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927 Thermal Response of Silicon Photomultiplier Technologies for Safeguards Applications—*Jacob Fritchie (Univ. Illinois, Urbana-Champaign), Grant Roche (Univ. Illinois, Urbana-Champaign), Angela Di Fulvio (Univ. Illinois, Urbana-Champaign), Gabriela Gariazzo (Univ. Illinois, Urbana-Champaign)*

937 Detection Methods and Spectroscopy

938 Characterization of Depth-of-Interaction and Image Reconstruction Performance for Radiation Imaging—*John Leland (University of Illinois Urbana-Champaign), Ming Fang (University of Illinois - Dept of Nuclear, Plasma, and Radiological Engineering), Grant Roche, Angela Di Fulvio (University of Illinois Urbana Champaign), Cecilia Tarpau (Maxwell Institute for Mathematical Sciences, University of Edinburgh, Edinburgh, U.K), Yoann Altmann (School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, U.K.)*

946 Markov Chain Monte Carlo Bayesian Unfolding Algorithm for Stilbene-Based Fast Neutron Spectrometry—*Richard He (University of Illinois Urbana Champaign), Jeffrey Burggraf, Scott Thompson (INL), David L. Chichester (INL), Angela Di Fulvio (University of Illinois Urbana Champaign)*

954 Concepts for Implementing Fuel Debundling in a Recycling Scheme in the United States—*Mara M. Handley (LANL), Anthony Belian (Savannah River National Laboratory), Edward Seabury (INL), Thomas Pham, Philip L. Winston (INL)*

963 Hybrid Electrochemical and Spectroscopy Methods for Complex High-Concentration Actinide MSR Fuel Salts—*William H. Doniger (ANL), Timothy Kim (ANL), Nora A. Shaheen (ANL), Amber Polke (ANL), Drace Penley (ANL), Jason M. Gross (ANL), Nicholas J. Condon (ANL), Nathaniel C. Hoyt (ANL)*

972 Combined Spectroscopic Techniques for Real-Time Monitoring of Turbid Molten Salt Systems for Integrated Fuel Cycle Solutions—*Rachelle Austin (Idaho National Lab), Ammon N. Williams (INL)*

979 Molten Salt Reactor Fuel Cycle Characterization

980 Diversion Path Analysis: A Proposed Methodology to Develop an MC&A Approach for Liquid-Fueled Molten Salt Reactors—*Karen K. Hogue (ORNL), Maggie Arno (ORNL), Peter W. Sobel (ORNL)*

990 Advanced Salt Monitoring for Safeguards of the Nuclear Fuel Cycle—*Amber L. Polke (Argonne National Lab), Katharine Stasior, Drace Penley, Nora Shaheen, William Doniger, Denis L. Johnson (Argonne National Lab), Jason Gross, Alexandra G. Akins, Laura Maggos (ANL), Alexander Heifetz (ANL), Tim Nguyen, Richard B. Vilim (ANL), Nicholas J. Condon (ANL), Nathaniel Hoyt*

1000 Deployment of Voltammetry and Bubbler Sensors as Process Monitoring Tools in Pyroprocessing Facilities—*Ammon N. Williams (INL), Christopher Gundersen (INL), Rachelle Austin (INL), David A. Horvath (INL), Robert Hoover (INL)*

1009 Quantifying Uranium in Complex Molten Chlorides: Resolving U(III)/U(IV) amid Fission Products—*Timothy J. Kim (Chemical and Fuel Cycle Technologies Division, Argonne National Laboratory), William Doniger, Nora Shaheen, Nathaniel Hoyt*

1019 Quantification and Mitigation of Uncertainty for Material Accountancy Measurements in Molten Salt Systems—*Nora A. Shaheen (ANL), Timothy J. Kim (ANL), William Doniger (ANL), Amber Polke (ANL), Drace Penley (ANL), Katharine Stasior (ANL), Matthew Jubinsky (ANL), Nathaniel Hoyt (ANL)*

1026 Interactive Security by Design for Pyroprocessing Facilities

1027 Uncertainty Quantification and Statistical Methods for Fuel Cycle Analysis

1028 Addressing TRISO Fuel Fabrication Facility MC&A Challenges via Statistical Test Modeling Using F3M and MAPIT—*Ramon J. M. Pulido (Sandia National Laboratories), Tania Rivas (Sandia National Laboratories), Nathan T. Shoman (Sandia National Laboratories)*

1038 Separation and Safeguards Performance Model of Used Nuclear Fuel Reprocessing for Material Control & Accountancy Application—*Tania Rivas (Sandia National Laboratories)*

1048 Physics-Constrained Neural Decoders for Poisson-Distributed Spectral Data: Bridging Nonnegative Matrix Factorization and Deep Learning for Radiation Anomaly Detection—*Derian Mowen (University of Texas at San Antonio), Miltiadis Alamaniotis (University of Texas at San Antonio)*

1058 Incorporation of uncertainty quantification to the proliferation resistance analysis and evaluation tool for observed risk (PRAETOR)—*Min Suk Lee (Center for Nuclear Security Science and Policy Initiatives), Man-Sung Yim (Center for Nuclear Security Science and Policy Initiatives)*

1068 AI-Driven Analysis of Nuclear Fuel Cycle Forensics: A Deep Learning Approach to Uncertainty Quantification—*Seray Cerezo (Texas A&M University), Pavel Tsvetkov (Texas A&M University), Corey Keith (Los Alamos National Laboratory)*

1077 Human Capital Development

1079 Talent Development & Education

1080 Developing Emotionally Resilient Talent in Nuclear Engineering Through Evidence-Based Mentoring Practices—*Devin Rappleye (Brigham Young University)*

1090 Ten Years of Uninterrupted GIF Webinar Series—*Patricia D. Paviet (PNNL)*

1099 Lightning Talks

1101 Lightning Talks: Safeguards Measurements

1102 Using Neutron Computed-Tomography for In-Situ Characterization of Spent Fuel Isotopic Ratios—*Mikayla Wooodward (McMaster Univ.)*

1103 Evaluation of On-Line Monitoring Techniques to Facilitate Sustainable Manufacture of TRISO Coated Particle Fuel—*Catriona McFarlan (University of Strathclyde), Alison Nordon (University of Strathclyde), David Goddard (United Kingdom National Nuclear Laboratory), Laurie Crouch (United Kingdom National Nuclear Laboratory), Akeel Ahmed (United Kingdom National Nuclear Laboratory)*

1104 Performance Results from the PSMC Well Thermal Neutron Counter Upgrade with the KM-200 Amplifier System—*Mark Scott (LANL), Metodi Iliev (LANL), Carlos Rael (LANL), Victor Kelley (LANL), Ian Canfield (LANL)*

1106 Process Discriminators for Molten Salt Fuels Informing Nuclear Forensic Material Analyses—*Bassem El-Dasher (LLNL), William M. Kerlin (LLNL), Frank Wong (LLNL)*

1107 Microcalorimetry Preliminary Performance Assessment Studies—*Luca Pagani (PNNL), Grey Batie (PNNL), Bruce D. Pierson (PNNL), Leah Arrigo (PNNL), Catalin Harabagiu (PNNL), Kelly Truax (PNNL), Erin Good (PNNL)*

1108 Multi-Modal Sensor Data Fusion for Pulsed Column Solvent Extraction Monitoring—*Justin Cooper (INL), Edna Cardenas (INL), Adelaide Fanner (INL), Addyson Barnes (INL), Ramedy G. Flores (INL)*

1109 Microcalorimetry for Ultra-High Energy Resolution Gamma-ray Spectroscopy of Nuclear Fuel Materials—*Katherine A. Schreiber (LANL), Mark Croce (LANL), Matthew Carpenter (LANL), Stefania Dede (LANL), Shannon Kossmann (LANL), Daniel McNeel (LANL), Emily Stark (LANL), Emily Abel (INL), Brian Bucher (INL), Victoria Davis (Virginia Commonwealth Univ.), Edward Seabury (INL), Ammon N. Williams (INL), Brian Archambault (PNNL), Leah Arrigo (PNNL), Grey Batie (PNNL), Erin Good (PNNL), Catalin A. Harabagiu (Purdue Univ.), Luca Pagani (PNNL), Bruce D. Pierson (PNNL), Daniel Becker (Univ. Colorado, Boulder), Mark Keller (Nat'l Institute of Standards and Technology)*

1111 Lightning Talks: Reprocessing/Recovery

1112 Recent Advances in the PUMAS process : Uranium and Plutonium Co-Recovery Process Using a Monoamide-Based Solvent for Spent UOX and MOX Fuels—*Manuel Miguirditchian (CEA Marcoule), Loïc Daronnat, Amandine Duterme, Sylvain Costenoble, Vincent Vanel (CEA Saclay), Solenne MICHAUD (CEA), Raphael MONEUSE (CEA), Fabien LENGRAND (CEA), Christian SOREL (CEA)*

1113 Uranium Recovery from Depleted UF6: Development of an Alternative Deconversion Pathway—*Renee Olney Olney (University of Nevada - Las Vegas), Antonette Marasigan (University of Nevada - Las Vegas), Josephine A. Libero, Kenneth R. Czerwinski (University of Nevada Las Vegas), David Hatchett (University of Nevada Las Vegas)*

1114 Nuclear Fuel Cycle Simulation for Actinide Management Towards Sustainable Nuclear Energy Use (1) Uranium and Plutonium Management—*TOMOHIRO OKAMURA (Institute of Science Tokyo), MASAHIKO NAKASE (Institute of Science Tokyo), KENJI TAKESHITA (Institute of Science Tokyo), TAKASHI SHIMADA (Kyoto University), YUKI KONISHI (Mitsubishi Heavy Industries, Ltd.), KEISUKE NISHIMURA (Mitsubishi Heavy Industries, Ltd.), HITOMI ISHIDA (Mitsubishi Heavy Industries, Ltd.), TOMOO YAMAMURA (Kyoto University)*

1115 Nuclear Fuel Cycle Simulation for Actinide Management Towards Sustainable Nuclear Energy Use (2) Minor Actinide Management—*Kenji Takeshita (Institute of Science Tokyo), Tomohiro Okamura (Institute of Science Tokyo), Masahiko Nakase (Institute of Science Tokyo), Takashi Shimada (Mitsubishi FBR Systems), Yuki Kinishi (Mitsubishi Heavy Industries), Keisuke Nishimura (Mitsubishi Heavy Industries), Hitomi Ishida (Mitsubishi Heavy Industries), Tomoo Yamamura (Kyoto University)*

1116 Solvent Extraction Model Development for Alternative Processes for Used Nuclear Fuel Recycling—*Laura E. Maggos (ANL), Candido Pereira (ANL)*

1117 A Reactor-Agnostic Framework for Comparative Nuclear Fuel Cycle Analysis—*Mason S. Walls (Texas A&M University College Station), Pavel V. Tsvetkov (Texas A&M University)*

1119 Lightning Talks: Advanced Reactors/Fuels

1120 High Purity UCl_3 Synthesis using NH_4Cl and Uranium Metal—*Nathaniel K. Rood (Univ. Utah), Olivia Dale (LANL), Marisa J. Monreal (LANL), Jarom Chamberlain (LANL), Michael Simpson (Univ. Utah)*

1121 The Development of a Higher-Fidelity Monte Carlo Simulation Model for Used Fuel Classification of Advanced Reactors—*Cameron A. Wojtowicz (University of Florida), Kyle C. Hartig (University of Florida)*

1122 Impact of Control Rod Insertion and MOX Environment on PWR UO_2 Burnup Credit Analysis—*Marcel Tardy (Orano NPS), R. Raine (Orano NPS), Q. Poirier (Orano NPS), N. Kodratoff (ASNR), B. Petillon (ASNR)*

1123 Field-Test Results of a Low-Cost Continuous Holdup Monitoring System for Ductwork at Nuclear Facilities—*K.C. Goetz (ORNL)*

1125 Lightning Talks: Safeguards & Security

1126 Safeguarding High Assay Low Enriched Uranium Fuel for Advanced Reactors—*Sanjoy Mukhopadhyay (ANS emeritus member)*

1135 Never Off Duty: Utilizing the Data Analyst Continuous Spectroscopic Monitoring solution in Nuclear Power Plant Applications—*Adam Gallegos (Mirion Technologies)*

1136 MC&A and Physical Protection Considerations for a Microreactor Manufacturing Facility—*Philip Honnold (Sandia)*

1137 A New Nuclear Safeguards Professional Exchange Program between the U.S. National Laboratories and the Advanced Nuclear Industry—*Jessica L. White-Horton (ORNL), Louise Evans (ORNL), Logan Scott (ORNL)*

1138 Advancing Nuclear Security Through the Development of Nuclear Forensic Signatures for Future Fuels—*Naomi Marks (LLNL), Miguel Cisneros (LLNL), Joeseph Boro (LLNL), Andrew Swift (University of Nevada Las Vegas), Ann Mycroft*

1139 Comprehensive Radiation Safety Management Practices at KAERI Nuclear Fuel Cycle Facilities—*SeongJae Cheon (KAERI (Korea Atomic Energy Research Institute)), YoungKuk Jang (KAERI), ChaeHee Kim (KAERI), JiHye Son (KAERI), TaeHyoung Kim (KAERI)*

1140 Nuclear Data Uncertainties and Criticality Experiments Challenges for Dual Purpose Casks Burnup Credit Implementation—*Coralie Carmouze (CEA Centre De Cadarache)*