MOSFET (mSJMS-CD)[™]: Enabling High Voltage DC Power Distribution and Conversion Efficiency for Reduced Power Consumption in Power Systems In Deep Space Applications Mr. Samuel Anderson, IceMOS Technology Corporation
Health Monitoring and Prognostics in Li-ion Batteries Dr. Chetan Kulkarni, KBR, Inc., NASA Ames Research Center	Wide Bandgap (WBG) Embedded Drain High Voltage Superjunction MOSFET (mSJMS-CD)[™]: Enabling High Voltage DC Power Distribution and Conversion Efficiency for Reduced Power Consumption in Power Systems In Deep Space Applications Mr. Samuel Anderson, IceMOS Technology Corporation		
11:30 - 11:55	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Reducing the Risk of Thermal Propagation Through Innovative Inactive Materials Dr. Brian Morin, Soteria Battery Innovation Group </td> <td style="width: 50%; vertical-align: top;"> Low-Energy Ion-Induced Single-Event Burnout in Gallium Oxide Schottky Diodes Mr. Rick Cadena, Vanderbilt University ISDE </td> </tr> </table>	Reducing the Risk of Thermal Propagation Through Innovative Inactive Materials Dr. Brian Morin, Soteria Battery Innovation Group	Low-Energy Ion-Induced Single-Event Burnout in Gallium Oxide Schottky Diodes Mr. Rick Cadena, Vanderbilt University ISDE
Reducing the Risk of Thermal Propagation Through Innovative Inactive Materials Dr. Brian Morin, Soteria Battery Innovation Group	Low-Energy Ion-Induced Single-Event Burnout in Gallium Oxide Schottky Diodes Mr. Rick Cadena, Vanderbilt University ISDE		
11:55 - 12:20	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Li-ion Commercial Cell Strategic Reserve Dr. Eric Darcy, NASA Johnson Space Center </td> <td style="width: 50%; vertical-align: top;"> Single-Event Effects in SiC Power Devices for Space Applications Mr. Arijit Sengupta, Vanderbilt University </td> </tr> </table>	Li-ion Commercial Cell Strategic Reserve Dr. Eric Darcy, NASA Johnson Space Center	Single-Event Effects in SiC Power Devices for Space Applications Mr. Arijit Sengupta, Vanderbilt University
Li-ion Commercial Cell Strategic Reserve Dr. Eric Darcy, NASA Johnson Space Center	Single-Event Effects in SiC Power Devices for Space Applications Mr. Arijit Sengupta, Vanderbilt University		
12:20 - 12:45	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Materials Development for Advanced Li-Ion Cells and the Center for Research in Extreme Batteries (CREB) Dr. Wesley Henderson, U.S. Army Research Laboratory (ARL) </td> <td style="width: 50%; vertical-align: top;"> Gate Drive Review and Best Practice Design for WBG HV Power Switches in Space Mr. Paul Schimel, Microchip </td> </tr> </table>	Materials Development for Advanced Li-Ion Cells and the Center for Research in Extreme Batteries (CREB) Dr. Wesley Henderson, U.S. Army Research Laboratory (ARL)	Gate Drive Review and Best Practice Design for WBG HV Power Switches in Space Mr. Paul Schimel, Microchip
Materials Development for Advanced Li-Ion Cells and the Center for Research in Extreme Batteries (CREB) Dr. Wesley Henderson, U.S. Army Research Laboratory (ARL)	Gate Drive Review and Best Practice Design for WBG HV Power Switches in Space Mr. Paul Schimel, Microchip		
12:45 - 1:15	Lunch Break		
	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Track 1: Energy Storage (Advanced Battery Chemistries) Session Chair: Dr. Erik Brandon, Jet Propulsion Laboratory Co-Chair: Dr. William West, Jet Propulsion Laboratory </td> <td style="width: 50%; vertical-align: top;"> Track 2: Power Sources (Photovoltaics) Session Chair: Mr. Jeremiah McNatt, NASA Glenn Research Center Co-Chair: Dr. Jonathan Grandjardier, Blue Origin </td> </tr> </table>	Track 1: Energy Storage (Advanced Battery Chemistries) Session Chair: Dr. Erik Brandon, Jet Propulsion Laboratory Co-Chair: Dr. William West, Jet Propulsion Laboratory	Track 2: Power Sources (Photovoltaics) Session Chair: Mr. Jeremiah McNatt, NASA Glenn Research Center Co-Chair: Dr. Jonathan Grandjardier, Blue Origin
Track 1: Energy Storage (Advanced Battery Chemistries) Session Chair: Dr. Erik Brandon, Jet Propulsion Laboratory Co-Chair: Dr. William West, Jet Propulsion Laboratory	Track 2: Power Sources (Photovoltaics) Session Chair: Mr. Jeremiah McNatt, NASA Glenn Research Center Co-Chair: Dr. Jonathan Grandjardier, Blue Origin		
1:15 - 1:40	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> High Energy Density Lithium-Ion Cells with Silicon Nanowire Anode Technology Dr. Ionel Stefan, Amprius Technologies, Inc. </td> <td style="width: 50%; vertical-align: top;"> The Deep-Space Solar Array: A Power Source for Missions to Saturn and Beyond Dr. Andreea Boca, Jet Propulsion Laboratory </td> </tr> </table>	High Energy Density Lithium-Ion Cells with Silicon Nanowire Anode Technology Dr. Ionel Stefan, Amprius Technologies, Inc.	The Deep-Space Solar Array: A Power Source for Missions to Saturn and Beyond Dr. Andreea Boca, Jet Propulsion Laboratory
High Energy Density Lithium-Ion Cells with Silicon Nanowire Anode Technology Dr. Ionel Stefan, Amprius Technologies, Inc.	The Deep-Space Solar Array: A Power Source for Missions to Saturn and Beyond Dr. Andreea Boca, Jet Propulsion Laboratory		
1:40 - 2:05	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Advanced 4Ah 18650 Li-ion Cell with Zero-Volt Tolerance for Space Applications Dr. Jiang Fan, American Lithium Energy Corporation </td> <td style="width: 50%; vertical-align: top;"> Photovoltaic Investigation on the Lunar Surface (PILS) PV Testbed for Lunar Landers Mr. Jeremiah McNatt, NASA Glenn Research Center </td> </tr> </table>	Advanced 4Ah 18650 Li-ion Cell with Zero-Volt Tolerance for Space Applications Dr. Jiang Fan, American Lithium Energy Corporation	Photovoltaic Investigation on the Lunar Surface (PILS) PV Testbed for Lunar Landers Mr. Jeremiah McNatt, NASA Glenn Research Center
Advanced 4Ah 18650 Li-ion Cell with Zero-Volt Tolerance for Space Applications Dr. Jiang Fan, American Lithium Energy Corporation	Photovoltaic Investigation on the Lunar Surface (PILS) PV Testbed for Lunar Landers Mr. Jeremiah McNatt, NASA Glenn Research Center		
2:05 - 2:30	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Unlocking Silicon Anodes Dr. Surya Moganty, Sionix Energy </td> <td style="width: 50%; vertical-align: top;"> Advancements in SolAero's III-V Solar Cells Dr. Nate Miller, SolAero by RocketLab </td> </tr> </table>	Unlocking Silicon Anodes Dr. Surya Moganty, Sionix Energy	Advancements in SolAero's III-V Solar Cells Dr. Nate Miller, SolAero by RocketLab
Unlocking Silicon Anodes Dr. Surya Moganty, Sionix Energy	Advancements in SolAero's III-V Solar Cells Dr. Nate Miller, SolAero by RocketLab		
2:30 - 2:55	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> High Energy Semi-Solid Anode In-Situ Battery Dr. Feng Zhao, Storageenergy Technologies </td> <td style="width: 50%; vertical-align: top;"> Compact Telescoping Array for NASA's Lunar Vertical Solar Array Technology Program Mr. Drew Uzupis, Northrop Grumman Corporation </td> </tr> </table>	High Energy Semi-Solid Anode In-Situ Battery Dr. Feng Zhao, Storageenergy Technologies	Compact Telescoping Array for NASA's Lunar Vertical Solar Array Technology Program Mr. Drew Uzupis, Northrop Grumman Corporation
High Energy Semi-Solid Anode In-Situ Battery Dr. Feng Zhao, Storageenergy Technologies	Compact Telescoping Array for NASA's Lunar Vertical Solar Array Technology Program Mr. Drew Uzupis, Northrop Grumman Corporation		
2:55 - 3:20	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> ADA's Path to 750 Wh/kg Dr. Jeff Nelson, ADA Technologies, Inc. </td> <td style="width: 50%; vertical-align: top;"> LAMPS: Lunar Array, Mast, and Power System Mr. Hunter Williams, Honeybee Robotics </td> </tr> </table>	ADA's Path to 750 Wh/kg Dr. Jeff Nelson, ADA Technologies, Inc.	LAMPS: Lunar Array, Mast, and Power System Mr. Hunter Williams, Honeybee Robotics
ADA's Path to 750 Wh/kg Dr. Jeff Nelson, ADA Technologies, Inc.	LAMPS: Lunar Array, Mast, and Power System Mr. Hunter Williams, Honeybee Robotics		
3:20 - 3:30	Break		
3:30 - 3:55	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Track 1: Advanced Power Concepts (Extreme Environment Access) Session Chair: Dr. Sabah Bux, Jet Propulsion Laboratory Co-Chair: Dr. Vladimir Jovovic, Jet Propulsion Laboratory SLUSH (Search for Life Using Submersible Heated Drill): Nuclear Powered Probe for Exploration of Europa Ocean Dr. Kris Zacny, Honeybee Robotics </td> <td style="width: 50%; vertical-align: top;"> Photovoltaics-Driven Power Production Can Support Human Exploration on Mars Mr. Aaron Berliner, Center for the Utilization of Biological Engineering in Space </td> </tr> </table>	Track 1: Advanced Power Concepts (Extreme Environment Access) Session Chair: Dr. Sabah Bux, Jet Propulsion Laboratory Co-Chair: Dr. Vladimir Jovovic, Jet Propulsion Laboratory SLUSH (Search for Life Using Submersible Heated Drill): Nuclear Powered Probe for Exploration of Europa Ocean Dr. Kris Zacny, Honeybee Robotics	Photovoltaics-Driven Power Production Can Support Human Exploration on Mars Mr. Aaron Berliner, Center for the Utilization of Biological Engineering in Space
Track 1: Advanced Power Concepts (Extreme Environment Access) Session Chair: Dr. Sabah Bux, Jet Propulsion Laboratory Co-Chair: Dr. Vladimir Jovovic, Jet Propulsion Laboratory SLUSH (Search for Life Using Submersible Heated Drill): Nuclear Powered Probe for Exploration of Europa Ocean Dr. Kris Zacny, Honeybee Robotics	Photovoltaics-Driven Power Production Can Support Human Exploration on Mars Mr. Aaron Berliner, Center for the Utilization of Biological Engineering in Space		
3:55 - 4:20	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Reconfigured Heat Sources for Cryobot RTG Power Systems Dr. Benjamin Hockman, Jet Propulsion Laboratory </td> <td style="width: 50%; vertical-align: top;"> Track 2: Energy Storage (Advanced Battery Chemistries) Session Chair: Mr. Thomas Miller, NASA Glenn Research Center Co-Chair: Dr. Erik Brandon, Jet Propulsion Laboratory Advanced Lithium Sulfur Technologies for High Energy Applications Dr. James Dong, Navitas Systems ASG </td> </tr> </table>	Reconfigured Heat Sources for Cryobot RTG Power Systems Dr. Benjamin Hockman, Jet Propulsion Laboratory	Track 2: Energy Storage (Advanced Battery Chemistries) Session Chair: Mr. Thomas Miller, NASA Glenn Research Center Co-Chair: Dr. Erik Brandon, Jet Propulsion Laboratory Advanced Lithium Sulfur Technologies for High Energy Applications Dr. James Dong, Navitas Systems ASG
Reconfigured Heat Sources for Cryobot RTG Power Systems Dr. Benjamin Hockman, Jet Propulsion Laboratory	Track 2: Energy Storage (Advanced Battery Chemistries) Session Chair: Mr. Thomas Miller, NASA Glenn Research Center Co-Chair: Dr. Erik Brandon, Jet Propulsion Laboratory Advanced Lithium Sulfur Technologies for High Energy Applications Dr. James Dong, Navitas Systems ASG		
4:20 - 4:45	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> Atomic Planar Power for Lightweight Exploration (APPLE) Dr. E. Joseph Nemanick, The Aerospace FFRDC </td> <td style="width: 50%; vertical-align: top;"> High Energy and Long-Life Lithium-Sulfur Batteries Enabled by Lyten 3D Graphene[®] Dr. Ratnakumar Bugga, Lyten Systems </td> </tr> </table>	Atomic Planar Power for Lightweight Exploration (APPLE) Dr. E. Joseph Nemanick, The Aerospace FFRDC	High Energy and Long-Life Lithium-Sulfur Batteries Enabled by Lyten 3D Graphene[®] Dr. Ratnakumar Bugga, Lyten Systems
Atomic Planar Power for Lightweight Exploration (APPLE) Dr. E. Joseph Nemanick, The Aerospace FFRDC	High Energy and Long-Life Lithium-Sulfur Batteries Enabled by Lyten 3D Graphene[®] Dr. Ratnakumar Bugga, Lyten Systems		
4:45 - 5:10	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> PowerStone: Asteroid Depot for Energy and Materials Prof. Peter Schubert, Indiana University-Purdue University Indianapolis </td> <td style="width: 50%; vertical-align: top;"> Liquid Electrolyte Design for Low-Temperature Li Metal Batteries Mr. John Holoubek, University of California San Diego </td> </tr> </table>	PowerStone: Asteroid Depot for Energy and Materials Prof. Peter Schubert, Indiana University-Purdue University Indianapolis	Liquid Electrolyte Design for Low-Temperature Li Metal Batteries Mr. John Holoubek, University of California San Diego
PowerStone: Asteroid Depot for Energy and Materials Prof. Peter Schubert, Indiana University-Purdue University Indianapolis	Liquid Electrolyte Design for Low-Temperature Li Metal Batteries Mr. John Holoubek, University of California San Diego		
5:10 - 5:35	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> The Bioinspired Ray for Extreme Environments and Zonal Exploration (BREEZE) Dr. Javid Bayandor, University at Buffalo - The State University of New York </td> <td style="width: 50%; vertical-align: top;"> Bend Tolerant Thermal Management System for Wing Integrated Battery Packs Mr. Dustin Hall, NASA Glenn Research Center </td> </tr> </table>	The Bioinspired Ray for Extreme Environments and Zonal Exploration (BREEZE) Dr. Javid Bayandor, University at Buffalo - The State University of New York	Bend Tolerant Thermal Management System for Wing Integrated Battery Packs Mr. Dustin Hall, NASA Glenn Research Center
The Bioinspired Ray for Extreme Environments and Zonal Exploration (BREEZE) Dr. Javid Bayandor, University at Buffalo - The State University of New York	Bend Tolerant Thermal Management System for Wing Integrated Battery Packs Mr. Dustin Hall, NASA Glenn Research Center		
5:35 - 5:40	Preview for Next Day & Adjourn		

2022 Conference on Advanced Power Systems for Deep Space Exploration - Detailed Agenda

***Times are listed as Eastern Daylight Savings (EDT) (USA and Canada)**

Thursday, 1 September 2022					
10:00 - 10:05	Conference Introduction and Review of Conference Logistics , Dr. Erik Brandon, Jet Propulsion Laboratory				
10:05 - 10:35	Keynote: Opening a New Era on the Moon with Space Robotics , Mr. Dan Hendrickson, VP of Business Development, Astrobotic				
10:35 - 10:40	Transition to two tracks				
	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; background-color: #333; color: white; padding: 5px;">Track 1: Power Conversion, Switching and Transfer</td> <td style="width: 50%; background-color: #333; color: white; padding: 5px;">Track 2: Energy Storage (Fuel Cells and High Temperature Energy Storage)</td> </tr> <tr> <td style="padding: 5px;">Session Chair: Dr. Wesley Fuhrman, The Johns Hopkins University Applied Physics Laboratory Co-Chair: Ms. Shelly Sposato, Jet Propulsion Laboratory</td> <td style="padding: 5px;">Session Chair: Mr. Thomas Miller, NASA Glenn Research Center Co-Chair: Dr. William West, Jet Propulsion Laboratory</td> </tr> </table>	Track 1: Power Conversion, Switching and Transfer	Track 2: Energy Storage (Fuel Cells and High Temperature Energy Storage)	Session Chair: Dr. Wesley Fuhrman, The Johns Hopkins University Applied Physics Laboratory Co-Chair: Ms. Shelly Sposato, Jet Propulsion Laboratory	Session Chair: Mr. Thomas Miller, NASA Glenn Research Center Co-Chair: Dr. William West, Jet Propulsion Laboratory
Track 1: Power Conversion, Switching and Transfer	Track 2: Energy Storage (Fuel Cells and High Temperature Energy Storage)				
Session Chair: Dr. Wesley Fuhrman, The Johns Hopkins University Applied Physics Laboratory Co-Chair: Ms. Shelly Sposato, Jet Propulsion Laboratory	Session Chair: Mr. Thomas Miller, NASA Glenn Research Center Co-Chair: Dr. William West, Jet Propulsion Laboratory				
10:40 - 11:05	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Providing Tethered Power to Permanently Shadowed Regions Dr. Paul van Susante, Michigan Technological University</td> <td style="width: 50%; padding: 5px;">Regenerative Fuel Cell Systems for Energy Storage on the Moon Mr. Pascal Barbier, Air Liquide Advanced Technologies</td> </tr> </table>	Providing Tethered Power to Permanently Shadowed Regions Dr. Paul van Susante, Michigan Technological University	Regenerative Fuel Cell Systems for Energy Storage on the Moon Mr. Pascal Barbier, Air Liquide Advanced Technologies		
Providing Tethered Power to Permanently Shadowed Regions Dr. Paul van Susante, Michigan Technological University	Regenerative Fuel Cell Systems for Energy Storage on the Moon Mr. Pascal Barbier, Air Liquide Advanced Technologies				
11:05 - 11:30	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Revisiting Edison and Tesla – AC and DC Power Considerations for Planetary Surface Power Transfer Dr. Ansel Barchowsky, Jet Propulsion Laboratory</td> <td style="width: 50%; padding: 5px;">Lunar South Pole Regenerative Fuel Cell System Efficiency Analysis Mr. Phillip Smith, NASA Glenn Research Center</td> </tr> </table>	Revisiting Edison and Tesla – AC and DC Power Considerations for Planetary Surface Power Transfer Dr. Ansel Barchowsky, Jet Propulsion Laboratory	Lunar South Pole Regenerative Fuel Cell System Efficiency Analysis Mr. Phillip Smith, NASA Glenn Research Center		
Revisiting Edison and Tesla – AC and DC Power Considerations for Planetary Surface Power Transfer Dr. Ansel Barchowsky, Jet Propulsion Laboratory	Lunar South Pole Regenerative Fuel Cell System Efficiency Analysis Mr. Phillip Smith, NASA Glenn Research Center				
11:30 - 11:55	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Architecture and Power Transfer for Fission Surface Power System Dr. Christopher Barth, NASA Glenn Research Center</td> <td style="width: 50%; padding: 5px;">Wide Temperature Battery Development for CADRE Autonomous Lunar Rovers Dr. John-Paul Jones, Jet Propulsion Laboratory</td> </tr> </table>	Architecture and Power Transfer for Fission Surface Power System Dr. Christopher Barth, NASA Glenn Research Center	Wide Temperature Battery Development for CADRE Autonomous Lunar Rovers Dr. John-Paul Jones, Jet Propulsion Laboratory		
Architecture and Power Transfer for Fission Surface Power System Dr. Christopher Barth, NASA Glenn Research Center	Wide Temperature Battery Development for CADRE Autonomous Lunar Rovers Dr. John-Paul Jones, Jet Propulsion Laboratory				
11:55 - 12:20	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Tether Power for Remote Loads on Planetary Surfaces Dr. Ansel Barchowsky, Jet Propulsion Laboratory</td> <td style="width: 50%; padding: 5px;">High Temperature Molten Salt Battery for NASA Venus Application Dr. Michael Barclay, Advanced Thermal Batteries, Inc.</td> </tr> </table>	Tether Power for Remote Loads on Planetary Surfaces Dr. Ansel Barchowsky, Jet Propulsion Laboratory	High Temperature Molten Salt Battery for NASA Venus Application Dr. Michael Barclay, Advanced Thermal Batteries, Inc.		
Tether Power for Remote Loads on Planetary Surfaces Dr. Ansel Barchowsky, Jet Propulsion Laboratory	High Temperature Molten Salt Battery for NASA Venus Application Dr. Michael Barclay, Advanced Thermal Batteries, Inc.				
12:20 - 12:45	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Capacitively Isolated DC-DC Converters: Enabling Very High Power Density Dr. Ahmadreza Amirahmadi, Jet Propulsion Laboratory</td> <td style="width: 50%; padding: 5px;">Advanced, Wide Operating Temperature Batteries for Venus Aerobot Missions Dr. William West, Jet Propulsion Laboratory</td> </tr> </table>	Capacitively Isolated DC-DC Converters: Enabling Very High Power Density Dr. Ahmadreza Amirahmadi, Jet Propulsion Laboratory	Advanced, Wide Operating Temperature Batteries for Venus Aerobot Missions Dr. William West, Jet Propulsion Laboratory		
Capacitively Isolated DC-DC Converters: Enabling Very High Power Density Dr. Ahmadreza Amirahmadi, Jet Propulsion Laboratory	Advanced, Wide Operating Temperature Batteries for Venus Aerobot Missions Dr. William West, Jet Propulsion Laboratory				
12:45 - 1:15	Lunch Break				
	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; background-color: #333; color: white; padding: 5px;">Track 1: Advanced Power Concepts (Beta-voltaics and Small RTGs)</td> <td style="width: 50%; background-color: #333; color: white; padding: 5px;">Track 2: Energy Storage (Extreme Environment and Primary Power Sources)</td> </tr> <tr> <td style="padding: 5px;">Session Chair: Dr. Jonathan Grandidier, Blue Origin Co-Chair: Dr. Vladimir Jovovic, Jet Propulsion Laboratory</td> <td style="padding: 5px;">Session Chair: Dr. John-Paul Jones, Jet Propulsion Laboratory Co-Chair: Mr. Thomas Miller, NASA Glenn Research Center</td> </tr> </table>	Track 1: Advanced Power Concepts (Beta-voltaics and Small RTGs)	Track 2: Energy Storage (Extreme Environment and Primary Power Sources)	Session Chair: Dr. Jonathan Grandidier, Blue Origin Co-Chair: Dr. Vladimir Jovovic, Jet Propulsion Laboratory	Session Chair: Dr. John-Paul Jones, Jet Propulsion Laboratory Co-Chair: Mr. Thomas Miller, NASA Glenn Research Center
Track 1: Advanced Power Concepts (Beta-voltaics and Small RTGs)	Track 2: Energy Storage (Extreme Environment and Primary Power Sources)				
Session Chair: Dr. Jonathan Grandidier, Blue Origin Co-Chair: Dr. Vladimir Jovovic, Jet Propulsion Laboratory	Session Chair: Dr. John-Paul Jones, Jet Propulsion Laboratory Co-Chair: Mr. Thomas Miller, NASA Glenn Research Center				
1:15 - 1:40	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">High-Energy Dense Betavoltaics for Unattended Operation in Extreme Temperature and Physical Environments Dr. Tom Adams, Naval Surface Warfare Center Crane/Purdue University</td> <td style="width: 50%; padding: 5px;">Radiation Effects on Li/CFx Primary Batteries Ms. Hui Li Seong, Jet Propulsion Laboratory</td> </tr> </table>	High-Energy Dense Betavoltaics for Unattended Operation in Extreme Temperature and Physical Environments Dr. Tom Adams, Naval Surface Warfare Center Crane/Purdue University	Radiation Effects on Li/CFx Primary Batteries Ms. Hui Li Seong, Jet Propulsion Laboratory		
High-Energy Dense Betavoltaics for Unattended Operation in Extreme Temperature and Physical Environments Dr. Tom Adams, Naval Surface Warfare Center Crane/Purdue University	Radiation Effects on Li/CFx Primary Batteries Ms. Hui Li Seong, Jet Propulsion Laboratory				
1:40 - 2:05	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">High-Temperature Betavoltaic above the Cytherean Surface (HIBISCuS) Mr. Andrew O'Connor, University of Florida, Department of Materials Science and Engineering</td> <td style="width: 50%; padding: 5px;">Primary Cell and Battery Model Mr. Frank Zalar, Cornerstone Research Group, Inc.</td> </tr> </table>	High-Temperature Betavoltaic above the Cytherean Surface (HIBISCuS) Mr. Andrew O'Connor, University of Florida, Department of Materials Science and Engineering	Primary Cell and Battery Model Mr. Frank Zalar, Cornerstone Research Group, Inc.		
High-Temperature Betavoltaic above the Cytherean Surface (HIBISCuS) Mr. Andrew O'Connor, University of Florida, Department of Materials Science and Engineering	Primary Cell and Battery Model Mr. Frank Zalar, Cornerstone Research Group, Inc.				
2:05 - 2:30	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Advances in Tritium Power Sources and Devices for Deep Space Exploration Dr. Peter Cabauy, City Labs Inc.</td> <td style="width: 50%; padding: 5px;">Advances in Lithium Monofluoride Technologies at EaglePicher Dr. Mario Destephen, EaglePicher Technologies</td> </tr> </table>	Advances in Tritium Power Sources and Devices for Deep Space Exploration Dr. Peter Cabauy, City Labs Inc.	Advances in Lithium Monofluoride Technologies at EaglePicher Dr. Mario Destephen, EaglePicher Technologies		
Advances in Tritium Power Sources and Devices for Deep Space Exploration Dr. Peter Cabauy, City Labs Inc.	Advances in Lithium Monofluoride Technologies at EaglePicher Dr. Mario Destephen, EaglePicher Technologies				
2:30 - 2:55	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">A Highly Shock-Tolerant, Single-RHU RPS Dr. John McCoy, Hi-Z Technology, Inc.</td> <td style="width: 50%; padding: 5px;">High Power Density, Methane-Fueled, Solid Oxide Primary Fuel Cell Dr. Christian Junaedi, Precision Combustion, Inc.</td> </tr> </table>	A Highly Shock-Tolerant, Single-RHU RPS Dr. John McCoy, Hi-Z Technology, Inc.	High Power Density, Methane-Fueled, Solid Oxide Primary Fuel Cell Dr. Christian Junaedi, Precision Combustion, Inc.		
A Highly Shock-Tolerant, Single-RHU RPS Dr. John McCoy, Hi-Z Technology, Inc.	High Power Density, Methane-Fueled, Solid Oxide Primary Fuel Cell Dr. Christian Junaedi, Precision Combustion, Inc.				
2:55 - 3:20	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Small RTG Concept Design for Operation on Surfaces of Venus and Moon Mr. Eric Poliquin, Jet Propulsion Laboratory and Dr. Michael Durka, Jet Propulsion Laboratory</td> <td style="width: 50%; padding: 5px;">Power Hibernation to Survive the Lunar Night Mr. Nicholas Ugucini, NASA Glenn Research Center</td> </tr> </table>	Small RTG Concept Design for Operation on Surfaces of Venus and Moon Mr. Eric Poliquin, Jet Propulsion Laboratory and Dr. Michael Durka, Jet Propulsion Laboratory	Power Hibernation to Survive the Lunar Night Mr. Nicholas Ugucini, NASA Glenn Research Center		
Small RTG Concept Design for Operation on Surfaces of Venus and Moon Mr. Eric Poliquin, Jet Propulsion Laboratory and Dr. Michael Durka, Jet Propulsion Laboratory	Power Hibernation to Survive the Lunar Night Mr. Nicholas Ugucini, NASA Glenn Research Center				
3:20 - 3:30	Break				
	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; background-color: #333; color: white; padding: 5px;">Track 1: Power Conversion, Switching and Transfer (Power Converter Designs and Components)</td> <td style="width: 50%; background-color: #333; color: white; padding: 5px;">Track 2: Advanced Power Concepts (Chemical Heat/Power Sources)</td> </tr> <tr> <td style="padding: 5px;">Session Chair: Dr. Ansel Barchowsky, Jet Propulsion Laboratory Co-Chair: Mr. Brent Gardner, NASA Glenn Research Center</td> <td style="padding: 5px;">Session Chair: Dr. William West, Jet Propulsion Laboratory Co-Chair: Dr. Erik Brandon, Jet Propulsion Laboratory</td> </tr> </table>	Track 1: Power Conversion, Switching and Transfer (Power Converter Designs and Components)	Track 2: Advanced Power Concepts (Chemical Heat/Power Sources)	Session Chair: Dr. Ansel Barchowsky, Jet Propulsion Laboratory Co-Chair: Mr. Brent Gardner, NASA Glenn Research Center	Session Chair: Dr. William West, Jet Propulsion Laboratory Co-Chair: Dr. Erik Brandon, Jet Propulsion Laboratory
Track 1: Power Conversion, Switching and Transfer (Power Converter Designs and Components)	Track 2: Advanced Power Concepts (Chemical Heat/Power Sources)				
Session Chair: Dr. Ansel Barchowsky, Jet Propulsion Laboratory Co-Chair: Mr. Brent Gardner, NASA Glenn Research Center	Session Chair: Dr. William West, Jet Propulsion Laboratory Co-Chair: Dr. Erik Brandon, Jet Propulsion Laboratory				
3:30 - 3:55	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Optimizing Mass and Efficiency in Distributed Power Systems Ms. Shelly Sposato, Jet Propulsion Laboratory</td> <td style="width: 50%; padding: 5px;">Heat and Electrical Power for Surviving the Lunar Night: The Chemical Heat Integrated Power Source (CHIPS) Ms. Madison Hunter, Jet Propulsion Laboratory</td> </tr> </table>	Optimizing Mass and Efficiency in Distributed Power Systems Ms. Shelly Sposato, Jet Propulsion Laboratory	Heat and Electrical Power for Surviving the Lunar Night: The Chemical Heat Integrated Power Source (CHIPS) Ms. Madison Hunter, Jet Propulsion Laboratory		
Optimizing Mass and Efficiency in Distributed Power Systems Ms. Shelly Sposato, Jet Propulsion Laboratory	Heat and Electrical Power for Surviving the Lunar Night: The Chemical Heat Integrated Power Source (CHIPS) Ms. Madison Hunter, Jet Propulsion Laboratory				
3:55 - 4:20	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">A Modular, High-Power, Radiation-Hardened, DC-DC Converter with Decentralized Control Mr. Anton Quiroz, Apogee Semiconductor and Dr. Alex Hanson, University of Texas</td> <td style="width: 50%; padding: 5px;">Metal Fueled, Chemical Heat and Power Sources and Conversion Cycles for Extreme Environment Planetary Landers Dr. Christopher Greer, The Pennsylvania State University</td> </tr> </table>	A Modular, High-Power, Radiation-Hardened, DC-DC Converter with Decentralized Control Mr. Anton Quiroz, Apogee Semiconductor and Dr. Alex Hanson, University of Texas	Metal Fueled, Chemical Heat and Power Sources and Conversion Cycles for Extreme Environment Planetary Landers Dr. Christopher Greer, The Pennsylvania State University		
A Modular, High-Power, Radiation-Hardened, DC-DC Converter with Decentralized Control Mr. Anton Quiroz, Apogee Semiconductor and Dr. Alex Hanson, University of Texas	Metal Fueled, Chemical Heat and Power Sources and Conversion Cycles for Extreme Environment Planetary Landers Dr. Christopher Greer, The Pennsylvania State University				
4:20 - 4:45	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">High Energy Density Solid State Polymer Capacitors for Space Applications Mr. Steven Yializis, Sigma Technologies</td> <td style="width: 50%; padding: 5px;">Oxidation and Combustion of Magnesium and Lithium Powders for Space Power Applications Mr. Kevin Estala-Rodriguez, The University of Texas at El Paso</td> </tr> </table>	High Energy Density Solid State Polymer Capacitors for Space Applications Mr. Steven Yializis, Sigma Technologies	Oxidation and Combustion of Magnesium and Lithium Powders for Space Power Applications Mr. Kevin Estala-Rodriguez, The University of Texas at El Paso		
High Energy Density Solid State Polymer Capacitors for Space Applications Mr. Steven Yializis, Sigma Technologies	Oxidation and Combustion of Magnesium and Lithium Powders for Space Power Applications Mr. Kevin Estala-Rodriguez, The University of Texas at El Paso				
4:45 - 5:10	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Gallium Nitride-Based Space Grade DC/DC Converter Design Using the TPS7H5001 SP Radiation-Hardened PWM Controller Dr. Erik Johnson, Texas Instruments</td> <td style="width: 50%; padding: 5px;">Energy-Dense Pyrolant Mixtures as Heat and Energy Sources for Future Space Missions Dr. Richard Blair, Florida Space Institute, University of Central Florida and Dr. Subith Vasu, University of Central Florida</td> </tr> </table>	Gallium Nitride-Based Space Grade DC/DC Converter Design Using the TPS7H5001 SP Radiation-Hardened PWM Controller Dr. Erik Johnson, Texas Instruments	Energy-Dense Pyrolant Mixtures as Heat and Energy Sources for Future Space Missions Dr. Richard Blair, Florida Space Institute, University of Central Florida and Dr. Subith Vasu, University of Central Florida		
Gallium Nitride-Based Space Grade DC/DC Converter Design Using the TPS7H5001 SP Radiation-Hardened PWM Controller Dr. Erik Johnson, Texas Instruments	Energy-Dense Pyrolant Mixtures as Heat and Energy Sources for Future Space Missions Dr. Richard Blair, Florida Space Institute, University of Central Florida and Dr. Subith Vasu, University of Central Florida				
5:10 - 5:35	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Design and Optimization of an Isolated Three-Port DC-DC Converter for Space Applications Mr. Saikat Dey, Arizona State University</td> <td style="width: 50%; padding: 5px;">Progress Towards Additively Manufactured High Temperature Radiators with Integrated Heat Pipe Networks Dr. Alexander Rattner, The Pennsylvania State University</td> </tr> </table>	Design and Optimization of an Isolated Three-Port DC-DC Converter for Space Applications Mr. Saikat Dey, Arizona State University	Progress Towards Additively Manufactured High Temperature Radiators with Integrated Heat Pipe Networks Dr. Alexander Rattner, The Pennsylvania State University		
Design and Optimization of an Isolated Three-Port DC-DC Converter for Space Applications Mr. Saikat Dey, Arizona State University	Progress Towards Additively Manufactured High Temperature Radiators with Integrated Heat Pipe Networks Dr. Alexander Rattner, The Pennsylvania State University				
5:35 - 5:40	<table border="0" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;">Final Announcements & Adjourn</td> <td style="width: 50%; padding: 5px;">Final Announcements & Adjourn</td> </tr> </table>	Final Announcements & Adjourn	Final Announcements & Adjourn		
Final Announcements & Adjourn	Final Announcements & Adjourn				