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523 Multifaceted Considerations for Fission Surface Power Radiation Shielding Design—*A. Levinsky (LANL), R. Johns (LANL), M. Kreher (LANL), T. Steiner (NASA Glenn Research Center), B. Musico (LANL), A. Maldonado (LANL), V. Dasari (INL), D. Reel (LANL), J. Smith (LANL), B. Wilson (ORNL), A. Prince (LANL)*

531 Impacts of Terrain on Doses for Fission Surface Power—*A. Levinsky (LANL), R. Johns (LANL), M. Kreher (LANL), T. Steiner (NASA Glenn Research Center), B. Musico (LANL), A. Maldonado (LANL), V. Dasari (INL), D. Reel (LANL), J. Smith (LANL), B. Wilson (ORNL), A. Prince (LANL)*

539 Thermal Management and Conversion in RTGs

540 Development of Bespoke Dragonfly MMRTG Secondary Cooling Chillers—*Leah Sopko (NASA Glenn Research Center), Lauren Clayman (NASA Glenn Research Center), Timothy Erickson (Johns Hopkins APL), Paul Ost diek (Johns Hopkins APL), Dave Smith (Johns Hopkins APL)*

542 Silicon Germanium Thermoelectric Energy Conversion: The Application of Customized Modules in a Novel System—*Kenton Sherick (Univ. Dayton Research Institute), Aniruddha Ray (RGS Development BV), Roy Compas (RGS Development BV), Aravind Babu (RGS Development BV), Wim van Schaik (RGS Development BV), Boyd A. Tolson (Univ. Dayton Research Institute), Maarten den Heijer (RGS Development BV), Chadwick D. Barklay (Univ. Dayton Research Institute)*

549 >30,000 Hours Lifetime Testing of SiGe Unicouples Prepared with SPS Materials for GPHS-RTG—*Jonathan Pierce (Johns Hopkins APL), Richard Ung (Johns Hopkins APL), Jake Ballard (Johns Hopkins APL), Tim Holgate (Johns Hopkins APL), Rasdip Singh (Soal Technologies), Mousumi Mitra (Univ. Virginia), Scott Mixture (Alfred Univ.), Joseph Poon (Univ. Virginia), Timothy Erickson (Johns Hopkins APL), Paul Ost diek (Johns Hopkins APL), Rama Venkatasubramanian (Johns Hopkins APL)*

559 Materials Processing Lightning Talks

560 Multiple Cycle Irradiation of Pu-238 Production Targets in the Advanced Test Reactor at Idaho National Laboratory—*Jill R. Mitchell (INL)*

561 NiMo Overlays for Improved Operational Resilience in Molten Salt Reactors—*T.D. Hall (Faraday Technology Inc.), S. O'Connell (Faraday Technology Inc.), R. Pillai (ORNL), H. Garich (Faraday Technology Inc.), M. Inman (Faraday Technology Inc.), S. Cambier (ORNL), T. Gosling (Gosco Valves), C. Beamer (Quintus Technologies)*

562 Electrodeposition of Refractory Metals in Molten Salts: Process Parameters, and Coating Characterization—*Olivia R. Dale (LANL), Nathaniel Rood (LANL), Marisa Monreal (LANL), Jarom Chamberlain (LANL), Adrien Terricabras (LANL)*

563 Production of Refractory Metal Coatings on Carbon Substrates Through Metallizing in Molten Fluoride Salts—*Nathaniel Rood (LANL), Olivia Dale (LANL), Adrien Terricabras (LANL), Marisa Monreal (LANL), Jarom Chamberlain (LANL)*

564 Updates on Molten Salt Coating Capabilities at Los Alamos National Laboratory—*Jarom Chamberlain (LANL), Olivia Dale (LANL), Nathaniel Rood (LANL), Adrien Terricabras (LANL), Marisa Monreal (LANL)*

565 Update on the Development of an Americium-Based Oxide Fuel Form for European Radioisotope Power Systems—*Ramy Mesalam (Univ. Leicester), Richard M. Ambrosi (Univ. Leicester), Alessandra Barco (Univ. Leicester), Emily Jane Watkinson (Univ. Leicester), Hannah Sargeant (Univ. Leicester), Joanna Lucas (Univ. Leicester), Tony Crawford (Univ. Leicester), Rob Tute (Univ. Leicester), Kris Bell (Univ. Leicester), Gareth Bustin (Univ. Leicester), James Pearson (Univ. Leicester), Charlotte Bouldin (Univ. Leicester), Piers Slater (Perpetual Atomics), Pierre Coquay (ESA), Christophe Fongarland (ESA), Ana Brandao (ESA), Joe Lapinskas (QSA Global Inc.), Mark Shilton (QSA Global Inc.), Nathan Gardella (QSA Global Inc.), Matt Potenza (QSA Global Inc.)*

566 Operational Tritium Loading Facility for Space Power and Heater Devices—*Krystine Pimentel (City Labs), Peter Cabauy (City Labs), Mark Stone (City Labs)*

567 Opening Panel—Lessons Learned From Past Programs

569 Enabling Missions To Mars And Beyond

570 NTP Engine Performance and Concept of Operations Assessment for Manned Mars Missions With Consideration of Gravity Losses and Reactor Cooling—*F. Bertrand (CEA), A. Simmonet (CEA), P. Sciora (CEA), V. Brun-Magaud (CEA), L. Matteo (CEA), E. Proust (CEA), M. Mascaron (CEA), M.L. Schlegel (CEA), V. Girardin (ESA)*

580 Jupiter Icy Moons Orbiter Reimagined: Leveraging NASA's Fission Surface Power and Modern Launch Vehicles—*Brian J. Muzek (L3Harris Aerojet Rocketdyne), C. Russell Joyner II (L3Harris Aerojet Rocketdyne), Timothy Kokan (L3Harris Aerojet Rocketdyne), Rodney W. Noble (L3Harris Aerojet Rocketdyne), Christopher B. Reynolds (L3Harris Aerojet Rocketdyne)*

588 Leveraging Advanced Nuclear Thermal Propulsion for Human Mars Exploration—*Britton Reynolds (L3Harris Technologies), Claude R. Joyner II (L3Harris Technologies), Timothy Kokan (L3Harris Technologies), Brian J. Muzek (L3Harris Technologies)*

596 Conceptual Design of a Nuclear Electric Propulsion Mission for Direct Rendezvous With Uranus—*Monica A. Salunkhe (Univ. Alabama, Huntsville), L. Dale Thomas (Univ. Alabama, Huntsville)*

605 Architectures, Missions, and Use Cases Lightning Talks

606 Point Design for a Nuclear Electric Propulsion Flagship Mission to Uranus—*Matthew Duchek (AMA), Sean Greenhalge (AMA), Adam Boylston (Analytical Mechanics Assoc.), Emanuel Grella (Analytical Mechanics Assoc.), Christopher Harnack (Analytical Mechanics Assoc.), William Machemer (Analytical Mechanics Assoc.), Annabella Shaffer (Analytical Mechanics Assoc.), Corey Smith (Analytical Mechanics Assoc.)*

607 Reactor Decision Assessment Platform (ReDAP)—*Stephanie Keve (Noblis, Inc.), Ben Miller (Noblis, Inc.), Ivan Limansky (Noblis, Inc.), Dave Bilinski (Noblis, Inc.), Adam Turbett (Noblis, Inc.), Keri Robinson (Noblis, Inc.), Michael Kim (Noblis, Inc.), Theresa Perry (Noblis, Inc.), Clark Bee (Noblis, Inc.)*

608 The Radsetta Stone – Establishing a Common Environment Taxonomy Across Space Nuclear Technologies—*Tyler R. Steiner (NASA Glenn Research Center), Jarvis A. Caffrey (NASA Marshall Space Flight Center), N. Dianne Bull Ezell (ORNL)*

609 Maneuvering Without Regret: The Effective Specific Impulse of the Hybrid Propulsion Engine and Reactor Impulse for Orbital Navigation—*Logan R. Horner (Center for Space Nuclear Research), Devin Boggs (Center for Space Nuclear Research), John Stanek (Center for Space Nuclear Research), Abigail Hogue (Center for Space Nuclear Research), Daniel Gadaleta (Center for Space Nuclear Research), Robert C. O'Brien (Center for Space Nuclear Research)*

610 Success in the Lunar and Mars Frontiers Enabled by Radioisotope Power Systems—*A.C. Charania (Zeno Power)*

611 Past, Current, and Future Missions

612 The Future of Deep Space Exploration Without Pu-238—*William James Adams (Jim Adams World, LLC), James L. Green (Space Science Endeavors), Ralph L. McNutt Jr. (Johns Hopkins Univ. APL), June F. Zakrajsek (Aerospace Corp.)*

620 REXIS - Rendezvous With Legacy Nuclear Reactors on Earth Orbit—*Michal Marčišovský (Stellar Nuclear), Edita Bromová (Stellar Nuclear), Marek Strnad (Czech Technical Univ.), Martin Ševeček (Czech Technical Univ.), Adam Hláčik (Stellar Exploration)*

629 Voyager 1 and 2, Cassini, New Horizons, Curiosity, and Perseverance – Overachieving Beyond all Expectations—*Thomas J. Sutliff (Aerospace Corp.), Ralph L. McNutt Jr. (Johns Hopkins Univ.)*

638 Dragonfly Mission MMRTG Launch System Integration for the a Horizontal Processing Launch Vehicle System—*Steven R. Vernon (Johns Hopkins APL), Hoi Yee Tom (Johns Hopkins APL)*

647 Evaluating the Enabling Power of Nuclear

648 European Space Agency – European Autonomous Access to Space With its Operational Capability With Launches On-Boarding Nuclear Power Sources—*David Le Falcher (ESA), Gauthier Poullin (Airbusprotect), Ludovic Duvet (ESA), Pierre Coquay (ESA), Christophe Fongarland (ESA), Denis Rebuffat (ESA), Frederic Lattwein (Arianegroup), Cedric Lemarié (Arianegroup), Yannick Herlem (Arianegroup)*

658 Development of Figures of Merit for Size, Weight, Power and Cost Comparison of Solar and Nuclear Space Power Systems—*C. A. Lenyk (Astrion), J.E. Winter (Air Force Research Lab), P.M. Carpenter (Astrion), N.A. Johansson (Astrion), T.J. Allen (Astrion), M.C. Tomb (Astrion), K. M. Church (Astrion), S. K. Fairchild (Astrion)*

- 672 Coupling Mission Requirements With System-Level Analysis for Rapid Evaluation of Nuclear Thermal Propulsion Architectures—*Sonal Mehta (Georgia Tech), Camden Eck (Georgia Tech), Robert Ajluni (Georgia Tech), Cole Ajluni (Georgia Tech), Sabrina Mayor (Georgia Tech), Bradford Robertson (Georgia Tech), Dimitri N. Mavris (Georgia Tech), Dan Kotlyar (Georgia Tech)*
- 683 Comparative Analysis of Space Nuclear Propulsion Systems for Cislunar Missions: Part II – Mission Design for Large Payload Delivery—*Saroj Kumar (University of Alabama in Huntsville), Alexander C. Bendoyro (University of Alabama in Huntsville), Dale Thomas (The University of Alabama in Huntsville- Propulsion Research Center)*

693 Policy, Regulations, Safety, and Security

- 694 Opening Panel - SNPP Launch Approval Processes For Civil, Commercial, And Military Applications
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- 697 Anticipating Cyber Threats to Space Nuclear Systems: Engineering and Policy Options—*Kathleen A. Doty (PNNL), David A. Koch (PNNL), Kevin M. Eldrige (PNNL)*
- 698 Mission Pull and Fission Surface Power—*Frank A. Putzu (PNNL)*
- 699 Impact Tests for the Americium-Based Radioisotope Heater Unit (Am-RHU)—*Alessandra Barco (Univ. Leicester), Ramy Mesalam (Univ. Leicester), Tony Crawford (Univ. Leicester), Richard Ambrosi (Univ. Leicester), Rob Tute (Univ. Leicester), Kris Bell (Univ. Leicester), Emily Jane Watkinson (Univ. Leicester), Adam White (Univ. Leicester), Joanna Lucas (Univ. Leicester), Pierre Coquay (ESA), Christophe Fongarland (ESA)*
- 700 Strategic Messaging's Impact on the Public's Perception of Space Nuclear—Critical Role of the Community to Support Mission Success for All—*Kristin Jansen (NASA Glenn Research Center), Kerri Beisser (Aerospace Corp.), Margaret Simon (Aerospace Corp.), David Lam (ARES Technical Services Corporation)*
- 701 Enabling Mission Success: Effective Joint Information Center (JIC) Communication During the Mars 2020 Launch—*Vicky Ryan (JPL), Paul VanDamme (JPL), Douglas Isbell (NASA)*
- 702 Closing the Gap: Policy Reforms Needed to Enable U.S. Space Nuclear Leadership—*John Jacobs (Zeno Power)*

- 703 Payload Review and FAA Determination for Tritium Power Sources—*Peter Cabaay (City Labs), Kevin Makinson (Nuclear Consulting, LLC), Mark Stone (City Labs)*

705 Reactor Safety And Policy

- 706 Launch Safety Consequence Analysis for a Generic Space Nuclear Reactor Mission—*D.J. Clayton (Sandia), M.L. Smith (Sandia)*
- 715 U.S. Regulatory Gaps in Commercial Space Nuclear Activities—*Kate Doty (PNNL), Catrina Melograna (PNNL), Frank Putzu (PNNL)*
- 723 So, You Want a Reactor on the Moon: Comprehensive Technical, Policy, and Regulatory Considerations for Fission Power on the Lunar Surface—*Aubrey Means (PNNL), Jim Cabe (PNNL), Katherine Miller (PNNL)*

731 Safety and Legal Considerations for Space Nuclear Power

- 732 Aligning Legal Frameworks With Technological Progress: Modernizing Governance of Nuclear Power Sources in Space—*Zsófia Biró (University of Pécs)*
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- 750 A Principles-Based Liability, Insurance, and Indemnification Architecture for Commercial Space Nuclear Missions—*Alexander Gilbert (Zeno Power Systems), Harsh S. Desai (Zeno Power Systems)*
- 759 Radiological Consequences Assessment for Safety Analyses of Future Space Missions with Nuclear Power Source—*Ludovit Liptak (ABmerit Ltd. - nuclear and space), Michal Marcisovsky (ABmerit Ltd. - nuclear and space), Maria Marcisovska (ABmerit Ltd. - nuclear and space), Peter Carny (ABmerit Ltd. - nuclear and space), Eva Fojcikova (ABmerit Ltd. - nuclear and space)*