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# Transactions of the American Nuclear Society, Vol. 125

ANS Winter Meeting, November 30–December 3, 2021

1 Opening Plenary: Fueling Our Nuclear Future

3 President's Special Session

## 5 Executive Sessions

---

7 DESD RRSD Plenary Part III: Tech + Clean = Green - As Applied at Fukushima

9 The Clean Energy Ministerial: Bringing into Focus Nuclear Energy's Roles in the Global Path to Net-Zero

11 CEO Perspectives on Innovation in Nuclear Licensing: A Game-Changer to Tackle Climate Change

13 The Peril and the Promise - Modeling and Simulation in an Era of Experimental Scarcity

15 The Nuclear, Humanities, and Social Science Nexus: Challenges and Opportunities for Speaking Across the Disciplinary Divides

17 "Let's Get Practical": The US Department of Energy's Forward-Looking Nuclear Waste Management Activities

19 What's on the Horizon for Federal Nuclear Policy?

## 21 Aerospace Nuclear Science & Technology

---

### 23 Aerospace Nuclear Science and Technology: General

24 Geant4 Modeling of Energy and Charge Deposition in Satellites Solar Cells—*Youssef Abouhussien (Virginia Commonwealth Univ.), Gennady Miloshevsky (Virginia Commonwealth Univ.)*

28 Chargeable Atomic Batteries: Commercial Radioisotope Power Systems for Challenging Terrestrial and Space Applications—*C. G. Morrison (USNC - Tech), D. J. Turkoglu (USNC-Tech), S. Yue (USNC-Tech)*

30 Fusion Power Balance of VIPER Pulsed Fusion Rocket—*Rohan Puri (Univ. of Illinois, Urbana-Champaign), George H. Miley (Univ. of Illinois, Urbana-Champaign), Erik P. Ziehm (Univ. of Illinois, Urbana-Champaign), Raul Patino (Univ. of Illinois, Urbana-Champaign), Raad Najam (Univ. of Illinois, Urbana-Champaign)*

33 Modelling Nuclear Thermal Propulsion Reactor Startup Transients—*Noah Higgins (INL), Sebastian Schunert (INL), Stefano Terlizzi (INL), Ching-Sheng Lin (INL), Vincent Laboure (INL), Mark DeHart (INL)*

## 39 Education, Training & Workforce Development

---

### 41 Student Design Competition

42 A Modular Molten Salt Reactor Design for Desalination—*J. Sebastian Tchakerian (Texas A&M Univ.), Phillip Olivarez (Texas A&M Univ.), Robert Kollman (Texas A&M Univ.), David Swindall (Texas A&M Univ.), David Nguyen (Texas A&M Univ.)*

46 Micro-HTGR for Military Installations—*Cindy McCabe (Univ. of Florida), Jonathan Arnaud (Univ. of Florida), Cesar Pozas (Univ. of Florida), Steven Lester (Univ. of Florida), Micah Troyer (Univ. of Florida)*

49 Design of a Low Enrichment Uranium Nuclear Reactor to Power a Future Martian Colony—*Joffrey Dorville (Colorado School of Mines), Jacob Tellez (Colorado School of Mines), Conner Glatt (Colorado School of Mines), Jeffrey King (Colorado School of Mines)*

53 Production of Carbon-14 Radioisotope Using an Aluminum Nitride Target in HFIR—*Christopher Busch (Univ. of Tennessee, Knoxville), Kayla Sims (Univ. of Tennessee, Knoxville), Madison Tippet (Univ. of Tennessee, Knoxville), Austin Welsh (Univ. of Tennessee, Knoxville), Richard Howard (INL)*

## 57 Innovations in Nuclear Technology R&D Awards

- 58 Update on the Ongoing Ultra-Small Modular Reactor Design Project—*Naiki Kaffezakis (Georgia Institute of Technology), Dan Kotlyar (Georgia Institute of Technology)*
- 62 Facile Oxide to Chalcogenide Conversion for Actinides Using the Boron-Chalcogen Mixture Method—*Logan S. Breton (Univ. of South Carolina), Vladislav V. Klepov (Univ. of South Carolina), Hans-Conrad zur Loye (Univ. of South Carolina)*
- 66 Disorder in Ho<sub>2</sub>Ti<sub>2</sub>-xZrxO<sub>7</sub>: Pyrochlore to Defect Fluorite Solid Solution Series—*Devon Drey (Univ. of Tenn., Knoxville), Eric O'Quinn (Univ. of Tenn., Knoxville), Maik Lang (Univ. of Tenn., Knoxville)*
- 70 Phase Evolution in Annealed U-22.5 at.% Zr and U-52.8 at.% Zr Foils Characterized with Scanning Electron Microscopy and In-Situ Neutron Diffraction—*W. J. Williams (INL), S. C. Vogel (LANL), M. A. Okuniewski (Purdue Univ.)*
- 74 A Machine Learning Regression Approach for Pulse Shape Discrimination in Organic Scintillators—*Matthew Durbin (Penn State Univ.), Marc Wonders (PNNL), Marek Flaska (Penn State Univ.), Azaree Lintereur (Univ. of Utah)*
- 77 Toward a Broader Understanding of the Transitional Speciation in the Actinide-Lanthanide Separation Process—*Gabriela Picayo (Colorado School of Mines), Mark Jensen (Colorado School of Mines)*

## 81 Cutting Edge Techniques from Education, Training and Distance Education

- 82 Design of a Multipurpose Radiation Shielding Technology: Metal Oxide Infused Conformal Coating—*Sam Hanson (NC State Univ.), Radek Pudelko (NC State Univ.), Michael Long (NC State Univ.), Robert B. Hayes (NC State Univ.)*
- 86 Priorities and Considerations in Advancing the Training of Nuclear Reactor Operators Through Mixed Reality—*Eakta Jain (Univ. of Florida), Andreas Enqvist (Univ. of Florida)*
- 90 Artificial Intelligence, Cross-Reality and Cutting-Edge Technologies for the Modern Learner—*Emma L. Wong (EPRI), Jeremy Renshaw (EPRI), Robert Eller (EPRI), Wynter McGruder (EPRI), Jean-Francois Roy (EPRI)*
- 93 Virtual Classes, Real Results: Teaching from Home to Stay-at-Home Students During a Pandemic—*Eleodor Nichita (Ontario Tech Univ.)*

## 97 Research by U.S. DOE NEUP Sponsored Students

- 98 Needle Probe Measurements of the Thermal Conductivity of Reference Liquids—*Brian Merritt (Brigham Young Univ.), Michael Seneca (Brigham Young Univ.), Troy Munro (Brigham Young Univ.)*

- 102 Defect Classification in Simulated Pulsed Thermal Tomography Images Using Deep Learning Convolutional Neural Network—*Victoria Ankel (ANL), Dzmitry Shribak (ANL), Alexander Heifetz (ANL)*
- 106 Autonomous Fault Detection for Microreactor Operations—Looking Ahead—*Mario Mendoza (Texas A&M Univ.), Pavel V. Tsvetkov (Texas A&M Univ.)*
- 110 History and Future of Adaptive Mesh Refinement in Nuclear Engineering for Increased Fidelity and Computational Efficiency—*Kristin Stolte (Texas A&M Univ.), Pavel Tsvetkov (Texas A&M Univ.)*
- 114 Improved Point Kinetic Parameters Generation for Pebble Bed Reactor Transient Simulation Using NEAMS Tools—*David Reger (Penn State Univ.), Paolo Balestra (INL), Ryan Stewart (INL), Elia Merzari (Penn State Univ.)*
- 118 Fast Neutron Computed Tomography Station at The Ohio State University Research Reactor—*Matthew Bisbee (Ohio State Univ.), Ibrahim Oksuz (Ohio State Univ.), Matthew VanZile (Ohio State Univ.), Lei Cao (Ohio State Univ.)*

## 123 Focus on Communications: What's in a Name? Making the Case for America's State-of-the-Art Facilities

## 125 Fuel Cycle & Waste Management

---

### 127 Molten Salt Chemistry and Reactor Design

- 128 Molecular Analysis of Tritium Solvation in Flibe and Flinak: Effect of Fluoroacidity, Oxidation State, and Impurities—*Stephen T. Lam (Univ. of Massachusetts Lowell), Rajni Chahal (Univ. of Massachusetts Lowell)*
- 131 Corrosion Chemistry and Control in Molten NaCl-MgCl<sub>2</sub> Salts—*Drew M. Glenna (Univ. of Idaho), Matt Lawson (Univ. of Idaho), Haiyan Zhao (Univ. of Idaho)*
- 135 Modeling Corrosion Product Transport and Reduction via Beryllium Addition in FLiBe Molten Salt—*Samuel A. Walker (Rensselaer Polytechnic Institute), Wei Ji (Rensselaer Polytechnic Institute)*
- 139 Mu\*STAR Superconducting Accelerator Driven Subcritical Molten Salt Nuclear Power Plants—*Rolland Johnson (Muons), Mary Anne C. Cummings (Muons), Thomas J. Roberts (Muons)*

### 143 Spent Fuel Management

- 144 Augmentation and Bounding of i-LAMP via Addition of Panels from an Operating Spent Fuel Pool—*Hatice Akkurt (EPRI)*

- 148 Demonstration of i-LAMP via Case Studies and Proposed Implementation Path—*Hatice Akkurt (EPRI)*
- 152 A Practical Case Study of a Submerged Encapsulation System for Defective/Damaged Fuel Bundles—*Vito Bagdonavicius (ATS Industrial Automation)*
- 156 Study on Flammable Gas Generation and Radionuclide Release During Underwater Handling of AM Reactor Spent Fuel—*A. Gayazov (Sosny R&D Co.), A. Leshchenko (Sosny R&D Co.), V. Smirnov (Sosny R&D Co.), P. Ilyin (JSC SSC RIAR), V. Teplov (JSC SSC RIAR)*
- 161 Advanced Reactor Fuel Cycles**
- 162 Path to Sufficient HALEU Availability in U.S. and Canada?—*Cyril W. Draffin, Jr. (U.S. Nuclear Industry Council), Jeffery S. Merrifield (Pillsbury Law)*
- 165 The Effects of Impurities in Down-Blending Highly Enriched Uranium on the Reactor Neutronics and Cycle Length—*Osman Sahin Celikten (NIST Center for Neutron Research), Dagistan Sahin (NIST Center for Neutron Research)*
- 168 The Molten Uranium Thermal Breeder Reactor (MUTBR): A Consumer of UNF—*Neal L. Mann (Neal Mann & Assoc.), Mihai (Mike) G. Pop (AREVA NP)*
- 172 Safeguarding Thorium-Fueled Reactors: Understanding the Impact of Protactinium—*Victoria Davis (Virginia Commonwealth Univ.), Braden Goddard (Virginia Commonwealth Univ.), George W. Hitt (Coastal Carolina Univ.), Claudio Gariazzo (Virginia Commonwealth Univ.)*
- 177 Fuel Cycle and Waste Management: General**
- 178 Radiation Resistant Functional Materials for Noble Gas Management—*Praveen K. Thallapally (PNNL), Alexander Robinson (PNNL), Jian Liu (PNNL), Minbum Kim (PNNL)*
- 181 Reprocessing Capabilities of FeCrAl-Clad Used Fuel—*Raul B. Rebak (GE Research), Rajnikant V. Umretiya (GE Research), Andrew K. Hoffman (GE Research), Liang Yin (GE Research), Aida Amroussia (GE Research), Dan R. Lutz (GE Power)*
- 183 Co-Siting Fission Battery Refurbishment, Nuclear Hydrogen and Fuel-Cycle Facilities with Waste Disposal Sites—*Charles Forsberg (MIT)*
- 187 Deposition in SNF Storage Systems: Best Practices for Particle Injection—*Ben J. Jensen (PNNL), Philip J. Jensen (PNNL), Sarah R. Suffield (PNNL)*
- 191 University Research in Fuel Cycle and Waste Management**
- 192 Scale-Up of the Zeolite-4A Occlusion Process for Radioactive Electrorefiner Salts—*Claire Decker (Univ. of Utah), Allison Harward (Univ. of Utah), Guy Fredrickson (INL), Tae-Sic Yoo (INL), Jerry Howard (Univ. of Nevada, Reno), Michael Simpson (Univ. of Utah), Krista Carlson (Univ. of Nevada, Reno)*
- 195 A Method of Testing Methyl Iodide Adsorption onto Exchanged Silver Mordenite—*Heinrik Goettsche (Univ. of Idaho), Vivek Utgikar (Univ. of Idaho), Krishnan Raja (Univ. of Idaho), Piyush Sabharwall (INL)*
- 198 Adsorption of Radioactive Iodine Using Nanocarbon-Coated Ceramic Substrate—*Chaithanya Balumuru (Univ. of Idaho), Krishnan Raja (Univ. of Idaho), Piyush Sabharwall (INL), Vivek Utgikar (Univ. of Idaho)*
- 201 On Hydriding Uranium-Surrogate Aluminides—*Collin T. Andersen (Univ. of Utah), Prabhat K. Tripathy (INL), Michael F. Simpson (Univ. of Utah)*
- 205 Spent Fuel Storage and Transportation**
- 206 Validation of UNF-ST&DARDS Decay Heat Calculations for BWR Fuel—*Justin B. Clarity (ORNL), Henrik Liljenfeldt (Noemi Analytics), Kaushik Banerjee (PNNL), L. Paul Miller (ORNL)*
- 210 Validation of UNF-ST&DARDS Criticality Calculations for BWR Fuel—*Justin B. Clarity (ORNL), Henrik Liljenfeldt (Noemi Analytics), Kaushik Banerjee (PNNL), L. Paul Miller (ORNL)*
- 214 Conceptual Design of Additive Manufacturing Based Dissimilar Metal Embedded Sensors for TAD Canister Monitoring—*Michael Smith (Univ. of North Carolina, Charlotte), Sven Bader (Orano Federal Services), Brad Crotts (Orano Federal Services), Yesim Sireli (Univ. of North Carolina, Charlotte)*
- 218 Limiting Dose Rate with Decay Heat—*Jun Li (Orano TN), Philippe Pham (Orano TN)*
- 221 Estimated Maximally Exposed Individual Scenarios in Incident-Free Spent Nuclear Fuel Transportation—*Kevin J. Connolly (ORNL)*

- 225 **Nuclear Data Needs for Advanced Nuclear Applications in Space, Power, and Other Applications**
- 227 **Disposition-Path-Neutral Research and Development Progress Made in the National Laboratory Complex**
- 229 **Pre-Disposal Management: An Essential and Strategic Aspect in Responsible and Sustainable Policy for Nuclear Energy**

---

**231 Fusion Energy**

**233 Fusion: General**

- 234 Optimization of a Simplified ARC Reactor Design Through Coupled Neutronics, Thermal Hydraulics Modeling—*Jack Fletcher (ORNL), Jin Whan Bae (ORNL), Arpan Sircar (ORNL), Vittorio Badalassi (ORNL)*
- 238 Multi-Physics Simulations for Fusion Reactor Blankets—*Arpan Sircar (ORNL), Jin Whan Bae (ORNL), Vittorio Badalassi (ORNL), Ethan Peterson (MIT)*
- 243 Simplified Neutronics Analysis of Solid Breeder Concepts for the FESS-FNSF—*Felipe Santos-Novais (Univ. of Tennessee, Knoxville), Nicholas R. Brown (Univ. of Tennessee, Knoxville), G. Ivan Maldonado (Univ. of Tennessee, Knoxville)*

**247 The Future of Commercial Fusion in the U.S.**

---

**249 Human Factors, Instrumentation & Controls**

**251 Cybersecurity for Nuclear Installations**

- 252 Cyberweapon Nonproliferation Controls for the Virtual Battlefield: Applying the Nuclear Nonproliferation Regime to an Unseen Enemy—*Michael Haney (Univ. of Idaho), Jacob Benjamin (Dragos), R. A. Borrelli (Univ. of Idaho)*
- 256 Development of an NPP Safety State Estimation Method Secured from Process Data Manipulation Attacks—*Chanyoung Lee (KAIST), Poong Hyun Seong (KAIST)*
- 258 Attack Scenario Development for NPPs Using FANCY Hardware-in-the-Loop Testbed—*Fan Zhang (Georgia Institute of Technology), Christopher Spirito (INL), Ronald Boring (INL), Stacy Baskin (Southern Nuclear Operating Co.), Scott Ruoti (Univ. of Tenn., Knoxville), Jamie Coble (Univ. of Tenn., Knoxville)*

**261 Open Discussion on the Future of Cybersecurity in Nuclear Installations (Panel)**

**263 Implications of ML and AI for I&C/HFE**

- 264 Deceptive Infusion of Data (DIOD) for Nuclear Reactors—*Arvind Sundaram (Purdue Univ.), Hany S. Abdel-Khalik (Purdue Univ.), Ahmad Al Rashdan (INL)*
- 267 Convolutional Neural Network with Feature Selection for Multi Abnormal State Diagnosis—*Ji Hyeon Shin (Ulsan Nat'l Institute of Science and Technology), Seung Jun Lee (Ulsan Nat'l Institute of Science and Technology)*
- 270 Explaining AI Models in Operation Support Systems with Layer-Wise Relevance Propagation—*Seung Geun Kim (KAERI), Jaehyun Cho (KAERI)*
- 274 LSTM Validation of Fiber Optics Distributed Temperature Sensing—*Stella Pantopoulou (ANL), Darius Lisowski (ANL), Antonie Cilliers (Kairos Power), Alexander Heifetz (ANL)*

**277 General Topics in I&C and HFE**

- 278 Automated System to Characterize Electromagnetic Environments in Nuclear Power Plants—*M.F. Berg (Analysis and Measurement Services Corp.), C. J. Kiger (Analysis and Measurement Services Corp.), T.S. Gavin (Analysis and Measurement Services Corp.)*
- 282 Methodology for Wi-Fi Deployment in Nuclear Power Plants—*P.E. Zarb (Analysis and Measurement Services Corp.), R.A. Kettle (Analysis and Measurement Services Corp.), M.F. Berg (Analysis and Measurement Services Corp.), T.J. Cole (Analysis and Measurement Services Corp.), C. J. Kiger (Analysis and Measurement Services Corp.), O.A. Fraley (AEP Nuclear Generation Group)*
- 286 A Comparison of Human Error Probabilities Collected from the HuREX and SHEEP Frameworks—*Jooyoung Park (INL), Ronald L. Boring (INL), Jonghyun Kim (Chosun Univ.)*
- 289 A Novel Analytic Tool Providing a Graded Approach to Safety Culture Attribute—*Jeeyea Ahn (Ulsan Nat'l Institute of Science and Technology), Wooseok Jo (Ulsan Nat'l Institute of Science and Technology), Byung Joo Min (Ulsan Nat'l Institute of Science and Technology), Seung Jun Lee (Ulsan Nat'l Institute of Science and Technology)*
- 292 High Speed Computation Using an FPGA with Neutron-Gamma Scintillation Detectors—*Rishya Sankar Kumaran (Texas A&M Univ.), Benjamin Wellons (Texas A&M Univ.), Shikha Prasad (Texas A&M Univ.)*

### 297 Online Monitoring and Equipment Condition Assessment

- 298 Asset Management Using Digital Engineering for the Versatile Test Reactor—*Steven A. Arndt (ORNL), Stephen N. Hammonds (ORNL)*
- 301 Topical Report for Condition-Based Calibration Assessment of Pressure Transmitters in Nuclear Power Plants—*H. Hashemian (Analysis and Measurement Services Corp.), B. Shumaker (Analysis and Measurement Services Corp.), G. Morton (Analysis and Measurement Services Corp.)*
- 305 A Novel Method for Improvement of Pipeline Welding Defect Sizing Accuracy in Attenuation Materials—*Jung-Cheol Shin (ENESG), Un-Hak Seong (ENESG), Young-Woo Park (Chungnam National Univ.)*
- 308 Testbed to Evaluate Motor Fault Detection Capability of Electrical Signature Analysis Technologies—*Greg Draeger (Analysis and Measurement Services Corp.), Jacob Houser (Analysis and Measurement Services Corp.), Mike Taylor (EPRI)*

### 313 Remote Sensing and Robotics for Inspection and Maintenance

- 314 Criticality Control Overpack Automation—*Catherine Mancuso (Savannah River National Laboratory), Michael Brown (Savannah River National Laboratory), Will Stafford (Savannah River National Laboratory)*
- 317 Collection of a Preliminary Dataset for Human-Robot Interaction in Commercial and Nuclear Domains—*Cynthia Cho (Univ. of Texas, Austin), Sidharth Nair (Univ. of Texas, Austin), Bethany Isabella Garcia Cornejo (Univ. of Texas, Austin), Ian Krause (Univ. of Texas, Austin), Arrash Setayesh (Univ. of Texas, Austin), Minsoo Kang (Univ. of Texas, Austin), Selma Wanna (Univ. of Texas, Austin), Mitch Pryor (Univ. of Texas, Austin)*
- 321 Demonstration of Automation Technology for Nuclear Materials Handling—*William Stafford (Savannah River National Laboratory), Michael Brown (Savannah River National Laboratory), Catherine Mancuso (Savannah River National Laboratory)*

### 325 Sensors and Embedded Technology for Advanced Reactors

- 326 Methods to Evaluate Embedded Sensor Performance for the Transformational Challenge Reactor—*William H. Ferrell IV (Analysis and Measurement Services Corp.), Jacob R. Houser (Analysis and Measurement Services Corp.), Holden C. Hyer (ORNL), Christian M. Petrie (ORNL)*

- 329 Transit Time Flow Measurement via High-Temperature Irradiation-Resistant Thermocouples—*Alexander H. Hashemian (Analysis and Measurement Services Corp.), Richard Skifton (INL)*
- 333 Trace Xenon Measurements Using Laser-Induced Breakdown Spectroscopy for Fuel Failure Monitoring in Generation IV Gas-Cooled Fast Reactors—*M. Burger (Univ. of Michigan), L. Garrett (Univ. of Michigan), A. Burak (Univ. of Michigan), V. Petrov (Univ. of Michigan), A. Manera (Univ. of Michigan), X. Sun (Univ. of Michigan), P. Sabharwall (INL), I. Jovanovic (Univ. of Michigan)*
- 336 Design of a High Temperature Eddy Current Flow Meter via Thermal-Mechanical Simulation—*G. Kinzler (Univ. of Pittsburgh), U. Zangrilli (Univ. of Pittsburgh), H. Ban (Univ. of Pittsburgh)*
- 340 Improvements in Antineutrino Detector Response by Including Fission Product Transitions—*Wei Eng Ang (Texas A&M Univ.), Sanghun Lee (Texas A&M Univ.), Shikha Prasad (Texas A&M Univ.)*

### 345 General Topics in I&C

- 346 Comparison of Operational Amplifiers in Analog Signal Processing Circuit for the Self-Powered Neutron Detector—*Heejune Park (Chungnam National Univ.), Wonjin Jeong (Chungnam National Univ.), Young-Woo Park (Chungnam National Univ.), Myounggyu Noh (Chungnam National Univ.)*
- 348 Detecting CRUD Accumulation in Nuclear Power Plant Rod Control Systems—*A. Deatherage (Analysis and Measurement Services Corp.), S. Caylor (Analysis and Measurement Services Corp.), B. Shumaker (Analysis and Measurement Services Corp.)*
- 352 NBSR Power Regulating Control System Upgrade—*Dagistan Sahin (National Institute of Standards and Technology), Daniel Mattes (National Institute of Standards and Technology), Danyal J. Turkoglu (National Institute of Standards and Technology)*
- 354 Derating and Survivability of Mineral Insulated Cables for Small Modular Reactor Applications—*J.R. Houser (Analysis and Measurement Services Corp.), S. N. Tyler (Analysis and Measurement Services Corp.), D. Corbett (INL)*
- 358 Adaptive Signal Processing of Optical Fiber Sensors for Monitoring Temperature During Chemical Vapor Infiltration—*Daniel C. Sweeney (ORNL), Adrian M. Schrell (ORNL), Christian M. Petrie (ORNL)*

### 363 Regulatory Aspects of Digital Twins, Artificial Intelligence, and Machine Learning

### 365 Isotopes & Radiation

---

#### 367 Isotopes and Radiation: General - I

- 368 Automated Fast Neutron Computed Tomography at Ohio State University Research Reactor—*Ibrahim Oksuz (Ohio State Univ.), Matt Bisbee (Ohio State Univ.), Nerine Cherepy (LLNL), James Hall (LLNL), Lei Cao (Ohio State Univ.)*
- 371 Precursor Isotopes as Radioisotope Thermoelectric Generator Fuel—*Marshall Millett (U.S. Naval Academy)*
- 374 Characterization of Penn State's Reactor Core Face Irradiation Fixture—*Susanna Angermeier (Penn State Univ.), Maksat Kuatbek (Penn State Univ.), Amanda Johnsen (Penn State Univ.)*
- 378 Characterization of the Fast Neutron Irradiator Fixture at the Pennsylvania State Breazeale Reactor—*Maksat Kuatbek (Penn State Univ.), Bruce D. Pierson (PNNL), Stephanie Lyons (PNNL), Amanda M. Johnsen (Penn State Univ.)*
- 382 Upgrading the Breazeale Nuclear Reactor Control Console—*Jeffrey A. Geuther (Penn State Univ.), Adams N. Tong (Penn State Univ.), Daniel B. Beck (Penn State Univ.), Sean M. Herrmann (Penn State Univ.), Gokhan Corak (Penn State Univ.)*

#### 387 Isotopes and Radiation: General - II

- 388 Sensitivity of Nuclear Radiogauges in Detecting Water Levels in Ballast Tanks—*Walid A. Metwally (Univ. of Sharjah), Jwahr Alnaqbi (Univ. of Sharjah), Eslam Ahmed (Univ. of Sharjah), Priyonta Rahman (Univ. of Sharjah)*
- 390 Proton Beam Dosimetry Using Cerenkov Radiation: A Feasibility Study—*Steven A. Thompson (Univ. of Florida)*
- 394 Measurement of Transition Probabilities of Europium Using Laser Induced Breakdown Spectroscopy—*Sawyer Irvine (ORNL), Hunter Andrews (ORNL), Kristian Myhre (ORNL), Kari Lawson (Tenn. Technological Univ.), Jamie Coble (Univ. of Tenn., Knoxville)*

#### 399 Measurement Techniques for Nuclear Security and Radiation Effects

- 400 Fieldable Muon Momentum Measurement Using Coupled Pressurized Gaseous Cherenkov Detectors—*J. Bae (Purdue Univ.), S. Chatzidakis (Purdue Univ.)*

- 404 Solar Photovoltaic Device Response to Gamma-Ray Irradiation—*Praneeth Kandlakunta (Ohio State Univ.), Matthew Van Zile (Ohio State Univ.), Lei Raymond Cao (Ohio State Univ.)*

- 408 Verification of Radiation Doses Estimated with Watches Using Commercial Dosimeters—*Natalie Coon (NC State Univ.), Modeste Tchouaso (NC State Univ.), Robert Hayes (NC State Univ.)*

- 411 Damage Effects from Alpha Neutron Source Irradiation of Ga2O3 Rectifiers—*Minghan Xian (Univ. of Florida), F. Ren (Univ. of Florida), S.J. Pearton (Univ. of Florida), Elena Flitsyan (Univ. of Central Florida)*

- 415 Temperature-Dependent Hybrid/Organic Scintillators—*J. Arrue (Georgia Institute of Technology), C. Chandler (Colorado School of Mines), A. Sellinger (Colorado School of Mines), A. Erickson (Georgia Institute of Technology)*

#### 419 Transport Methods

- 420 C5G7-TD3 Transient Benchmark Results with Shift—*Evan S. Gonzalez (Univ. of Michigan), Brian C. Kiedrowski (Univ. of Michigan)*

- 424 Angular Deflection Distribution for Condensed History Electron Transport in Binary Markovian Media—*Emily H. Vu (Univ. of Michigan), Brian C. Kiedrowski (Univ. of Michigan)*

- 427 Energy Loss Straggling Distribution for Condensed History Electron Transport in Binary Markovian Media—*Emily H. Vu (Univ. of Michigan), Brian C. Kiedrowski (Univ. of Michigan)*

- 431 Direct Calculation of Doubles Counting Rate for Neutron Multiplicity Methods—*Wilfried Monange (IRSN)*

- 435 Discrete Ordinate Prediction of Analog Monte Carlo Computational Time with Embedded Timer Estimators—*Eric J. Pearson (Univ. of Michigan), Joel A. Kulesza (LANL), Brian C. Kiedrowski (Univ. of Michigan)*

#### 439 Computational Methods and Mathematical Modeling

- 440 A Multiphysics Reduced-Order Model for Neutronic Transient Using POD-Galerkin Projection and DEIM—*Rabab Elzohery (Kansas State Univ.), Jeremy Roberts (Kansas State Univ.)*

- 444 Derivation and Implementation in OpenFOAM of a Point-Kinetics Model for Molten Salt Reactors—*Arnaldo Samuele Mattioli (Politecnico di Milano), Carlo Fiorina (EPFL), Stefano Lorenzi (Politecnico di Milano), Antonio Cammi (Politecnico di Milano)*

- 448 BSOLVE: Energy Dependent Depletion with Algorithm-Adapted Error Control for 3-D Transport—*Glenn E. Sjoden (Univ. of Utah), Meng-Jen Wang (Univ. of Utah), Nicholas Kurtyka (Univ. of Utah)*



- 452 Design and Optimization of GPU Capabilities in OpenMC—*Gavin Ridley (MIT), Benoit Forget (MIT)*
- 456 Recent Development Status of Cross Section Generation Tool MCS for LWRs—*Tung Dong Cao Nguyen (Ulsan Nat'l Institute of Science and Technology), Deokjung Lee (Ulsan Nat'l Institute of Science and Technology)*
- 459 Sensitivity Analysis, Uncertainty Quantification, and Machine Learning**
- 460 Depletion Perturbation Theory Sensitivity Coefficients in Monte Carlo Simulations—*Benjamin Murphy (Univ. of New Mexico), Christopher Perfetti (Univ. of New Mexico)*
- 464 Conversion from R-Matrix to Pole Representation Parameters for Use in Sensitivity Analysis—*Matthew Lazaric (Univ. of New Mexico), Christopher Perfetti (Univ. of New Mexico), Mark Paris (LANL)*
- 468 Solving a System of Ordinary Differential Equations for Reactivity Insertion Accident with Artificial Neural Networks—*Alié Akins (NC State Univ.), Ziyu Xie (NC State Univ.), Xu Wu (NC State Univ.)*
- 472 Quantitative Validation with Bayes Factor—*Farah Alsafadi (NC State Univ.), Ziyu Xie (NC State Univ.), Xu Wu (NC State Univ.)*
- 477 Current Issues in Computational Methods - Roundtable**
- 
- 479 Materials Science & Technology**
- 481 Irradiation Experiments for Nuclear Materials and Fuels Research**
- 482 Design and Prototyping of a Fissile-Bearing Chloride Salt Irradiation Experiment—*Abdalla Abou-Jaoude (INL), Calvin Downey (INL), Gregory Core (INL), Kim Davies (INL), William Phillips (INL), Chuting Tan (INL), SuJong Yoon (INL), Stacey Wilson (INL)*
- 486 Irradiation Testing of Silicon Carbide Joint Specimens in the High Flux Isotope Reactor—*Annabelle G. Le Coq (ORNL), Christian M. Petrie (ORNL), Takaaki Koyanagi (ORNL), Kory D. Linton (ORNL), Christian P. Deck (General Atomics)*
- 490 Thermal Model for Horizontal In-Water and In-Air Mini-Plate Experiments in the Advanced Test Reactor—*Grant Hawkes (INL), Dong Ok Choe (INL)*
- 494 Safety Analysis of the Irradiation System for a High-Throughput Acquisition Capsule—*Austen D. Fradeneck (INL), Richard Howard (INL), Geoffrey L. Beausoleil (INL)*
- 498 Initial Design of High-Temperature MiniFuel Irradiation Experiments in the High Flux Isotope Reactor Removable Beryllium Region—*Jacob P. Gorton (ORNL), Zane Wallen (ORNL), Christian M. Petrie (ORNL)*
- 503 Nuclear Science User Facilities and Accident Tolerant Fuels**
- 504 Post-Irradiation Examination of Irradiated Optical Components of In-Situ Spectroscopic Sensors for Advanced Fission Reactors—*Bryan Morgan (Univ. of Michigan), Matthew Van Zile (Ohio State Univ.), Patrick Skrodzki (Univ. of Michigan), Xuan Xiao (Univ. of Michigan), Piyush Sabharwall (INL), Paul Marotta (Micro Nuclear), Miloš Burger (Univ. of Michigan), Igor Jovanovic (Univ. of Michigan)*
- 508 TEM Characterization of High Dose Ion Irradiated MA956 ODS Alloy—*Yu Lu (Boise State Univ.), Yaqiao Wu (Boise State Univ.), Ramprasad Prabhakaran (PNNL), Megha Dubey (Boise State Univ.), Lin Shao (Texas A&M Univ.), Jing Wang (PNNL), Dalong Zhang (PNNL)*
- 511 Zinc Additions Reduces Dissolution Rate of FeCrAl Fuel Cladding—*Raul B. Rebak (GE Research), Timothy B. Jurewicz (GE Research), Andrew K. Hoffman (GE Research), Liang Yin (GE Research), Aida Amroussia (GE Research), Rajnikant V. Umretiya (GE Research), Russ M. Fawcett (GE Power)*
- 513 FeCrAl Fuel Clad Chemical Interaction in Light Water Reactor Environments—*Andrew K. Hoffman (GE Research), Fabiola Cappia (INL), Jatuporn Burns (INL), Lingfeng He (INL), Rajnikant Umretiya (GE Research), Vipul Gupta (GE Research), Caleb Massey (ORNL), Jason Harp (ORNL), Raul B. Rebak (GE Research)*
- 515 Progress in Developing Thermochemica Modelling Capabilities to Aid in Simulating Severe Accidents in MELCOR—*Benjamin A.T. Breeden (Ontario Tech Univ.), Max Poschmann (Ontario Tech Univ.), David Luxat (Sandia), Markus H.A. Piro (Ontario Tech Univ.)*
- 519 Nuclear Fuels**
- 520 Coupling Methodology Between TRANSURANUS and the Multi-Dimensional Fuel Performance Code OFFBEAT—*Alessandro Scolaro (Ecole Polytechnique Federale de Lausanne), Carlo Fiorina (Ecole Polytechnique Federale de Lausanne), Paul Van Uffelen (European Commission), Arndt Schubert (European Commission), Ivor Clifford (Paul Scherrer Institut), Andreas Pautz (Ecole Polytechnique Federale de Lausanne)*

- 524 First Steps Towards Large Strain Analysis in OFFBEAT—*Edoardo Luciano Brunetto (École Polytechnique Fédérale de Lausanne), Alessandro Scolaro (École Polytechnique Fédérale de Lausanne), Carlo Fiorina (École Polytechnique Fédérale de Lausanne), Andreas Pautz (Paul Scherrer Institut)*
- 528 Assessment of Fuel Relocation and Fuel Rod Contact on Fuel Behaviors During a Design Basis Accident of LOCA—*Joosuk Lee (Korea Institute of Nuclear Safety), Young-Seok Bang (Korea Institute of Nuclear Safety)*
- 532 Sensitivity Analysis on Silicon Carbide Failure Probability in TRISO—*Carlotta G. Ghezzi (Univ. of Tenn., Knoxville), Giovanni Pastore (Univ. of Tenn., Knoxville), Brian D. Wirth (Univ. of Tenn., Knoxville), Nicholas R. Brown (Univ. of Tenn., Knoxville)*
- 535 Evaluation of Anisotropic Interfacial Properties of Alpha U via Molecular Dynamics—*Khadija Mahbuba (NC State Univ.), Benjamin W. Beeler (NC State Univ.), Andrea Jokisaari (INL)*
- 539 Molten Salt Reactors and In-Pile Instrumentation**
- 540 Ab Initio Molecular Dynamics Study of Transport Properties Eutectic LiCl-KCl at 1200 K—*Kai Duemmler (NC State Univ.), Benjamin Beeler (NC State Univ.), Ruchi Gakhar (INL)*
- 544 Ab-Initio Molecular Dynamics Study of LiF-NaF-ZrF4 Molten Salt System—*Rajni Chahal (Univ. of Massachusetts, Lowell), Stephen T. Lam (Univ. of Massachusetts, Lowell)*
- 549 The Melting Point of Molten Salts with Corrosion Product Impurities—*Robin V. Roper (Univ. of Idaho), Kristen Geddes (Univ. of Idaho), Richard Christensen (Univ. of Idaho)*
- 552 Molten Salt Thermal Conductivity Hot Wire Sensor—*Peter Kasper (Brigham Young Univ.), Jonathan Dromey (Brigham Young Univ.), Ara Bolander (Brigham Young Univ.), Crewse Petersen (Brigham Young Univ.), Tom Carson (Brigham Young Univ.), Troy Munro (Brigham Young Univ.)*
- 556 Modeling and Experimental Validation of Shockwave Propagation in Aluminum Plates—*James Smith (INL), Colin Merriman (INL), Jeff Lacy (INL), Brad Benefiel (INL), Clark Scott (INL)*
- 559 Advanced Manufacturing and Aging of Materials**
- 560 Effect of Laser Shock Peening on Residual Stress in Austenitic Stainless Steel Welds—*Merbin John (Univ. of Nevada, Reno), Alessandro Ralls (Univ. of Nevada, Reno), Manoranjan Misra (Univ. of Nevada, Reno), Pradeep L. Menezes (Univ. of Nevada, Reno)*
- 563 Lessons Learned with Additive Manufacturing—Transformational Challenge Reactor Flow Test Articles—*Nathan D. See (ORNL), Dylan Richardson (ORNL)*
- 567 Effects of Accelerated Aging Phenomena on Cable Condition Monitoring Data—*Caleb Crosby (AMS), Codi Ferree (AMS), Patrick Ellis (AMS)*
- 571 Examination of Lead-Bismuth Corrosion of SS309 at High Velocities at 500C—*Jake Noltemeyer (Univ. of New Mexico), Brandon Bohanon (Univ. of New Mexico), Khaled Talaat (Univ. of New Mexico), Md Mehadi Hassan (Univ. of New Mexico), Keith Woloshun (LANL), Stuart Maloy (LANL), Cetin Unal (LANL), Osman Anderoglu (Univ. of New Mexico)*
- 575 Nuclear Criticality Safety**
- 577 Recent Nuclear Criticality Safety Program Technical Accomplishments**
- 578 RPI LINAC Refurbishment and Upgrade Project—*Yaron Danon (Rensselaer Polytechnic Institute), Peter Brand (Rensselaer Polytechnic Institute), Michael Bretti (Rensselaer Polytechnic Institute), Brian Epping (Naval Nuclear Laboratory), Timothy Trumbull (Naval Nuclear Laboratory)*
- 581 Low-Energy Reactions of the n+233U Nuclear Compound System and its Initial Validation—*Marco T. Pigni (ORNL), Roberto Capote (IAEA), Andrej Trkov (Jožef Stefan Institute)*
- 585 Preliminary RAM-RODD Results for the MUSiC Subcritical Configurations—*Robert A. Weldon Jr. (LANL), Theresa E. Cutler (LANL), Joetta M. Goda (LANL), Jesson D. Hutchinson (LANL), William L. Myers (LANL), George E. McKenzie IV (LANL), Alexander T. McSpaden (LANL), Lauren A. Misurek (LANL), Rene G. Sanchez (LANL)*
- 589 Design of Temperature-Dependent Critical Experiments with SPRF/CX—*Justin B. Clarity (ORNL), Ryan C. Gallagher (ORNL), Mathieu N. Dupont (ORNL), Christopher W. Chapman (ORNL)*
- 593 Photo Doppler Velocimetry and Gamma/Neutron Yield Measurements of Godiva-IV Critical Assembly—*Lucas Snyder (LLNL), Dan Bower (LLNL), Robert Buckles (Nevada National Security Site), David Fittinghoff (LLNL), Joetta Goda (LANL), Mark May (LLNL), Michael Pena (Nevada National Security Site), John Scorby (LLNL)*
- 597 Critical and Subcritical Experiments - I**
- 598 Preliminary NoMAD Results of the MUSiC Experiment—*Alexander McSpaden (LANL), Caiser Bravo (Univ. of Michigan), Theresa Cutler (LANL), Joetta Goda (LANL), Wim Haeck (LANL), Jesson Hutchinson (LANL), Hady Kistle (LANL), George McKenzie (LANL), William Myers (LANL), Rene Sanchez (LANL), Robert Weldon (LANL)*

- 602 Comparison of Neutron Multiplicity Counting Estimates with trans-Stilbene, EJ-309, and He-3 Detection Systems—*F.B. Darby (Univ. of Michigan), J. D. Hutchinson (LANL), M. Y. Hua (Univ. of Michigan), R. A. Weldon (LANL), G.E. McKenzie (LANL), J. R. Lamproe (Univ. of Michigan), S. A. Pozzi (Univ. of Michigan)*
- 606 Sensitivity Analysis of H<sub>2</sub>O Pulsed-Neutron Die-Away Experiments to the H-H<sub>2</sub>O Thermal Scattering Law—*Daniel Siefman (LLNL), Catherine Percher (LLNL), David Heinrichs (LLNL)*
- 610 Sensitivity-Based Experiment Design Optimization for a Molybdenum Critical Experiment—*Cole Kostelac (LANL), Nicholas Thompson (LANL), Rene Sanchez (LANL), Noah Kleedtke (LANL)*
- 614 Impact of Spontaneous Fission Neutron Emission Energy on Neutron Detector Response—*Jawad R. Moussa (LANL), Jesson Hutchinson (LANL), George McKenzie (LANL)*
- 619 Critical and Subcritical Experiments - II**
- 620 Similarity of the PMM-2 Critical Experiments and Criticality Safety Cases Based on the keff Sensitivity Analysis—*Mariya Brovchenko (IRSN), Nicolas Arphant (IRSN)*
- 623 Investigation of Delayed Neutron Sensitivities for Several ICSBEP Benchmarks Using MCNP—*J. Hutchinson (LANL), N. Kleedtke (LANL), J. Alwin (LANL), A. Clark (LANL), T. Cutler (LANL), W. Haeck (LANL), R. Little (LANL), D. Neudecker (LANL), M. Rising (LANL), T. Smith (LANL), N. Thompson (LANL)*
- 627 Validation of Jezebel Reactivity Coefficients and Sensitivity Analysis—*Theresa Cutler (LANL), Jesson Hutchinson (LANL), Noah Kleedtke (LANL), Michael Rising (LANL), Denise Neudecker (LANL), Bob Little (LANL), Nick Thompson (LANL)*
- 631 Effective Delayed Neutron Fraction and Reactivity Coefficient Sensitivity-Based Similarity Metrics for New Experiment Design Optimization—*N. Kleedtke (LANL), J. Hutchinson (LANL), I. Michaud (LANL), T. Grove (LANL)*
- 635 A Verification of Flux Sensitivity Estimates Using the MCNP Tally Perturbation Tool—*Juliann R. Lamproe (Univ. of Michigan), Theresa E. Cutler (LANL), Michael Y. Hua (Univ. of Michigan), Alexander R. Clark (LANL), Jesson D. Hutchinson (LANL), Shaun D. Clarke (Univ. of Michigan), Sara A. Pozzi (Univ. of Michigan)*
- 639 Critical and Subcritical Experiments - III**
- 640 Surface Ablation of Core Materials in Burst Reactors—*Victoria E. Hagopian (Penn State Univ.), Geordie McKenzie (LANL), Leigh Winfrey (Penn State Univ.)*
- 644 Godiva Experiments for the Nuclear Criticality Safety Program (NCSP)—*Joetta Goda (LANL), Travis Grove (LANL), David Hayes (LANL)*
- 648 Space Nuclear Thermal Propulsion Critical Assembly Boron Worth Experiments—*Elijah C. Lutz (Sandia), David E. Ames (Sandia)*
- 652 The CURIE Experiment and Nuclear Data—*Nicholas Thompson (LANL), Theresa Cutler (LANL), Travis Grove (LANL), Kelsey Amundson (LANL), Dave Hayes (LANL), Jeff Favorite (LANL), Joetta Goda (LANL), Jesson Hutchinson (LANL), Robert Little (LANL), Geordie McKenzie (LANL), Rene Sanchez (LANL), Jessie Walker (LANL)*
- 656 Rossi-alpha Analysis of CURIE Experiment—*Caiser A. Bravo (LANL), Jesson D. Hutchinson (LANL), George E. McKenzie (LANL), Theresa E. Cutler (LANL), David K. Hayes (LANL), Travis J. Grove (LANL), Jeffrey A. Favorite (LANL), Rene G. Sanchez (LANL), Kelsey M. Amundson (LANL)*
- 659 Data, Analysis and Operations in Nuclear Criticality Safety - I**
- 660 Making the Most of a Facility Visit—*Rebecca Rice (Savannah River Nuclear Solutions), Tracy Stover (Savannah River Nuclear Solutions)*
- 664 The 2021 Edition of the ICSBEP Handbook—*John D. Bess (INL), Tatiana Ivanova (OECD NEA), Julie-Fiona Martin (OECD NEA), Ian Hill (OECD NEA), Lori Scott (INL)*
- 668 Sensitivity of a Response to Stoichiometry—*Jeffrey A. Favorite (LANL)*
- 673 Data, Analysis and Operations in Nuclear Criticality Safety - II**
- 674 Fissile Discharge to Unfavorable Geometries: NCS Controls for a Calciner Off-Gas System—*Frank J. Sweeney (Y-12 National Security Complex), Spencer P. Jordan (Y-12 National Security Complex), Christopher A. Belk (Y-12 National Security Complex)*
- 678 Critical Parameters of Actinide Nuclides Computed Using ENDF/B-VI, VII.0, VII.1, and VIII.0 Cross Sections—*Richard G. Taylor (Univ. of Tennessee, Knoxville)*
- 683 Validation of KENO Delayed Neutron Fraction Capabilities—*Alex Shaw (ORNL), William Marshall (ORNL)*
- 686 Bayesian Monte Carlo Evaluation Framework for Imperfect Nuclear Data—*Jesse M. Brown (ORNL), Goran Arbanas (ORNL), Andrew Holcomb (ORNL), Dorothea Wiarda (ORNL)*

**691 Data, Analysis and Operations in Nuclear Criticality Safety - III**

- 692 Cumulative  $\chi^2$  Metric for VALID for ENDF/B-VII.1 and ENDF/B-VIII.0 in SCALE 6.3b9—*William Marshall (ORNL), Travis Greene (ORNL)*
- 696 Testing of a New 103Rh Resolved Resonance Evaluation—*Luiz Leal (IRSN), Nicolas Leclaire (IRSN), Devin Barry (Naval Nuclear Laboratory), Amanda Lewis (Naval Nuclear Laboratory), Peter Schillebeeckx (EC, JRC-Geel), Stefan Kopecky (EC, JRC-Geel), Cristian Mihailescu (SCK CEN)*
- 700 FLASSH 1.0: Full Law Analysis Scattering System Hub—*Nina C. Fleming (NC State Univ.), Cole A. Manning (NC State Univ.), Benjamin K. Laramie (NC State Univ.), Jonathan P.W. Crozier (NC State Univ.), Eunji Lee (NC State Univ.), Ayman I. Hawari (NC State Univ.)*
- 704 Generation of the Thermal Scattering Law of Uranium Carbide Using Ab Initio Lattice Dynamics—*J. P. W. Crozier (NC State Univ.), A. I. Hawari (NC State Univ.)*

**709 Review of Recent CSSG Activities**

**711 ANS-8 Standards Forum**

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**713 Nuclear Installations Safety**

**715 Current Topics in Probabilistic Risk Analysis - I**

- 716 Reliability of Cascade Failure of Heat Pipes in Micro Modular Reactors—*Eunseo So (INL), Man Cheol Kim (Chung-Ang Univ.)*
- 720 Pathway to Resolving Gaps in Advanced Reactor Mechanistic Source Term—*Shayan Shahbazi (ANL), David Grabaskas (ANL)*
- 723 Enabling Nuclear Deployment in Locations Without Robust Regulatory Institutions Through Technology-Enhanced Regulatory Frameworks—*Rohan Biwalkar (Pittsburgh Technical), Sola Talabi (Pittsburgh Technical)*
- 725 Task Analysis for Human Reliability Analysis of Startup and Shutdown Operation—*Woo Seok Jo (Ulsan Nat'l Institute of Science and Technology), Seung Jun Lee (Ulsan Nat'l Institute of Science & Technology)*

**729 Current Topics in Probabilistic Risk Analysis - II**

- 730 Uncertainty-Aware Limit Surface Search Algorithm Using Deep Neural Network—*Junyong Bae (Ulsan Nat'l Institute of Science and Technology), Jong Woo Park (Ulsan Nat'l Institute of Science and Technology), Seung Jun Lee (Ulsan Nat'l Institute of Science and Technology)*
- 734 A Case Study of Scenario Optimization Framework for Dynamic PSA in Small Loss of Coolant Accident—*Jong Woo Park (Ulsan Nat'l Institute of Science and Technology), Seung Jun Lee (Ulsan Nat'l Institute of Science and Technology)*
- 738 Severe Accident Management Guidelines—Their Qualities and Shortcomings—*George Vayssier (NSC Netherlands)*

**741 Lessons Learned and Risk Insights from the Duane Arnold Derecho Event of 2020**

**743 Research Reactor Fuel Failure Events: Learning from Recent HFIR and NIST Reactor Experience**

**745 Current and Emergent Issues in Consensus Standards**

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**747 Nuclear Nonproliferation Policy**

**749 Technology and Policy Advancements in Nuclear Nonproliferation**

- 750 Impact of Potential Source Term Updates in DTRA's HPAC—*Joshua Molgaard (Defense Threat Reduction Agency), Tyler Dant (Applied Research Assoc.)*
- 754 Geometry Effects in the Transport Calculations of the Multiplicity Moments—*Victor Dykin (Chalmers Univ. of Technology), Imre Pázsit (Chalmers Univ. of Technology)*
- 758 A Novel Nuclear Material Control Technique for Pebble Fueled Reactors—*Sunil S. Chirayath (Texas A&M Univ.), Claudio A. Gariazzo (ANL), Raffaella Righetti (Texas A&M Univ.), Mohammad Naraghi (Texas A&M Univ.)*
- 762 An Explainable Artificial Intelligence Approach Using a Hopfield Network in Nuclear Security Applications—*Miltiadis Alamaniotis (Univ. of Texas, San Antonio), Alexander Heifetz (ANL)*
- 765 Optimal Sensor Placement with Using Model-Based Reinforcement Learning with Mutual Information—*Siyao Gu (Univ. of Texas, San Antonio), Miltiadis Alamaniotis (Univ. of Texas, San Antonio)*

**769 The 2021 Eisenhower, Seaborg, Landmark, and Zinn Medals Honors Panel**

**771 Antineutrino Detection in Nuclear Security Applications using Coherent Neutrino-Nucleus Scattering**

**773 Impact of Advanced Nuclear Technologies on Back-End of the Fuel Cycle and Waste Management**

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**775 Operations & Power**

**777 Advanced Nuclear Reactors and Power Systems - I**

778 Transient Characterization in High-Temperature Gas-Cooled Reactors Using Deep Neural Networks—*Andy Rivas (NC State Univ.), G. K. Delipei (NC State Univ.), Ian Davis (X-Energy), Yvotte Brits (X-Energy), Jason Hou (NC State Univ.)*

782 Removing Safeguards and Security Roadblocks for Advanced Reactors—*Ben Cipiti (Sandia), Alison Hahn (U.S. DOE)*

785 Improving Microreactor Competitiveness Using an Economics-by-Design Approach—*Abdalla Abou-Jaoude (INL), Andrew Foss (INL), Yasir Arafat (INL), Brent Dixon (INL)*

789 NERTHUS MSR Dynamic Model—*Nicholas Dunkle (Univ. of Tennessee, Knoxville), Ondrej Chvala (Univ. of Tennessee, Knoxville), Visura Pathirana (Univ. of Tennessee, Knoxville)*

**793 Advanced Nuclear Reactors and Power Systems - II**

794 The Fast Modular Reactor (FMR) Pre-Application Regulatory Engagement Plan—*Chun Fu (General Atomics Electromagnetic Systems), Hangbok Choi (General Atomics Electromagnetic Systems), John Bolin (General Atomics Electromagnetic Systems)*

797 Monte Carlo Analysis of Coolant Stream Impurity Gamma Emissions for Fuel Failure Monitoring in Generation IV Gas-Cooled Fast Reactors—*Londrea Garrett (Univ. of Michigan), Milos Burger (Univ. of Michigan), Adam Burak (Univ. of Michigan), Victor Petrov (Univ. of Michigan), Annalisa Manera (Univ. of Michigan), Xiaodong Sun (Univ. of Michigan), Piyush Sabharwall (INL), Igor Jovanovic (Univ. of Michigan)*

801 NERTHUS MSR Neutronics Model—*Jarod Richardson (Univ. of Tenn., Knoxville), Ondrej Chvala (Univ. of Tenn., Knoxville)*

805 Joining of FeCrAl Based Alloys for Lead Cooled Fast Reactor Applications—*Brandon Bohanon (Univ. of New Mexico), Shuprio Ghosh (Univ. of New Mexico), Cemal Cakoz (Univ. of New Mexico), Khaled Talaat (Univ. of New Mexico), Md Mehadi Hassan (Univ. of New Mexico), Osman Anderoglu (Univ. of New Mexico), Keith Woloshun (LANL), Stuart Maloy (LANL), Cetin Unal (LANL)*

**809 Operations and Power: General**

810 ECHO—A Modern Approach to Equipment Health Reporting and Monitoring—*Somayaji Ayalasomayajula (Nuclear Promise X)*

813 Reactor Power Size Impacts on Nuclear Competitiveness in a Carbon-Constrained Future—*W. Neal Mann (ANL), Nicolas E. Stauff (ANL), Kathryn Biegel (ANL), Todd Levin (ANL), Jordan D. Rader (ORNL), Arantxa Cuadra (Brookhaven), Son H. Kim (PNNL)*

817 Modeling Micro-Reactor Benefits to an Existing Campus Microgrid—*A. J. H. Lee (Univ. of Illinois at Urbana-Champaign), L. Wodrich (Univ. of Illinois at Urbana-Champaign), C. Brooks (Univ. of Illinois at Urbana-Champaign), T. Kozlowski (Univ. of Illinois at Urbana-Champaign)*

821 Evaluation of Plant Control Performance in APR1400 Nuclear Power Plant—*Jong Joo Sohn (KEPCO E&C), Ung Soo Kim (KEPCO E&C), In Ho Song (KEPCO E&C), Jae Young Huh (KEPCO E&C)*

**825 Advanced Nuclear Reactors and Power Systems - III**

826 Design Uncertainty Elimination for a Mutual Inductance Level Sensor—*Duane DiCenzo (Univ. of Pittsburgh), Teddy Kent (ANL), Heng Ban (Univ. of Pittsburgh), Chris Grandy (ANL)*

829 Advanced Nuclear Industry Prepared for Future Licensing and Deployment—*Cyril W. Draffin, Jr. (US Nuclear Industry Council), Jeffery S. Merrifield (Pillsbury), Peter S. Hastings (Kairos Power)*

832 Techno-Economic Analysis of Various Small Modular Nuclear Reactors—*Anthony Asuega (Colorado State Univ.), Jason Quinn (Colorado State Univ.)*

836 Insights from Capital Cost Estimation of GENIII+ Plants—*W. Robb Stewart (MIT), Koroush Shirvan (MIT)*

**839 Energy Storage Integration with Nuclear Power Plants**

840 Comparative Reliability Study on Thermal Energy Storage Systems for Integrated Energy Systems—*Samantha Sabatino (ORNL), Askin Guler Yigitoglu (ORNL)*

- 844 Modeling of Latent Heat Thermal Energy Storage—*Amey Shigrekar (INL), Trevor Casper (Univ. of Idaho), Richard Christensen (Univ. of Idaho)*
- 848 Modeling a Lead-Cooled Fast Reactor with Thermal Energy Storage Using Optimal Dispatch and SAM—*Gabriel J. Soto (Univ. of Wisconsin-Madison), Una Baker (Univ. of Wisconsin-Madison), Brian White (Univ. of Wisconsin-Madison), Ben Lindley (Univ. of Wisconsin-Madison), Mike Wagner (Univ. of Wisconsin-Madison)*
- 852 Experimental Investigation of Chemical Heat Pumps Using Composite Pellets for Temperature Augmentation—*Aman Gupta (Univ. of Idaho), Paul D. Armatis (Oregon State Univ.), Piyush Sabharwall (INL), Brian M. Fronk (Oregon State Univ.), Vivek Utgikar (Univ. of Idaho)*
- 855 Dynamic Model of Absorption Cycle for Chemical-Absorption Heat Pump for Process Heating Applications—*Paul D. Armatis (Oregon State Univ.), Aman Gupta (Univ. of Idaho), Piyush Sabharwall (INL), Vivek Utgikar (Univ. of Idaho), Brian M. Fronk (Oregon State Univ.)*
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- 859 Reactor Physics**
- 
- 861 Reactor Physics of Advanced Reactors**
- 862 An Investigation of Three-Batch Fuel Management in a Natural Circulation Soluble Boron Free SMR—*Steven Wijaya (KAIST), Xuan Ha Nguyen (KAIST), Yonghee Kim (KAIST)*
- 866 Three-Batch Soluble-Boron-Free ATOM Core Design with Pan-Shape CSBA—*Xuan Ha Nguyen (KAIST), Steven Wijaya (KAIST), Yonghee Kim (KAIST)*
- 870 Molten Salt Reactor Kinetics in Zero Power Approximation—*Visura Pathirana (Univ. of Tenn., Knoxville), Chelsea Fontaine-Holl (Univ. of Tenn., Knoxville), Ondrej Chvala (Univ. of Tenn., Knoxville)*
- 873 Independent Assessment of Transformational Challenge Reactor Fuel Lattice—*Yeongshin Jeong (MIT), Wei Li (MIT), Koroush Shirvan (MIT)*
- 877 Alternate Design of the Bottom Reflector of the Transformational Challenge Reactor—*A. Talamo (ANL), S.N.P. Vegendla (ANL), A. Bergeron (ANL), F. Heidet (ANL), B. Ade (ORNL), B.R. Betzler (ORNL)*
- 881 Reactor Physics: General - I**
- 882 Delayed-Photoneutron Production from Beta-Ray Bremsstrahlung—*Hemantika Sengar (Amity Univ.), Yanuar Ady Setiawan (Ulsan Nat'l Institute of Science and Technology), Douglas A. Fynan (Ulsan Nat'l Institute of Science and Technology)*
- 884 Results of the Project “R&D of Fluoride-Cooled Nuclear Reactor Systems”—*Jan Uhlir (Research Centre Řež), Martin Marecek (Research Centre Řež), Martin Straka (UJV Řež), Peter Slama (COMTES FHT), Petr Toman (MICO), Milan Routner (SKODA JS)*
- 886 The 2020 and 2021 Editions of the IRPHEP Handbook—*John D. Bess (INL), Tatiana Ivanova (OECD NEA), Ian Hill (OECD NEA), Julie-Fiona Martin (OECD NEA), Lori Scott (INL)*
- 890 Consideration of Computational Options of MC2-3/DIF3D for SFR Analyses—*Changho Lee (ANL), Won Sik Yang (Univ. of Michigan)*
- 895 Reactor Analysis Methods - I**
- 896 Development of a New Serpent Capability: Superimposed Triangular Mesh Tally—*Kyle M. Ramey (Georgia Institute of Technology), Bojan Petrovic (Georgia Institute of Technology)*
- 900 Dimension-Reduced Nuclear Data Adjustment Method Based on the Bayesian Monte-Carlo Method—*Yuhei Fukui (Nagoya Univ.), Tomohiro Endo (Nagoya Univ.), Akio Yamamoto (Nagoya Univ.)*
- 904 Application of Regionwise Even-Parity Discontinuity Factor to the Multigroup Analog Monte-Carlo Method—*Yoshiki Oshima (Nagoya Univ.), Tomohiro Endo (Nagoya Univ.), Akio Yamamoto (Nagoya Univ.), Naoto Aizawa (Tohoku Univ.)*
- 908 Development of Pseudo Fission Product Generation Algorithm for Nuclear Fuel Burnup Calculations—*Kento Yanagihara (Hokkaido Univ.), Go Chiba (Hokkaido Univ.)*
- 913 NRIC Virtual Test Bed**
- 914 Overview of the Virtual Test Bed (VTB)—*Abdalla Abou-Jaoude (INL), Derek Gaston (INL), Guillaume Giudicelli (INL), Bo Feng (ANL), Cody Permann (INL)*
- 918 Coupled Griffin and Pronghorn Simulation of the Molten Salt Fast Reactor (MSFR) for the Virtual Test Bed—*Ramiro Freile (INL), Sterling Harper (INL), Guillaume Giudicelli (INL), Abdalla Abou-Jaoude (INL)*
- 922 Conjugate Heat Transfer Coupling of NekRS and MOOSE for Bypass Flow Modeling—*April J. Novak (ANL), Dillon Shaver (ANL), Bo Feng (ANL)*
- 926 Coupled Multiphysics Simulations of the Mk1-FHR in the Virtual Test Bed—*Guillaume Giudicelli (INL), Abdalla Abou-Jaoude (INL), April J. Novak (ANL)*
- 930 CFD Modeling of Molten Salt Fast Reactor Using Nek5000—*Jun Fang (ANL), Dillon Shaver (ANL), Bo Feng (ANL)*

### 933 Reactor Analysis Methods - II

- 934 Verification of Medium-Wise Multi-Group Cross Section Calculation Capability of FRENDY/MG—*Go Chiba (Hokkaido Univ.), Akio Yamamoto (Nagoya Univ.)*
- 938 Reactivity Insertion Transient Analysis for C5G7-TD Benchmark with PANDAS-MOC—*Shunjiang Tao (Purdue Univ.), Yunlin Xu (Purdue Univ.)*
- 942 Bayesian Transposition: A Practical Approach Using Nuclear Reactor Start Up Data—*Pamela A. Lopez (CNRS), Adrien Bidaud (CNRS)*
- 946 Monte Carlo Simulation of Liquid Fuel Flow in Molten Salt Reactor in the iMC Code—*HyeonTae Kim (KAIST), Yonghee Kim (KAIST)*
- 950 Adaptive Mesh Refinement in Monte Carlo Neutron Simulations—*Kristin Stolte (Texas A&M Univ.), Pavel Tsvetkov (Texas A&M Univ.)*

### 955 Progress in Molten Salt Reactor Development and Deployment: Modeling Advances, Enabling Instrumentation and Material

- 956 Considerations for NMA of Molten Salt Reactors—*Nathan Shoman (Sandia), Michael Higgins (Sandia)*
- 960 Molten Salt Reactor Source Term Methodology—*Sarah E. Creasman (Univ. of Tenn., Knoxville), T. Jay Harrison (ORNL), Lawrence H. Heilbronn (Univ. of Tenn., Knoxville)*
- 963 Preliminary Neutronics Modeling of a Molten Salt iso-Breeder Reactor—*C. Erika Moss (Univ. of Tenn., Knoxville), Ondřej Chvála (Univ. of Tenn., Knoxville), Harrison Reisinger (Univ. of Tenn., Knoxville), Alexander M. Wheeler (Univ. of Tenn., Knoxville)*
- 967 Coupled Multiphysics Simulations of Molten Salt Reactors Subjected to Earthquakes—*Chandrakanth Bolisetti (INL), Kyung Tae Kim (INL), Guillaume Giudicelli (INL), Abdalla Abou-Jaoude (INL), Som Dhulipala (INL), Paolo Balestra (INL)*
- 970 Parametric Analysis of Salt-Driven MSR Design Domains—*Dahvien V. Dean (Texas A&M Univ.), Jonathan Scherr (Texas A&M Univ.), Pavel V. Tsvetkov (Texas A&M Univ.)*

### 977 Reactor Physics Design, Validation and Operational Experience

- 978 Neutron Spectra and Correlation Coefficient Convergence When Designing a Microreactor Experiment with MCNP®/Whisper—*Alexis Maldonado (LANL), Christopher M. Perfetti (Univ. of New Mexico), Holly R. Trelue (LANL), Mikaela e. Blood (LANL)*

- 982 Testing of an Optical Fiber Based Gamma Thermometer in the Ohio State University Research Reactor—*Anthony Birri (Ohio State Univ.), Joshua Jones (Ohio State Univ.), Thomas E. Blue (Ohio State Univ.)*
- 986 The Current Status of the In-Core Testing Program for an Optical Fiber Based Gamma Thermometer at the Texas A&M University Research Reactor—*J. Tyler Gates (Texas A&M Univ.), Noah Morton (Texas A&M Univ.), Pavel V. Tsvetkov (Texas A&M Univ.)*
- 990 ACCRUE—An Integral Similarity Index in Support of Neutronic Model Validation—*Jeongwon Seo (Purdue Univ.), Hany Abdel-Khalik (Purdue Univ.), Aaron S. Epiney (INL)*
- 993 Antineutrino-Based Machine Learning Analysis for Small Reactor Composition Verification—*Matthew Dunbrack (Georgia Institute of Technology), Christopher Stewart (Univ. of California, Berkeley), Anna Erickson (Georgia Institute of Technology)*

### 997 Reactor Physics: General - II

- 998 Fidelity Sufficiency in Reactor Physics Modeling of Research Reactors with MCNP and Serpent—*Ronald Daryll E. Gatchalian (Texas A&M Univ.), Pavel V. Tsvetkov (Texas A&M Univ.)*
- 1002 SFR Support using the TRACE/PARCS Coupled Code System—*Oscar Lastres (Purdue Univ.), Yunlin Xu (Purdue Univ.)*
- 1006 Investigating the AGN-201M Reactor's Unique Dominance Ratio—*Mekiel Olguin (Univ. of New Mexico), Christopher Perfetti (Univ. of New Mexico), Forrest Brown (Univ. of New Mexico)*
- 1010 Single- and Multi-Physics Models of Advanced Reactors in the Virtual Test Bed—*Bo Feng (ANL), Jun Fang (ANL), Thanh Hua (ANL), Nicolas Stauff (ANL), April Novak (ANL), Ling Zou (ANL), Rui Hu (ANL), Paolo Balestra (INL), David Reger (INL), Nicolas Martin (INL), Guillaume Giudicelli (INL), Abdalla Abou-Jaoude (INL)*

### 1015 Reactor Analysis Methods - III

- 1016 Revisit of the Dancoff-Based Wigner-Seitz Approximation for Pointwise and Multigroup Resonance Self-Shielding Calculations in SCALE—*Kang Seog Kim (ORNL), Andrew M. Holcomb (ORNL), Matthew A. Jessee (ORNL), William A. Wieselquist (ORNL)*
- 1020 Serpent/PARCS Calculation for VVER-1000 Core with TriPEN-9 Method—*Muhammad Rizki Oktavian (Purdue Univ.), Oscar Lastres (Purdue Univ.), Yunlin Xu (Purdue Univ.)*
- 1024 In-situ APEC Leakage Correction Based on 2x2 Nodal Analysis for 2-D Macroscopic Depletion Calculation—*Seongdong Jang (KAIST), Yonghee Kim (KAIST)*

- 1028 An Introduction to REX: A Fuel-Clad Thermo-Mechanical Analysis Tool for Advanced Reactor Concepts—*Nicholas J. Fassino (Georgia Institute of Technology), Anna Erickson (Georgia Institute of Technology)*
- 1032 A Feasibility Study of SPH Factors for a Heterogeneous Geometry Problem—*Zhaopeng Zhong (ANL), Changho Lee (ANL)*

### 1037 Reactor Physics of Micro Reactors for Terrestrial and Space Applications

- 1038 Fundamental Study and Demonstration of Core Monitoring by Ex-Core Detectors Based on the Power Correlation Between Fuel Regions—*Rei Kimura (Toshiba Energy Systems and Solutions), Yuki Nakai (Toshiba Energy Systems and Solutions), Satoshi Wada (Toshiba Energy Systems and Solutions), Atsushi Sakon (Kindai Univ.), Tadafumi Sano (Kindai Univ.)*
- 1041 Conceptual Development Methods for Heat Pipe Microreactors—*Mikaela e. Blood (LANL), Alexis Maldonado (LANL), D. V. Rao (LANL)*
- 1045 Reactivity Control of Uranium Nitride Fueled Micro-Reactors with Burnable Poisons and Control Sliders—*Aaron She (Georgia Institute of Technology), Bojan Petrovic (Georgia Institute of Technology)*
- 1049 New Burnable Absorber Loading Design in SMR No-Onsite Refueling Strategy Performance Assessment—*Gray Chang (JFoster and Assoc.), Mie Hiruta (J Foster and Assoc.), Julie Foster (JFoster and Assoc.), Jim Harrell (Zachry Nuclear)*
- 1053 Design Analysis of a Micro Heat Pipe Cooled Reactor—*Luay Alawneh (Texas A&M Univ.), Rodolfo Vaghetto (Texas A&M Univ.), Yassin Hassan (Texas A&M Univ.), Harold G. White (Limitless Space Institute)*

### 1057 Advances In Enabling Technologies and Innovation in Nuclear Nonproliferation

#### 1059 Wigner Award Lecture

#### 1061 Research Reactors in Support of Advanced Reactors R&D

#### 1063 Advances in Design Through Advanced Reactor Development Program

## 1065 Radiation Protection & Shielding

### 1067 Radiation Protection and Shielding: General - I

- 1068 Million Person Study of Low-Dose Radiation Health Effects—*John D. Boice, Jr. (National Council on Radiation Protection and Measurements), Lawrence T. Dauer (Memorial Sloan Kettering Cancer Center)*
- 1072 EPR Dosimetry of Tooth Enamel for Low Dose Epidemiological Studies—*Fatma M. Abdelrahman (NC State Univ.), Robert B. Hayes (NC State Univ.)*
- 1076 Evaluation of Polyethylene and Blank Pulsed Sphere Experiments Using Deuteron Transport Feature in COG—*Soon S. Kim (LLNL), David P. Heinrichs (LLNL), Edward M. Lent (LLNL)*
- 1079 Gamma Shielding Assessment of Metal Oxide Infused Conformal Coatings—*Sam Hanson (NC State Univ.), Radek Pudelko (NC State Univ.), Robert B. Hayes (NC State Univ.)*

### 1083 Applications of Radiation Transport and Dosimetry in Atmosphere and Space

- 1084 Breakdown of Assumptions for 1D Radiation Transport in Air: Considerations for Detector Response—*M.L. Mika (Univ. of Florida), L. M. Rolison (LANL), M. L. Fensin (LANL)*
- 1088 Outlook on Adjoint Radiation Transport Tool for Active-Passive Shielding Analysis—*Luke Stegeman (Kansas State Univ.), Stojan M. Madzunkov (Jet Propulsion Laboratory), Dan Fry (NASA Lyndon B. Johnson Space Center), Amir A. Bahadori (Kansas State Univ.)*
- 1093 Computational Assessment of Single Event Upset Rates for 55 SRAMs Assumed on Board the Aircraft Flying from Taipei to Various Destinations—*Zi-Yi Yang (Institute of Nuclear Energy Research), Yen-Ting Wen (National Tsing Hua Univ.), Rong-Jiun Sheu (National Tsing Hua Univ.)*

### 1097 Computational Methods for Radiation Protection and Shielding

- 1098 Calculating the Differential Physics of Neutron Transport in Oxygen Based on Integral Experiments from the Livermore Pulsed Sphere Program—*L. M. Rolison (LANL), M. L. Fensin (LANL), K. C. Kelley (LANL), S.S. McCready (LANL)*
- 1102 Investigation of a Portable Active Neutron Interrogation System Using MCNP—*Sanchit Sharma (Kansas State Univ.), Diego Laramore (Kansas State Univ.), William L. Dunn (Kansas State Univ.), Walter J. McNeil (Kansas State Univ.), Amir A. Bahadori (Kansas State Univ.)*



- 1106 Impact of Fission Spectrum Modeling on Aging Estimations of Pressurized Water Reactor Vessels—*Romain Vuiart (IRSN), Patrizio Console Camprini (ENEA), Kenneth W. Burn (ENEA), Mariya Brovchenko (IRSN), Julien Taforeau (IRSN), Eric Dumonteil (CEA)*
- 1110 Sensitivity of Pressurized Water Reactors Vessels Aging to Fuel Composition—*Benjamin Benedet (IRSN), Romain Vuiart (IRSN), Julien Taforeau (IRSN), Mariya Brovchenko (IRSN)*
- 1114 A (Meta-)Model Driven Approach to MCNP Modeling and Editor Services—*Peter J. Kowal (Rensselaer Polytechnic Institute), Jonathan A. Eugenio (Rensselaer Polytechnic Institute), Kurt A. Dominesey (Rensselaer Polytechnic Institute), Camden E. Blake (Rensselaer Polytechnic Institute), Robert A. Lefebvre (ORNL), Forrest B. Brown (Univ. of New Mexico), Wei Ji (Rensselaer Polytechnic Institute)*
- 1119 Radiation Protection and Shielding: General - II**
- 1120 Preliminary Material Property Characterization of Infused Conformal Coats for Shielding Application—*Sam Hanson (NC State Univ.), Radek Pudelko (NC State Univ.), Robert B. Hayes (NC State Univ.)*
- 1125 Evaluating Uncertainty in Shielding Worth of Metal Oxide Infused Conformal Coatings Using MCNP—*Radek Pudelko (NC State Univ.), Sam Hanson (NC State Univ.), Robert B. Hayes (NC State Univ.)*
- 1129 Preliminary Work Towards In-Situ Sample Specific Dose Response Calibration for EPR Dosimetry—*Fatma M. Abdelrahman (NC State Univ.), Robert B. Hayes (NC State Univ.)*
- 1133 Retrieval and Characterization of Plutonium-Beryllium Source for New Irradiation Facility—*Codey Olson (Univ. of Utah), William Bates (Univ. of Utah), Edward Cazalas (Univ. of Utah)*
- 1137 Evaluation of Oak Ridge National Laboratory Health Physics Research Reactor Operation Data for Criticality Accident Alarm System Benchmark Creation—*Mathieu N. Dupont (ORNL), Cihangir Celik (ORNL)*
- 1141 Workshop: P-Study Tool**
- 1142 Using MCNP Pstudy to Propagate Uncertainty in Metal Oxide Infused Conformal Coatings Experiment—*Radek Pudelko (NC State Univ.), Sam Hanson (NC State Univ.), Robert B. Hayes (NC State Univ.)*
- 1147 Thermal Hydraulics**
- 1149 Experimental Thermal Hydraulics - I**
- 1150 Vapor Film Collapse and Quench Front Propagation Analysis Using Optical Fiber Temperature Sensors—*Paul Hurley (Virginia Polytechnic Institute and State Univ.), Abdulla Alblooshi (Virginia Polytechnic Institute and State Univ.), Kyung Mo Kim (Virginia Polytechnic Institute and State Univ.), Juliana P. Duarte (Virginia Polytechnic Institute and State Univ.)*
- 1154 Inlet and Outlet Effects on the Pressure Drop in a High Aspect Ratio Pebble Bed—*Robert Muyschondt (Texas A&M Univ.), Khoi Ngo (Texas A&M Univ.), Blake Maher (Texas A&M Univ.), Abdulaziz Almathami (Texas A&M Univ.), Thien Nguyen (Texas A&M Univ.), Yassin Hassan (Texas A&M Univ.), N.K. Anand (Texas A&M Univ.)*
- 1158 Study of Cross-Flow Profiles in a 5x5 Rod Bundle with Channel-Type Spacer Grid: A Combination of Optical Techniques, 3D-Printing and Statistical Analysis—*Camila F. Matozinhos (Texas A&M Univ.), Gabriel C. Q. Tomaz (Texas A&M Univ.), Rodolfo Vaghetto (Texas A&M Univ.), Yassin Hassan (Texas A&M Univ.)*
- 1162 Performance Qualification Measurements Using New PEPT Facility for Pebble Bed Reactor Research—*Cody S. Wiggins (Virginia Commonwealth Univ.), Lane B. Carasik (Virginia Commonwealth Univ.)*
- 1166 A Comparative Study of FeCrAl and Zircaloy Claddings for Steady-State Subcooled Flow Boiling Experiments—*Mingfu He (Univ. of New Mexico), Minghui Chen (Univ. of New Mexico)*
- 1171 Computational Thermal Hydraulics - I**
- 1172 A New Two Fluid Model Verification Problem—*Raghav Ram (Purdue Univ.), Krishna Chetty (Advanced Cooling Technologies), Alejandro Clausse (CNEA-CONICET), Martin Lopez-de-Bertodano (Purdue Univ.)*
- 1175 Development of Computational Models for Molten Salt Reactor (MSR) Using MOOSE Code—*Anthony G. Bowers Jr. (Univ. of Massachusetts, Lowell), Subash L. Sharma (Univ. of Massachusetts, Lowell)*
- 1179 Recalibration in the Fully Turbulent Regime of the UCTD Correlation for the Friction Factor in Wire-Wrapped Rod Bundles Using Multi-Objective Genetic Algorithms—*Gabriel C.Q. Tomaz (Texas A&M Univ.), Y.M. Chen (Texas A&M Univ.), Rodolfo Vaghetto (Texas A&M Univ.), Yassin Hassan (Texas A&M Univ.)*
- 1183 Development of Modeling Techniques for a Reactor Core Cooling System Facility with TRACE—*Alessandro Vanni (TAMU), Rodolfo Vaghetto (TAMU), Yassin A. Hassan (TAMU)*

## 1187 General Thermal Hydraulics

- 1188 Flow Rate and Pressure Drop Measurements in a Molten Salt Test Loop—*Ojasvin Arora (Texas A&M Univ.), Blain Lancaster (Texas A&M Univ.), Se Ro Yang (Texas A&M Univ.), Rodolfo Vaghetto (Texas A&M Univ.), Yassin Hassan (Texas A&M Univ.)*
- 1192 Pressure Drop Measurements and Spacer Grid Loss Coefficient Estimation for a 5x5 Rod Bundle in the Automated Critical Heat Flux Test Facility—*Craig Menezes (Texas A&M Univ.), William M. Headley (Texas A&M Univ.), Rodolfo Vaghetto (Texas A&M Univ.), Yassin A. Hassan (Texas A&M Univ.)*
- 1196 Load Following Analysis of the Holos-Quad Micro Reactor—*Anton Moiseyev (ANL), Claudio Filippone (HolosGen)*

## 1201 Computational Thermal Hydraulics - II

- 1202 LOFWOS Simulations of the FFTF Using SAM—*Brent Hollrah (Texas A&M Univ.), Rodolfo Vaghetto (Texas A&M Univ.), Yassin Hassan (Texas A&M Univ.)*
- 1205 Reactor Cavity Cooling System Computational Fluid Dynamic Analysis—*Michael Gorman (TAMU), Enver I. Koyluoglu (TAMU), Rodolfo Vaghetto (TAMU), Yassin A. Hassan (TAMU)*
- 1209 Machine Learning Approach for Prediction of High-Resolution Quenching Heat Transfer—*Kyung Mo Kim (Virginia Polytechnic Institute and State Univ.), Paul Hurley (Virginia Polytechnic Institute and State Univ.), Juliana Pacheco Duarte (Virginia Polytechnic Institute and State Univ.)*
- 1213 Analysis of a Sensitivity on the Initial RCS Conditions in the Major Non-LOCA Accidents—*Iluk Lee (Korea Institute of Nuclear Safety), Sarah Kang (Korea Institute of Nuclear Safety)*

## 1217 Young Professional Thermal Hydraulics Research Competition - I

- 1218 Scaled Subassembly Approach for Thermal Hydraulic Modeling of a Prismatic Gas Cooled Reactor using SAM—*Brent Hollrah (ANL), Ling Zou (ANL), Claudio Filippone (HolosGen)*
- 1222 CFD Analysis of Cartridge Experiment Natural Circulation—*Jaden Miller (Oregon State Univ.), Trevor Kent Howard (Oregon State Univ.), Musa Moussaoui (Oregon State Univ.), Wade Marcum (Oregon State Univ.)*
- 1226 Predicting the Pressure Drop In Hexagonal Wire-Wrapped Rod Bundles Using a Data-Driven Artificial Neural Network—*Hansol Kim (Texas A&M Univ.), Yu Min Chen (Texas A&M Univ.), Rodolfo Vaghetto (Texas A&M Univ.), Yassin Hassan (Texas A&M Univ.)*

- 1230 Transient Pool Boiling Under Subcooled Conditions—*Yuan Gao (Univ. of Pittsburgh), Ezekiel Villarreal (Univ. of Pittsburgh), Ursula Zangrilli (Univ. of Pittsburgh), Heng Ban (Univ. of Pittsburgh)*

- 1234 Novel Distributed Flow Velocity Using a Temperature Fiber Optic in Gas Flow—*Arturo Cabral (Virginia Commonwealth Univ.), Darius Lisowski (ANL), Lane B. Carasik (Virginia Commonwealth Univ.)*

## 1239 Experimental Thermal Hydraulics - II

- 1240 Experimental Comparison of Core Power During PCC Accidents in a High Temperature Gas Reactor—*T. M. Moore (Oregon State Univ.), B. G. Woods (Oregon State Univ.)*
- 1244 Temperature Measurements of a Natural Convection Jet in the Hemispherical Upper Plenum of a Scaled High Temperature Gas Cooled Reactor—*Blake Maher (Texas A&M Univ.), Thien Nguyen (Texas A&M Univ.), Yassin Hassan (Texas A&M Univ.)*
- 1248 An Experimental Investigation on the Hydraulic Characteristics of Concentric Annular Type Wick Structure of Heat Pipes for Micro-Reactor—*Joseph Seo (Texas A&M Univ.), Daegeun Kim (Texas A&M Univ.), Hansol Kim (Texas A&M Univ.), Yassin A. Hassan (Texas A&M Univ.)*
- 1252 Experimental and Investigation of Air Flow Through a Saturated Porous Medium Using X-ray—*Camila F. Matozinhos (Texas A&M Univ.), Gabriel C. Q. Tomaz (Texas A&M Univ.), Rodolfo Vaghetto (Texas A&M Univ.), Yassin Hassan (Texas A&M Univ.)*
- 1255 High Speed PIV Measurements in Water Hammer—*Roberto Capanna (George Washington Univ.), Philippe M. Bardet (George Washington Univ.)*

## 1259 Young Professional Thermal Hydraulics Research Competition - II

- 1260 A Numerical Method of Computing Wigner Energy Release Rate of Irradiated Graphite—*Dezhi Dai (ANL), Landon Brockmeyer (ANL), Roberto Ponciroli (ANL)*
- 1263 Direct Numerical Simulation of Supercritical CO<sub>2</sub> Flow: Development of a Plugin for the REFPROP/ PROPATH Properties Database in the Spectral Element Code NekRS—*Tri Nguyen (Penn State Univ.), Elia Merzari (Penn State Univ.), Haomin Yuan (ANL)*
- 1267 Inertial Coupling Implementation in the DFM—*Paul W. Stockett (Purdue Univ.), Alejandro Clause (CNEA-CONICET), Martin Lopez-De-Bertodano (Purdue Univ.)*

- 1270 Experimental Investigation of Debris Bed Cooling Using Seawater—Zayed Ahmed (Kansas State Univ.), Steven Eckels (Kansas State Univ.), Hitesh Bindra (Kansas State Univ.)
- 1275 Young Professional Thermal Hydraulics Research Competition - III**
- 1276 Design of a Two-Phase Flow Facility for Investigation of Droplet Entrainment in Countercurrent Annular Flow—Haonong Du (Rensselaer Polytechnic Institute), Ilyas Yilgor (Rensselaer Polytechnic Institute), Shanbin Shi (Rensselaer Polytechnic Institute)
- 1280 Nek5000 Turbulence Model for the Interaction of Parallel Jets—John Acierno (Penn State Univ.), Elia Merzari (Penn State Univ.), Emilio Baglietto (MIT)
- 1284 High-Spatio-Temporal Measurement of Turbulent Wall Shear Stress in Water—Charles Fort (George Washington Univ.), Philippe M. Bardet (George Washington Univ.)
- 1287 Experimental Investigation of Two-Phase Natural Circulation and Void Fraction Characteristics with Seawater—Broderick Sieh (Kansas State Univ.), Zayed Ahmed (Kansas State Univ.), Molly Ross (Kansas State Univ.), Steven Eckels (Kansas State Univ.), Hitesh Bindra (Kansas State Univ.)
- 1291 Advanced Reactor Thermal Hydraulics - I**
- 1292 Ex-Vessel Heat Sinks for Fission Battery Decay-Heat Removal—Charles Forsberg (MIT), Ruairidh Macdonald (MIT)
- 1296 Simulation and Analysis of a Prototypical Bubble Separator for Molten Salt Reactor—Jiaqi Chen (Univ. of Illinois, Urbana-Champaign), C. S. Brooks (Univ. of Illinois, Urbana-Champaign)
- 1300 Flattening the Radial Temperature Profile Across the Transformational Challenge Reactor Core—Casey J. Jesse (INL), Justin Weinmeister (ORNL), Prashant Jain (ORNL), Brian J. Ade (ORNL)
- 1304 MARS-KS 3D Full Core Subchannel Analysis Module Development Using CTF Code: Implicit Pressure Coupling and Parallel Processing—N.H. Hoang (Environment and Energy Technology), Y.K. Kwack (Environment and Energy Technology), Y.S. Kim (Environment and Energy Technology), J.H. Kim (Environment and Energy Technology), S.K. Sim (Environment and Energy Technology)
- 1309 Young Professional Thermal Hydraulics Research Competition - IV**
- 1310 Surface Roughness Modeling for Transformational Challenge Reactor Fuel Form—Justin Weinmeister (ORNL)
- 1314 System-Level Simulation of the PBMR-400 Core with SAM—Zhiee Jhia Ooi (ANL), Ling Zou (ANL), Thanh Hua (ANL), Rui Hu (ANL)
- 1318 CFD Investigation of Thermal Behavior of NBSR Thermal Shield Model Under Various Cooling Conditions—Manikanta Grandhi (Texas A&M Univ.-Kingsville), Xue Yang (Texas A&M Univ.-Kingsville)
- 1323 Computational Thermal Hydraulics - III**
- 1324 Friction Factor Evaluation for Flow over a Rectangular Cylinder Using DNS Approach—Vincent Dallura (NC State Univ.), Anna Iskhakova (NC State Univ.), Igor A. Bolotnov (NC State Univ.)
- 1328 Fluid-Structure Interaction Analysis of MITR LEU Fuel Plate—Guanyi Wang (ANL), Cezary Bojanowski (ANL), Akshay Dave (ANL), David Jaluvka (ANL), Lin-wen Hu (MIT), Erik Wilson (ANL)
- 1332 Preliminary Thermal-Hydraulics Analysis of SFR Assembly Windows Under Sodium Boiling Transients—Ran Zhang (Xi'an Jiaotong Univ.), Carlo Fiorina (Ecole Polytechnique Federale de Lausanne), Stefan Radman (Ecole Polytechnique Federale de Lausanne), Suizheng Qiu (Xi'an Jiaotong Univ.)
- 1336 Validation of RANS CFD Models Based on Pressure Drop and Velocity for a 61-Pin Wire-Wrapped Fuel Bundle—Octavio Bovati (Texas A&M Univ.), Rodolfo Vaghetto (Texas A&M Univ.), Yassin Hassan (Texas A&M Univ.)
- 1340 Lagrangian CFD Analyses of Airborne Particles from Dropped Shipping Containers for Use in DOE M441.1-1 Calculations—Extended Analyses of Can Impact—M. Alsharif (Consolidated Nuclear Security), S. M. McGuffie (Porter McGuffie)
- 1345 Advanced Reactor Thermal Hydraulics - II**
- 1346 SAM Code Validation of Natural Convection in Molten Salt—Jadyne Reis (Texas A&M Univ.), Michael Gorman (Texas A&M Univ.), Brent Hollrah (Texas A&M Univ.), Rodolfo Vaghetto (Texas A&M Univ.), Yassin Hassan (Texas A&M Univ.)
- 1349 Validation Effort for the OSU HTTF PG-28 Test Using RELAP5-3D—Joshua K. Halsted (Oregon State Univ.), Izabela Gutowska (Oregon State Univ.)
- 1352 Preliminary Analysis of Journal Bearings for Molten Salt Pumps—Yuqi Liu (Univ. of New Mexico), Minghui Chen (Univ. of New Mexico)
- 1356 Preliminary Thermal-Hydraulic Analysis for Heat Pipe Irradiation Test in the MIT Reactor—Aaron S. Epiney (INL), David M. Carpenter (MIT), Justin Johnson (INL)

**1361 Computational Thermal Hydraulics - IV**

- 1362 Assessment of Post-Accident Particle Agglomeration in an iPWR Containment Vessel—*Rohan Biwalkar (Pittsburgh Technical), Sola Talabi (Pittsburgh Technical)*
- 1366 An Evaluation of Turbulent Penetration Length in the APR1000 Surge Line—*Younglong Lee (KEPCO Engineering and Construction), Kun Woo Yi (KEPCO Engineering and Construction), Kyong In Ju (KEPCO Engineering and Construction)*
- 1370 A Numerical Verification of Conjugate Heat Transfer and Thermal Radiation Solvers—*Dezhi Dai (ANL), Haomin Yuan (ANL)*
- 1374 Sensitivity Study to Investigate the Influence of Turbulence Closure Models on Estimated Shear Stresses on Rough Specimens Exposed to Flowing Molten Lead—*Khaled Talaat (Univ. of New Mexico), Osman Anderoglu (Univ. of New Mexico)*
- 1378 Simulations of the Scaled Reactor Cavity Cooling System Experimental Facility with RELAP5/SCDAPSIM System Code—*Mustafa Pehlivan (Texas A&M Univ.), Alessandro Vanni (Texas A&M Univ.), Rodolfo Vaghetto (Texas A&M Univ.), Yassin A. Hassan (Texas A&M Univ.)*

**1383 High Performance Computing Applications in Thermal Hydraulics**

**1385 Thermal Hydraulics Issues in Licensing of Advanced Reactors**

**1387 Young Members Group**

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**1389 Getting Involved with Policymaking: ANS Congressional Fellowship**

**1391 Inside Secrets: What Mentors Look for in Mentees**

**1393 Working in Nuclear Abroad**

**1395 Pitch Your PhD**

**1397 Moving Up: From Technical to Management**