

# **Physics of Reactors 2016 (PHYSOR 2016)**

Unifying Theory and Experiments in the  
21st Century

Sun Valley, Idaho, USA  
1 - 5 May 2016

Volume 1 of 6

ISBN: 978-1-5108-2573-4

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<b>Use of Quasi-Monoenergetic Laser Compton Scattering Beam for Enhanced Transmutation of Nuclear Waste</b>	<b>1132</b>
Haseeb ur Rehman, Jiyoung Lee, Yonghee Kim (KAIST)	
<b>PWR MOx Fuel Physics Models for the Dynamic Fuel Cycle Simulation Tool CLASS</b>	<b>1142</b>
F. Courtin, B. Leniau, B. Mouginot, N. Thiolliere (Subatech), X. Doligez, A. Somaini (IPNO), A.	

Bidaud (LPSC)

### **Noise-Based Methods Reactor Analysis**

Organizers: Thomas Sutton (KAPL), Deokjung Lee (UNIST)

Cochairs: Andrew Siegel (ANL), Imre Pazsit (Chalmers Univ)

**A New Monte Carlo Method for Neutron Noise Calculations** 1152

Amélie Rouchon, Andrea Zoia, Richard Sanchez (Cea-Saclay)

**On Causality Analysis of Nuclear Reactor Noise using Partial Directed Coherence** 1162

D. Chionis (Paul Scherrer Inst/Swiss Federal Inst of Technology in Lausanne), A. Dokhane, H. Ferroukhi (Paul Scherrer Inst), A. Pautz (Paul Scherrer Inst/Swiss Federal Inst of Technology in Lausanne)

**Analysis of Critical and Subcritical Neutron Noise Experiments in MINERVE using Advanced Noise Techniques** 1172

Erez Gilad (Ben-Gurion University of the Negev), Assaf Kolin, Oleg Rivin, Chen Dubi (NRCN), Benoit Geslot, Patrick Blaise (CEA)

**The Effect of the Correlation Length on the "Propagation" Neutron Noise Generated Inside a Core in Light Water Reactors** 1186

V. Dykin, I. Pázsit (Chalmers Univ of Techn)

### **Nodal Methods for Reactor Analysis—I**

Organizers: Thomas Downar (Univ of Michigan), Kent Welter(NuScale Power)

Cochairs: Thomas Downar (Univ of Michigan), Zheng Youqi (UNIST)

**Variational Nodal Method Fission-Source Iteration Acceleration using the Partitioned-Matrix Technique** 1193

Yunzhao Li, Boning Liang, Hongchun Wu, Liangzhi Cao (Xi'an Jiaotong Univ)

**Microscopic Depletion with the Correction of Microscopic Cross Sections in Nodal Diffusion Code DYN3D** 1205

Y. Bilodid, E. Fridman, S. Kliem (HZDR), D. Kotlyar, E. Shwageraus (Univ of Cambridge)

**Multi-Group GMRES Algorithm for the Exponential Fuction Expansional Nodal SP3 Method** 1215

Wen Yang, Hongchun Wu, Yunzhao Li, Liangzhi Cao (Xi'an Jiaotong Univ)

**Nodal Diffusion Methods: Understanding Numerous Unpublished Details** 1227

Kord S. Smith (MIT)

### **Experiments—II**

Organizers: John Bess (INL), Arzu Alpan (Westinghouse), Cheolho Pyeon (Kyoto Univ)

Cochairs: John Bess (INL), Kazufumi Tsujimoto (JAEA)

**Nuclear Radiation Heating Measurements in the University of Wisconsin Nuclear Reactor** 1242

Edward Kent, Laura Bartol, Paul Brooks, Kyle W. Schmalzer, Reem Rashed Ibrahim Rashed Almehisni, Robert Agasie Mark H. Anderson (Univ of Wisconsin, Madison), Timothy H. Trumbull, Edwin J. Grant (KAPL)

**Benchmark Developmentfor Treat Minimum Critical Mass Core Loading to Support Validation of Treat Operations** 1251

John D. Bess, Benjamin M. Chase, James R. Parry (INL)

**Benchmarking of the Graphite and Fluoride Salt Insertions in LR-0 Reactor** 1259

Evzen Losa, Michal Košťál, Vojtěch Rypar, Martin Schulc, Evžen Novák, Bohumil Jánský (Research Centre Řež), Martin Veškrna, Filip Mravec, Zdeněk Matěj, František Cvachovec (Masaryk Univ)

**A New Approach to Nondestructive Testing of Fuel Column under Irradiation** 1271

E. Ryabikovskaya, V. Surin (National Research Nuclear Univ MEPhI)

**Multi-Physics Reactor Simulations—III**

Organizers: Wei Ji (RPI), Cassiano De Oliveira (Unv of New Mexico), Mark DeHart (INL)

Cochairs: Chang Ho Lee (ANL), James Dyrda (OECD)

**Three-Dimensional Modeling of Hydrogen and Hydride Distribution in Zirconium Alloy Cladding using High-Fidelity Multi-Physics Simulations** 1281

M. Mankosa (Penn State), D. Walter (Univ of Michigan), K. Ivanov, M. Avramova,(NCSU), A. Manera, V. Petrov(Univ of Michigan), R. Williamson, S. Novascone (INL)

**AP1000® PWR Cycle 1 HFP Depletion Simulations with VERA-CS** 1292

Fausto Franceschini, David A. Salazar, Mohamed Ouisloumen (Westinghouse), Andrew T. Godfrey, Shane G. Stimpson, Benjamin S. Collins (ORNL), Cole A.Gentry (ORNL/Univ of Tennessee)

**Simulation of CRUD-Induced Power Shift using the VERA Core Simulator and MAMBA** 1306

Benjamin Collins, Robert Salko (ORNL), Shane Stimpson, Kevin T. Clarno, Andrew Godfrey(ORNL), Scott Palmtag (Core Physics), Jeffery Secker (Westinghouse), Brian Kendrick (LANL), Rosemary Montgomery (TVA)

**Coupled Neutronics and Thermal-Hydraulics Calculation Code Development for Molten Salt Reactor** 1317

Hongchun Wu, Kun Zhuang, Liangzhi Cao, Yunzhao Li, Tianliang Hu (Xi'an Jiaotong Univ)

**APOLLO Validation**

Organizers: John Bess (INL), Arzu Alpan (Westinghouse), Cheolho Pyeon (Kyoto Univ)

Chairs: Zain Karriem (INL), Evgeny Ivanov (IRSN)

**Improvement of the Verification and Validation Methodology for the New CEA** 1327

**APOLLO3® Neutronic Code**

V. Jouault, J.-M. Palau, G. Rimpault, P. Archier, V. Pascal, B. Roque, J.-F. Vidal (CEA)

**Development and Validation of a New APOLLO2-Based Calculation Scheme Dedicated to ISABELLE1 Ex-Core Rod Irradiations in the OSIRISMTR Reactor** 1337

Thibault Daullé, F. Chevallier, F. Malouch (CEA)

**Validation of the New Code Package APOLLO2.8 for Accurate BWR Calculations** 1347

A. Santamarina, P. Blaise, P. Leconte, C. Vaglio, J. F. Vidal(CEA)

**Validation of the APOLLO2.8 Code Package for the Calculation of Effective Kinetics Parameters and the Reactivity Versus Reactor Period Relationship** 1357

P. Leconte, G. Truchet,A. Santamarina, P. Blaise (CEA)

**Sub-Critical Systems—I**

Organizers: Massimiliano Fratoni (Univ of California, Berkeley), Won Sik Yang (Purdue Univ) Takanori Kitada

(Osaka Univ)

Cochairs: Margaret Marshall (INL), Adimir Dos Santos (Inst de Pesquisas Energéticas e Nucleares)

**Experimental Benchmarks on Subcriticality in Accelerator-Driven System with 100 MeV Protons at Kyoto University Critical Assembly** 1367

Cheol Ho Pyeon, Masao Yamanaka, Yoshiyuki Takahashi (Kyoto Univ)

**Deterministic Analyses of the Phase-I Kinetics Experiments in the KUCA Subcritical A-Core Configurations** 1373

F. Gabrielli, A. Rineiski (KIT), A. Talamo, Y. Gohar (ANL), C. H. Pyeon (Kyoto Univ)

**Analysison the Effect of High Energy Neutron Source in ADS Neutronics Calculation** 1383

Y. Q. Zheng, X. Z. Li, H. C. Wu (Xi'an Jiaotong Univ)

**Analysis of Subcritical PWR and AGR Cores using WIMS and PANTHER** 1392

Paul Bryce, Martin Knight, Chris Eatwell (EDF Energy)

## Tuesday, May 3, 2016, 10:10 A.M.

### Reactor Analysis Methods—I

Organizers: Thomas Sutton (KAPL), Deokjung Le (UNIST)

Cochairs: Chang Ho Lee (ANL), Guy Marleau (École Polytechnique de Montréal)

**Determination of the Reflector Parameter Through Data Assimilation with the COCAGNE Calculation Code using aTRIPOLI 4 Reference Simulation on KAIST Benchmark** 1402

J. P. Argaud, B. Bouriquet, A. Calloo, E. Luis (EDF R&D)

**Multilevel Quasidiffusion Method with Multiplicative Corrections for Eigenvalue Neutron Transport Problems** 1412

Luke R. Cornejo, Dmitriy Y. Anistratov (NCSU)

**The IRSN ORION Project: Development of New Capabilities for Neutronics Deterministic Simulations Dedicated to Safety Analysis** 1422

S. Pignet, F. Bernard, V. Salino, J. Taforeau (IRSN), A. Hébert (Ecole Polytechnique de Montreal), A. Bruneau(C-S)

**Application of the Method of Manufactured Solutions to the 1D  $S_N$  Equation** 1434

Jipu Wang, William R. Martin (Univ of Michigan), Benjamin Collins (ORNL)

**Experiment Informed Neutron Transport Model of TRIGA Irradiation Location** 1452

James B. Tompkins, Ryan G. McClarren (Texas A&M)

### Cross Section Methods for Reactor Analysis

Organizers: Thomas Sutton (KAPL), Deokjung Lee (UNIST)

Cochairs: Rachel Slaybaugh (Univ of California, Berkeley), Eugene Shwageraus (Cambridge Univ)

**Use of a Line of Pincells to Refine Discontinuity Factors and Group Structure for MOX/UO<sub>2</sub> Modelling in the Embedded Supercell Methodology** 1462

Martin Knight, Paul Bryce, Tom Taylor (EDF Energy)

**Students' "Resonance Broadening" to Teaching or How to Improve Students' Learning using Flipped Classrooms** 1471

C. Demazière, C. Stöhr, T. Adawi (Chalmers Univ of Techn)

**Embedded Self-Shielding Method Applied to Doubly Heterogeneous Fully Ceramic Micro-Encapsulated Fuels** 1483

Kang-Seog Kim, Jianwei Hu (ORNL), Cole A. Gentry (Univ of Tennessee)

**Predictions of PWR Cores using PARAGON2 Based on Ultra-Fine Energy Mesh Cross-Sections Library** 1495

Mohamed Ouisloumen, Ho Q. Lam, Harish C. Huria (Westinghouse)

**Temperature and Temperature Reactivity Feedback Sensitivity Calculations for the Transient Reactor Test Facility (TREAT)** 1511

D. C. Kontogeorgakos, H. M. Connaway, D. D. Papadias, A. E. Wright (ANL)

### **Recent Developments in Monte Carlo Codes and Methods— I**

Organizer: Jaakko Leppänen (VTT Technical Research Centre of Finland)

Chairs: Benoit Forget (MIT), Jaakko Leppänen (VTT Technical Research Centre of Finland)

**Approximate Mean Free Path Based Kernel Density Estimators for Reaction Rates in Reactor Physics Problems** 1522

Timothy P. Burke, Brian C. Kiedrowski, William R. Martin (Univ of Michigan)

**Integrated Decay Source Capability For Large-Scale Monte Carlo Radiation Transport Calculations** 1532

David P. Griesheimer, Stephen C. Marin (BAPL), Paul K. Romano (ANL), Mark H. Stedry (KAPL)

**Expanding the use of Serpent 2 to Fusion Applications: Development of a Plasma Neutron Source** 1544

Paula Sirén, Paula, Jaakko Leppänen (VTT Technical Research Centre of Finland)

**New Interpolation Capabilities for Thermal Scattering Data in Serpent2** 1556

Tuomas Viitanen, Jaakko Leppänen (VTT Technical Research Ctr of Finland)

**Delayed Neutron Emission Model for Time Dependent Simulations with the Serpent 2 Monte Carlo Code—First Results** 1568

V. Valtavirta (VTT Technical Research Ctr of Finland), M. Hessian (RWTH Aachen), J. Leppänen (VTT Technical Research Ctr of Finland)

### **Research and Test Reactor Analysis**

Organizers: Mark DeHart (INL), Benoit Dionne (ANL)

Cochairs: Benoit Dionne (ANL), Luka Snoj (Jozef Stefan Inst)

**Core Design Studies for a Low-Enriched Uranium Reactor for Cold Neutron Sources at NIST** 1583

Zeyun Wu (NIST/Univ of Maryland), Robert E. Williams (NIST)

**Neutronic Analysis of use of HANARO Fuel in WWR-SM Reactor** 1593

Lara M. Peguero, Todd S. Palmer (Oregon State Univ)

**New As-Run Neutronics Analysis for RERTR-12 Fuel Foil Experiments** 1604

Margaret A. Marshall, Misti A. Lillo (INL)

**Fast Spectrum Materials Testing Reactor with Variable Neutron Spectra in Support of Next Generation Nuclear Power Plant and Light Water Reactor Sustainability R&D** 1614  
Jonathan B. Scherr, Pavel V. Tsvetkov (Texas A&M)

**Feasibility Investigation of Application of MPACT to Core Design Studies of NBSR-2, A Heavy Water Reflected, Heterogeneous LEU Research Reactor** 1631  
Bryan D. Eyers, Zeyun Wu(NIST), Brendan Kochunas (Univ of Michigan)

### **Sensitivity/Uncertainty Analysis—III**

Organizers: Cristian Rabiti (INL), Hany Abdel-Khalik (Purdue Univ)

Cochairs: Qiong Zhang, Baker Hughes, Wei Shen (Canadian Nuclear Safety Commission)

**Fission Product Yields Covariance Generation Methodologies and Uncertainty Propagation using the URANIE Platform** 1641  
N. Terranova, M. Sumini (Univ of Bologna), P. Archier, O. Serot, D. Bernard, C. De Saint Jean (CEA)

**A New Method for Removing Systematic Errors in Cross Section Adjustment for Accurate Estimation of Minor-Actinide Transmutation in Fast Reactors** 1651  
T. Takeda (Uni of Fukui)

**Variance Reduction Factor Calculations for Neutronics Parameters of Accelerator-Driven System** 1661  
G. Chiba (Hokkaido Univ), W.F.G. van Rooijen (Univ of Fukui), T. Endo (Nagoya Univ), C.H. Pyeon (Kyoto Univ)

**Comparison of Fission Yield Perturbation Methodologies on Nuclide Composition of a PWR UO<sub>2</sub> Fuel Assembly** 1669  
O. Leray (Scherrer Inst), L. Fiorito (SCK/CEN), D. Rochman, H. Ferroukhi, A. Pautz (Scherrer Inst), A. Stankovskiy, G. Van den Eynde (SCK/CEN)

**Thermal-Hydraulic Uncertainty Propagation in a Main Steam Line Break Scenario** 1681  
E. Castro, D. Cuervo, N. Garcia-Herranz (Universidad Politecnica de Madrid), M. Avramova (NCSU)

### **Multi-Physics Reactor Simulations—IV**

Organizers: Wei J (RPI), Cassiano De Oliveira (Univ of New Mexico), Mark DeHart (INL)

Cochairs: Scott Palmtag (Core Physics, Inc.), Ville Valtavirta (VTT Technical Research Centre of Finland)

**A Modified Tightly Coupled Method for Reactor Transient Simulations** 1690  
Jaron P. Senecal, Wei Ji (RPI)

**On Steady-State Multiphysics Stability and Related In-Core Fuel Management Capabilities in DONJON5** 1700  
V. Salino (IRSN), A. Hébert (École Polytechnique de Montreal)

**Internal Coupling of the Code DYN3D with the USNRC Code TRACE—First Results** 1711  
Jose Gonzalez, Victor Sanchez, Javier Jimenez (KIT)

**Coupled Neutronics and Heat Transfer in Accident Tolerant Composite Matrix Nuclear Fuels** 1722  
Christopher G. Morrison, Jaron Senecal, Wei Ji, (RPI)

**A Preconditioning Algorithm for JFNK Method Applied to Multi-Physics Calculations** 1737



Jianan Lu, Jiong Guo, Han Zhang, Fu Li (Tsinghua Univ)

### **Advanced Multidimensional Reactor Kinetics Methods—I**

Organizers: Sedat Goluoglu (Univ of Florida), Gilles Youinou (INL), Wilfred Van Rooijen, (Univ of Fukui)

Cochairs: Todd Palmer (Oregon State Univ), Wilfred Van Rooijen (Univ of Fukui)

- Assessment of the CABRI Transients Power Shape by using CFD and Point Kinetics Codes** **1747**  
Olivier Clamens, Johann Lecerf, Bertrand Duc, Jean-Pascal Hudelot, Thierry Cadiou (CEA), Brono Biard (IRSN)
- Operational Readiness of the RATTLESNAKE Multidimensional Transport Code** **1759**  
B. D. Ganapol (Univ of Arizona), M. DeHart, F. Gleicher, A. M. Ougouag, J. Ortensi, R. Martineau (INL)
- Implementation of the Improved Quasi-Static Method in RATTLESNAKE/MOOSE for Time-Dependent Radiation Transport Modelling** **1771**  
Zachary M. Prince, Jean C. Ragusa (Texas A&M), Yaqi Wang (INL)
- Preparation of a Neutron Transport Data Set for Simulations of the Transient Test Reactor Facility** **1786**  
Javier Ortensi, Yaqi Wang, Benjamin Baker, Sebastian Schunert, Frederick N. Gleicher, Mark D. DeHart (INL), Alexandre Laurier, Alain Hébert (École Polytechnique de Montreal)
- Research in Support of TREAT Kinetics Calculations using Rattlesnake/BISON Coupling Within MAMMOTH** **1801**  
Mark D. DeHart, Javier Ortensi, Benjamin Baker, Frederick N. Gleicher, Yaqi Wang, Sebastian Schunert (INL)

**Tuesday, May 3, 2016, 1:30 P.M.**

### **Reactor Analysis Methods—II**

Organizers: Thomas Sutton (KAPL), Deokjung Lee (UNIST)

Cochairs: Florent Heidet (ANL), Akio Yamamoto (Nagoya Univ)

- Leakage Correction of Homogenized Few-GCS Through Functionalization on Leakage Fraction** **1815**  
Young Suk Ban, Han Gyu Joo (Seoul Natl Univ)
- Comparison of 1-D/1-D Fusion and 1-D/1-D Hybrid Methods in a Two-Dimensional Transport Problem: Numerical Results** **1825**  
Seungsu Yuk, Nam Zin Cho (KAIST)
- Problem Formulation of Numerical Reactivity Measurement Simulation** **1835**  
A. Popykin, S. Shevchenko, R. Shevchenko, N. Zhylmaganbetov, V. Kulikov (ATOMPROEKT)
- Development of Two-Step Reactor Physics Analysis Procedure for Advanced High Temperature Reactors** **1847**  
Cole A. Gentry, G. Ivan Maldonado (Univ of Tennessee), Kang-Seog Kim (ORNL)

**Construction of Optimized Experimental Responses in Support of Model Validation via Physics Coverage Mapping Methodology** 1862  
Dongli Huang, Hany S. Abdel-Khalik (Purdue Univ)

### **Fast Reactors—I**

Organizers: Thomas Sutton (KAPL), Deokjung Lee (UNIST)

Cochairs: Massimiliano Fratoni (Univ of California, Berkeley), Bruno Merk, Univ of Liverpool/National Nuclear Lab)

**Fast Reactor Diagrid and Axial Expansion Models for the Diffusion Equation** 1871  
A. Seubert, K. Velkov (GRS)

**Calculation Methodology Assessment to Detect Localised Perturbation in Sodium-Cooled Fast Reactors with Ex-Core Instrumentation** 1883  
V. Verma, C. Hellesen (Uppsala Univ), C. Jammes, P. Filliatre (CEA)

**Monte Carlo Analysis of SNEAK-12a Core Disruption in Liquid-Metal Fast Breeder Reactors—The Path for Innovative Severe Accident Studies in ZPR** 1893  
M. Margulis, E. Gilad (Ben-Gurion Univ of the Negev), P. Blaise (CEA)

**Development of a Fast Reactor for Minor Actinides Transmutation—Improvement of Prediction Accuracy for MA-Related Integral Parameters based on Cross-Section Adjustment Technique** 1906  
Kenji Yokoyama, Shuhei Maruyama, Kazuyuki Numata, Makoto Ishikawa (JAEA), Toshikazu Takeda (Univ of Fukui)

**A Search for Theories Enabling Analyses of Spatial Effects in Highly Coupled SFR Cores** 1916  
M. Maillo, J. Tommasi, G. Rimpault (CEA)

### **Depletion Methods—III**

Organizers: Mike Ferrer (Studsvik Scandpower), Akio Yamamoto (Nagoya Univ)

Cochairs: Mike Ferrer (Studsvik Scandpower), Dan Kotlyar (Univ of Cambridge)

**Burnable Poison Designs for a Soluble-Boron-Free Civil Nuclear Marine PWR Core** 1926  
Syed Bahauddin Alam, Benjamin A. Lindley, Geoffrey T. Parks, Eugene Shwageraus (Univ of Cambridge)

**Validation of CASMO5 Gadolinium Depletion Analysis** 1939  
Yusuke Kuroda, Tsuyoshi Ama, Takashi Yoshii (TEPCO Systems Corp)

**Evaluation of the Effect of Burn-Up on Neutron Flux and Reaction Rate Distributions in the TRIGA Mark II Reactor** 1950  
Žiga Štancar, Luka Snoj (Jožef Stefan Inst), Loïc Barbot (CEA)

**Solution of the BEAVRS Benchmark using CASMO-5 / SIMULATE-5 Code Sequence** 1960  
V Bykov (Swiss Federal Inst of Technology in Lausanne/Paul Scherrer Inst), A. Vasiliev, H. Ferroukhi (Paul Scherrer Inst), A. Pautz (Swiss Federal Inst of Technology in Lausanne/Paul Scherrer Inst)

**High-Fidelity Heat Deposition Analysis for the High Flux Isotope Reactor** 1969  
Eva E. Sunny, Benjamin R. Betzler, David Chandler, Germina Ilas (ORNL)

## MCNP Validation and Applications

Organizers: Thomas Downar (Univ of Michigan), Kent Welter (NuScale Power)

Cochairs: Forrest Brown (LANL), Eric Dumonteil (IRSN)

### **Methodology to Predict the Accuracy in Calculating the Effective Multiplication Factor (Keff) for Different Moderator to Fuel Ratios** 1984

K. Hossny (Alexandria Univ)

### **Energy Deposition Prediction Calculations using MC21 and MCNP for Calorimeters of Various Materials in the University of Wisconsin Nuclear Reactor** 1992

Edwin J. Grant (KAPL), Laura Bartol (Univ of Wisconsin, Madison), Timothy H. Trumbull (KAPL), Paul Wilson, Robert Agasie, Wes Culberson, Jeff Radtke, Edward Kent, Paul Brooks, Mark Anderson (Univ of Wisconsin, Madison)

### **An Analytic Benchmark of Neutron Free-Gas Scattering using Continuous-Energy Cross Sections in MCNP6** 2001

Matthew A. Gonzales, Anil K. Prinja (Univ of New Mexico), Forrest B. Brown (LANL), Brian C. Kiedrowski (Univ of Michigan)

### **Verification of Solid Body Geometries in MCATK** 2008

Travis J. Trahan, Jeremy E. Sweezy(LANL), Jesse F. Giron (Arizona State Univ)

### **Fission Neutron Multiplicity in MCNP6 Criticality Calculations** 2018

Mario I. Ortega (Univ of New Mexico), Michael E. Rising, Forrest B. Brown (LANL), Anil K. Prinja (Univ of New Mexico)

## Validation Facilities

Organizers: John Bess (INL), Arzu Alpan (Westinghouse), Cheolho Pyeon (Kyoto Univ)

Cochairs: John Bess (INL), Alain Santamarina (CEA)

### **SERPENT Stereolithography Modeling of the Giacint Critical Assembly Experimental Facility** 2028

A. Talamo, Y. Gohar, Z. Zhong (ANL), S. N. Sikorin, S. G. Mandzik, S. A. Polazau, T. K. Hryharovich, I. S. Holubeva (Joint Inst for Power and Nuclear Research)

### **Development of a Verification Benchmark Suite for the ATR Reactor Physics Upgrade** 2038

B. Ganapol (Univ of Arizona), D. Nigg (INL)

### **FFTF Passive Safety Test Data for Benchmarks for New LMR Designs** 2050

D. W. Wootan, A. M. Casella (PNNL)

### **Verification Methodology and Procedure of JSNT-S** 2059

G. C. Zhang, T. P. Cheng, Y. G. Fu, L. Deng(CAEP)

### **The 2D Static Benchmark Calculations for the SAFARI -1 Research Reactor Core Characterisation** 2069

Lesego E. Moloko (Necsa), Julien Politello, Jacques Di Salvo, Corinne D'Aletto (CEA)

## Multi-Physics Reactor Simulations—V

Organizers: Wei Ji (RPI), Cassiano De Oliveira (University of New Mexico), Mark DeHart(INL)

Cochairs: Wei Ji (RPI), Ville Valtavirta(VTT Technical Research Centre of Finland)

### **Cross Section Homogenization Technique for Transient Calculations** 2082

Kevin Dugan, Igor Zmijarevic, Richard Sanchez (CEA)

<b>Studsvik's Tools for the Analysis of Reactivity Transients</b>	<b>2091</b>
Gerardo Grandi, Jerry Judd (Studsvik Scandpower, Inc.)	
<b>IAEA CRP on HTGR Uncertainties: Comparison of Ex. I-2c Nominal Results and Coupling with the PHISICS/RELAP5-3D Core Model for Ex. II-1</b>	<b>2104</b>
P. Rouxelin (NCSU), G. Strydom (INL), K. Ivanov (NCSU)	
<b>Development of Multiphysics Tools for Fluoride-Cooled High Temperature Reactors</b>	<b>2116</b>
Manuele Aufiero, Massimiliano Fratoni (Univ of California, Berkeley)	
<b>Enhanced Fidelity Depletion for Molten Salt Reactors</b>	<b>2128</b>
Daniel Wooten, Massimiliano Fratoni (Univ of California, Berkeley)	

### **Nuclear Data, Evaluations and Libraries—III**

Organizers: Luiz Leal (IRSN), Ayman Hawari (NCSU), Go Chiba (Hokkaido Univ)  
 Chair: Yuxuan Liu (Univ of Michigan)

<b>On Methods for Conversion of R-Matrix Resonance Parameters to Multi-Pole Formalism—Numerics of Algebraic Conversion</b>	<b>2138</b>
Pablo Ducru (MIT), Vladimir Sobes (ORNL), Benoit Forget, Kord S. Smith (MIT)	
<b>Verification of the On-the-Fly Thermal Scattering Sampling Method for Bound Hydrogen in Light Water</b>	<b>2151</b>
Andrew T. Pavlou, Wei Ji (RPI), Forrest B. Brown (LANL)	
<b>Neutron Data Adjustment Based on Integral Critical Experiments on the BFS-Facility with Different Neutron Spectrum</b>	<b>2166</b>
O. Andrianova, V. Koscheev, G. Lomakov, G. Manturov (IPPE)	
<b>Multigroup Data Processing for the Embedded Self-Shielding Method in Scale</b>	<b>2176</b>
M. L. Williams, D. Wiarda, K. S. Kim, M. A. Jessee (ORNL)	
<b>First Principles Molecular Dynamics Implementation in Thermal Neutron Scattering Analysis</b>	<b>2188</b>
J. L. Wormald, A. Singhal, A. A. Petersen, A. I. Hawari (NCSU)	

## **Tuesday, May 3, 2016, 4:00 P.M.**

### **Fuel Cycle Physics, Management and Optimization—III**

Organizers: Geoff Parks (Cambridge Univ), Temitope Taiwo (ANL)  
 Cochairs: Jorge Navarro (INL), Liangzhi Cao (Xi'an Jiaotong Univ)

<b>Fuel Cycle Analysis of Multi-batch Operation of a Denatured Molten Salt Reactor</b>	<b>2198</b>
N. Kien Trinh, Geoffrey Parks, Dan Kotlyar, Carlo Fiorina	
<b>Generating Cross Sections for ORION Fuel Cycle Models</b>	<b>2207</b>
Joshua Peterson, Eva E. Sunny, William Wieselquist, Andrew Worrall (ORNL), Robert Gregg (NNL)	
<b>Portable Reactor Data Library Interpolation via Self-Describing ORIGEN Libraries</b>	<b>2218</b>

Nicholas C. Sly, Steven E. Skutnik (Univ of Tennessee Knoxville), William A. Wieselquist (ORNL)

**Integrated Software Tools for Radiation Damage, Activation and Transmutation Studies in Advanced Nuclear Systems** 2232

A. Andrianov, A. Dogov, I. Kuptsov, L. Svetlichnyy, Yu. Korovin (MEPHI)

**Reactor Analysis Methods—III**

Organizers: Thomas Sutton (KAPL), Deokjung Lee (UNIST)

Cochairs: Chang Ho Lee (ANL), Evgeny Ivanov (IRSN)

**Pin-by-Pin Reactor Core Analysis Based on a NEM-Based Two-Level Hybrid CMFD Algorithm** 2243

Seongho Song, HwanYeal Yu, Yonghee Kim (KAIST)

**Coupling Sjöstrand and Feynman Methods in Prompt Neutron Decay Constant Analyses** 2253

A. Talamo, Y. Gohar (ANL), F. Gabrielli, A. Rineiski (KIT), C. H. Pyeon (Kyoto Univ)

**Key Neutronic Parameters for Reactor Commissioning** 2264

E. Duchemin, L. Chabert (AREVA TA), C. Huot-Marchand, P. Siréta (CEA)

**APOLLO3<sup>®</sup>: CEA/DEN Deterministic Multi-Purpose Code for Reactor Physics Analysis** 2274

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**Transient Reactor Testing—II**

Organizers: Javier Ortensi (INL), Dan Wachs (INL)

Cochairs: Javier Ortensi (INL), Ronald Ellis (ORNL)

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Cochairs: Thomas Sutton (KAPL), Imre Pazsit (Chalmers Univ)

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Organizers: Cristian Rabiti (INL), Hany Abdel-Khalik (Purdue Univ)

Cochairs: Hany Abdel-Khalik (Purdue Univ), Hyung Jin Shim (Seoul National Univ)

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Organizers: Sedat Goluoglu(Univ of Florida), Gilles Youinou (INL), Wilfred Van Rooijen, (Univ of Fukui)

Cochairs: Sedat Goluoglu(Univ of Florida), Wilfred Van Rooijen(Univ of Fukui)

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Organizers: Luiz Leal (IRSN), Ayman Hawari (NCSU), Go Chiba (Hokkaido Univ)

Chair: Rachel Slaybaugh (Univ of California, Berkeley)

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### Fuel Cycle Physics, Management and Optimization—IV

Organizers: Geoff Parks (Cambridge Univ), Temitope Taiwo (ANL)

Cochairs: Fausto Franceschini (Westinghouse), Erez Gilad (Ben-Gurion Univ of the Negev)

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Ethan C. Taber, Victor G. Smith, Eric N. Jones (TransWare Enterprises Inc.)

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Organizers: John Bess (INL), Arzu Alpan (Westinghouse), Cheolho Pyeon (Kyoto Univ)

Cochairs: John Bess (INL), Tuomas Viitanen (VTT Technical Research Centre of Finland)

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### **Full Core Analysis Methods— II**

Organizers: John Bess (INL), Arzu Alpan (Westinghouse), Cheolho Pyeon (Kyoto Univ)

Cochairs: Zain Karriem (INL), Sophie Pignet (IRSN)

**Reproduction of a Power Azimuthal Disbalance using Data Assimilation: Application to Twin Experiments** 2561

C. Brosselard, B. Bouriquet, M. De Séqueira, H. Leroyer, D. Couyras, J. P. Argaud (EdF R&D)

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**Rod Internal Pressure Quantification and Distribution Analysis using FRAPCON** 2588

Ryan N. Bratton (Penn State), Matthew A. Jessee, William Wieselquist (ORNL), Kostadin N. Ivanov (NCSU)

### **Experiments—III**

Organizers: John Bess (INL), Arzu Alpan (Westinghouse), Cheolho Pyeon (Kyoto Univ)

Cochairs: David Nigg (INL), Laurent Chabert (AREVA)

**Research of Radioactive Properties of Geopolymers Carried Out at the LVR-15 Nuclear Research Reactor** 2603

Zdena Lahodová, Ladislav Viererbl, Michal Koleška, Tomáš Černousek (Research Centre Rez Ltd.), Zbyněk Černý (Institute of Inorganic Chemistry AS CR)

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Hiroshi Taninaka, Yasufumi Kishimoto, Tetsuya Mouri, Shin Usami (JAEA)

**Analysis of Material Buckling Experiments Performed in the MASURCA Facility in Support of the Astrid SFR Prototype Core Balance** 2622

Gérald Rimpault, Paul Dufay, Virginie Huy (CEA)

### **Advanced and Small Modular Reactor Designs—I**

Organizers: Massimiliano Fratoni (Univ of California, Berkeley), Won Sik Yang (Purdue Univ) Takanori Kitada (Osaka Univ)

Cochairs: Massimiliano Fratoni (Univ of California, Berkeley), Frederik Reitsma (IAEA)

**Coupled Neutronic-Thermal-Hydraulic Analysis of a Small FHR Core with Pin-Type Fuel Assemblies** 2630

Hassan Mohamed, Dan Kotlyar, Geoffrey Parks (Univ of Cambridge), Yaniv Shaposhnik (Nuclear Research Centre of the Negev)

**Preliminary Design of Boron-Free Small Modular Pressurized Water Reactor** 2640

Jiwon Choe, Deokjung Lee (UNIST), Ho Cheol Shin, Ji-Eun Jung (KHNP-CRI)



**Benchmark Calculations of the MHTGR-350 MW Core using Explicit Modeling Approach of RMC** 2650

Shichang Liu, Jin-gang Liang, Kan Wang (Tsinghua Univ), Zhen-an Wang (National Tsing-Hua Univ), Ding She (Tsinghua Univ)

**Impact of Control Rod Position and Homogenization on Sodium Void Effect in CFV-Type SFR** 2658

M. Andersson, Henrik Nylén(Chalmers Univ of Technology, D. Blanchet, R.. Jacqmin (CEA)

**Validation of Kinetics Methods**

Organizers: Thomas Downar (Univ of Michigan), Kent Welter (NuScale Power)

Chair: Zeyun Wu (NIST)

**Validation of a RELAP5-3D Point Kinetics Model of TREAT** 2668

Cliff B. Davis, Nicolas E. Woolstenhulme (INL)

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Vid Merljak, Marjan Kromar, Luka Snoj (Jožef Stefan Inst), Andrej Trkov (IAEA)

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Eduardo Gonnelli, Leticia Negrao Pinto, Adimir Dos Santos, Ricardo Diniz (Nuclear and Energy Research Inst)

**Verification of the Time-Dependent Transport Code TDKENO with the Monte Carlo Code KENO-VI** 2698

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**Validation of Thermal/Hydraulic Methods**

Organizers: John Bess (INL), Arzu Alpan (Westinghouse), Cheolho Pyeon (Kyoto Univ)

Cochairs: Hongbin Zhang (INL), Fabrizio Gabrielli (KIT)

**A First Approach of TAPIRO Thermal-Hydraulics Definition Model, by RELAP and TIESTE-MINOSSE Codes. Reactivity and Mass Flow Rate Transient Analysis** 2711

G. Bianchini, M. Carta, V. Fabrizio, O. Fiorani, C. Parisi, A. Santagata (ENEA)

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Milan Tesinsky (Westinghouse Electric Company Sweden), Jonathan Wang (KTH), Ulf Bredolt (Westinghouse Electric Company Sweden)

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J.-C. Le Pallec, K. Mer-Nkonga, N. Crouzet (CEA)

**Wednesday, May 4, 2016, 10:10 A.M.**

## Reactor Analysis Methods— IV

Organizers: Thomas Sutton (KAPL), Deokjung Lee (UNIST)

Cochairs: Zeyun Wu (NIST), Yunzhao LI (Xi'an Jiaotong Univ)

### **On Using Grasshopper Add-On for CAD to MCNP Conversion** 2758

Bor Kos, Luka Snoj (Jozef Stefan Inst)

### **Implementation of Coarse-Mesh Nonlinear Diffusion Acceleration for Hexagonal Geometry in CASMO5** 2768

Rodolfo Ferrer, Joel Rhodes (Studsvik Scandpower, Inc.), Lulu Li (MIT)

### **KMacs, A Modular Adaptable Core Simulator** 2781

Matias Zilly, Matthias Küentzel, Alexander Aures, Volker Hannstein, Kiril Velkov (GRS), Andreas Pautz (PSI)

### **Fourier Analysis of Iteration Schemes for k-Eigenvalue Transport Problems with Flux-Dependent Cross Sections** 2791

Brendan Kochunas, Edward Larsen (Univ of Michigan)

### **Error Due to Angular Discretization in the Discrete Ordinates Approximation of the Transport Equation in Two-Dimensional Cartesian Geometry** 2807

Xiaoyu Hu, Yousry Y. Azmy (NCSU), Camila B. Picoloto, Anderson Tres, Liliame B. Barichello (Univ Fedl do Rio Grande do Sul)

## Burn-up Credit and Spent Fuel Measurements

Organizers: Dale Lancaster (NuclearConsultants.com), Mark DeHart (INL)

Cochairs: John Wagner (INL), Jean-Christophe Sublet (UKAEA)

### **Validation of Monte Carlo Burnup Calculation for THAI Research Reactor** 2817

C. Tippayakul, S. Chowchanglag (TINT)

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A. Bernal, A. Abarca, R. Miró, G. Verdú (ISIRYM)

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### **Effects of Control Blade History, Axial Coolant Density Profiles, and Axial Burnup Profiles on BWR Burnup Credit** 2856

Brian J. Ade, William J. Marshall, Stephen M. Bowman (ORNL), Jesus S. Martinez Gonzalez (Univ Politécnica de Madrid)

## Recent Developments in Monte Carlo Codes and Methods— II

Organizer: Jaakko Leppänen (VTT Technical Research Centre of Finland)

Chairs: Alireza Haghghat (Virginia Polytechnic Inst), Zhang Peng (UNIST)

<b>Expanding the use of Serpent 2 to Fusion Applications: Shut-Down Dose Rate Calculations</b>	<b>2872</b>
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<b>Monte Carlo Sensitivity and Uncertainty Calculations with Continuous-Energy Nuclear Covariance Data</b>	<b>2884</b>
Dong Hyuk Lee, Hyung Jin Shim, Chang Hyo Kim (Seoul Natl Univ)	
<b>Testing Advanced Methods for Sensitivity/Uncertainty Analysis in the Monte Carlo Code SERPENT</b>	<b>2894</b>
Manuele Aufiero, Massimiliano Fratoni (Univ of California, Berkeley)	
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<b>Verification and Validation of Reactor Analysis Methods— II</b>	
Organizers: Geoff Parks (Cambridge Univ), Temitope Taiwo (ANL)	
Co-chairs: Wei Ji (RPI), Wei Shen (Canadian Nuclear Safety Commission)	
<b>Validation of a Multi-Purpose Depletion Chain for Burnup Calculations through TRIPOLI - 4D Calculations and IFP Perturbation Method</b>	<b>2931</b>
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<b>OPAL Reactor Calculations using Reactor Physics Code SERPENT</b>	<b>2950</b>
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Ondrej Novak (Czech Technical Univ in Prague), Ondrej Chvala (Univ of Tennessee, Knoxville)	
<b>Modeling and Simulation for Nonproliferation and Safeguards</b>	
Organizers: Sean Morrell (INL), Todd Palmer(Oregon State Univ)	
Co-chairs: Sean Morrell(INL), Silva Kalcheva (Studiecentrum voor Kernenergie/Centre d'Étude de l'énergie Nucléaire)	
<b>New Model for Parametric Analysis of Fuel Debris Criticality</b>	<b>2986</b>
Marc Ernoult, Kotaro Tonoike (JAEA)	
<b>Using Cherenkov Light to Quantify Reactor Kinetics Parameters and Infer Fissile Material Inventory for Nuclear Nonproliferation</b>	<b>2994</b>
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<b>Development of a Scintillator Detector Response Post Processing Tool for MCNP Output</b>	<b>3002</b>
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**A Generalized Method for Fissile Mass Characterization using Short-Lived Fission Product Gamma Measurements** 3011

Justin R. Knowles, Steve E. Skutnik (Univ of Tennessee), David C. Glasgow, Roger J. Kapsimalis (ORNL)

**Advanced Tools Based on a Multiple Objective Framework for Proliferation Risk and Resistance Assessments** 3020

A. Andrianov, I. Kuptsov (MEPHI)

**SCALE Validation**

Organizers: Thomas Downar (Univ of Michigan), Kent Welter (NuScale Power)

Cochairs: Benoit Dionne (ANL), Friederike Bostelmann (GRS)

**Verification and Validation of New Unmodified SCALE PWR Lattice Templates** 3030

Nathan T. Shoman, Steven E. Skutnik (University of Tennessee, Knoxville)

**Use of POLARIS and PARCS to Predict Cycle Depletion for Three Mile Island Unit One Cycles One and Two** 3043

Peter Yarsky (NRC)

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Carl Thurston, Peter Yarsky (NRC)

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Mohamed A. Elsayi, Zainab Alnoamani (Khalifa Univ)

**Validation of POLARIS and PARCS Against Otto Hahn Second Core Zero Power Experiment Benchmark** 3073

Raymond Skarda, Peter Yarsky, Thomas Boyle (NRC)

**Advanced and Small Modular Reactor Designs—II,**

Organizers: Massimiliano Fratoni (Univ of California, Berkeley), Won Sik Yang (Purdue Univ), Takanori Kitada (Osaka Univ)

Cochairs: Renae Lenhof (NuScale Power), Frederik Reitsma(IAEA)

**New Small Long-Cycle PWR Core using Particle Burnable Poisons for Boron-Free Operation** 3085

Hoseong Yoo, DaeHee Hwang, Ser Gi Hong (Kyung Hee Univ), Ho Cheol Shin (KHNP)

**Evaluation of the Safety and Breeding Performance of a Heterogeneous Fuel Assembly Design for a Metal Fueled SFR** 3094

B. Merk (HZDR), K. Devan, P. Puthiyavinayagam, A. Bachchan, D. Paul, G. Srinivasan (IGCAR)

**A Molten Salt Reactor Study for the Transmutation of All German Transuranium in the Frame of the Nuclear Phase Out** 3107

B. Merk (HZDR/Univ of Liverpool), D. Litskevich (HZDR)

**Lattice Physics Sensitivity Studies for Thorium-Based Fuels in Pressure Tube Heavy Water Reactors** 3117

Blair P. Bromley, Ashlea Colton (CNL), Owen Collins (Queen's Univ)

**Analysis of Reverse Flow Restriction Device to Prevent Fuel Dryout during Boiling Water** 3130

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Majdi Ibrahim Radaideh, Tomasz Kozlowski (Univ of Illinois), Yousef M. Farawila (Farawila et al., Inc.)

**Wednesday, May 4, 2016, 1:30 P.M.**

## Reactor Analysis Methods—V

Organizers: Thomas Sutton (KAPL), Deokjung Lee (UNIST)

Cochairs: Sonat Sen (INL), Frederik Reitsma (IAEA)

### **A New Stochastic Acceleration Scheme for the Monte Carlo Method** 3140

In-Hyung Kim, Yonghee Kim (KAIST)

### **On the Characteristics of Transfer Matrix of Generalized Modified Power Method** 3150

Peng Zhang, Hyunsuk Lee, Deokjung Lee (UNIST)

### **Improved Resonance Self-Shielding Method Considering Resonance Scattering Effect** 3160

Sooyoung Choi, Deokjung Lee (UNIST), Changho Lee (ANL)

### **Study of the Iterative Convergence of the Integral Transport Matrix Method in Two-Dimensional Geometry for the Diamond Difference Method** 3176

Dylan S. Hoagland, Yousry Y. Azmy (NCSU), R. Joseph Zerr (LANL)

### **Acceleration of Discrete Ordinates Calculations using Parallel Partial Current Rebalance Algorithm and Algebraic Multigrid Solver** 3188

T. Cheng, Z. Mo, J. Wei, G. Zhang, H. Shen, L. Deng (CAEP)

## Fast Reactors—II

Organizers: Thomas Sutton (KAPL), Deokjung Lee (UNIST)

Cochairs: Florent Heidet (ANL), Valentyn Bykov (École Polytechnique Fédérale de Lausanne)

### **Passive Safety Characteristics of Stationary Liquid Fuel Fast Reactor (SLFFR)** 3198

Tian Jing, Yeon Sang Jung, Won Sik Yang (Purdue Univ)

### **Development of the DARWIN3-SFR Fuel Cycle Tool for Decay Heat Calculations in New Generation Fast Reactors** 3208

C. Vaglio-Gaudard, P. Bellier, L. Buiron, S. Lahaye, JF. Lebrat, Ph. Miranda, B. Roque, A. Tsilanizara (CEA)

### **Long-Life Small Modular Sodium-Cooled Fast Reactor Core Design with Breed-and-Burn Strategy** 3218

Jinsu Park, Taewoo Tak, Jiwon Choe, Yongjin Jeong, Deokjung Lee (UNIST), T. K. Kim (ANL)

### **Impact of Energy Capacity Growth on Continuous Recycle Fuel Cycles based on Fast Critical Reactors** 3229

Florent Heidet, Taek K. Kim, Temitope A. Taiwo (ANL)

### **Axial Fuel Rod Expansion Model in Nodal Code DYN3D for SFR Application** 3241

E. Nikitin, E. Fridman (HZDR)

## Verification and Validation of Reactor Analysis Methods— III

Organizers: Geoff Parks (Cambridge Univ), Temitope Taiwo (ANL)

Cochairs: Brendan Kochunas (Univ of Michigan), Piero Ravetto (Politecnico di Torino)

### Reactor Physics Benchmark Suite Development for Nuclear Analysis Codes and Methods Validations in Traveling Wave Reactor Applications

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### Validation of Decay Heat Evaluation Method Based on FPGS Code for Fast Reactor Spent MOX Fuels

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### Neutronic Assessment of TRISO Particle Fuels in a Small Fluoride Salt-Cooled High- Temperature Reactor

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Hassan Mohamed, Benjamin A. Lindley, Geoffrey Parks (Univ of Cambridge), Jaakko Leppänen  
(VTT Technical Research Ctr of Finland)

### Validation of MOSRA-SRAC for Burnup of a BWR Fuel Assembly

3283

Kensuke Kojima (JAEA)

### Verification and Validation of the Tetrahedral Grid Radiation Transport Code THOR Based on the Advanced Test Reactor Benchmark

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Raffi Yessayan, Yousry Y. Azmy (NCSU), Sebastian Schunert (INL)

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Organizer: Jaakko Leppänen (VTT Technical Research Centre of Finland)

Cochairs: David Griesheimer (BAPL), Jaakko Leppänen (VTT Technical Research Centre of Finland)

### Improved Weight Window Variance Reduction for Coupled Radiation Monte Carlo Transport Calculations

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David P. Griesheimer, Brian R. Nease (Bettis Laboratory)

### The Mutual Information of the Fission Source in Eigenvalue Calculations

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Brian C. Kiedrowski, Charles D. Corbin (Univ of Michigan)

### Equipping OpenMC for the Big Data Era

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William Boyd, Sterling Harper (MIT), Paul K. Romano (ANL)

### Using Normality Tests to Assess the Validity of Monte Carlo Confidence Intervals

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Thomas M. Sutton, Jason Haverkamp(KAPL)

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## Finite Element Methods for Reactor Analysis

Organizers: Thomas Sutton (KAPL), Deokjung Lee (UNIST)

Cochairs: Sebastian Schunert (INL), Liliame Barichello (Universidade Federal do Rio Grande do Sul)

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Organizers: Cristian Rabiti (INL), Hany Abdel-Khalik (Purdue Univ)	
Co-chairs: Cristian Rabiti (INL), Matthew Jessee (ORNL)	
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Organizers: Massimiliano Fratoni (Univ of California, Berkeley), Won Sik Yang (Purdue Univ), Takanori Kitada (Osaka Univ)	
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Cochairs: Benjamin Chase (INL), Wei Shen (Canadian Nuclear Safety Commission)

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Cochairs: Manuele Aufiero (Univ of California, Berkeley), Christophe Demazière (Chalmers Univ)

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Organized by: Cristian Rabiti (INL), Hany Abdel-Khalik (Purdue Univ)

Cochairs: Andrea Alfonsi (INL), Kenji Yokoyama (JAEA)

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Organizers: Massimiliano Fratoni (Univ of California, Berkeley), Won Sik Yang (Purdue Univ) Takanori Kitada (Osaka Univ)

Chair: Nicholas Touran (TerraPower)

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Cochairs: George Imel (Idaho State Univ), Luka Snoj (Jozef Stefan Inst)

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Cochairs: Nicolao Stauff (ANL), Gérald Rimpault (CEA)

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**Multi-Physics Reactor Simulations—VII**

Organizers: Wei Ji (RPI), Cassiano De Oliveira (Univ of New Mexico), Mark DeHart (INL)

Cochairs: Frederick Gleicher (INL), Marjan Kromar (*Jozef Stefan Inst*)

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Cochairs: David Nigg (INL), Eugene Shwageraus (Cambridge Univ)

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Cochairs: Benjamin Collins (ORNL), Brendan Kochunas (Univ of Michigan)

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**Sensitivity/Uncertainty Analysis—VII**

Organizers: Cristian Rabiti (INL), Hany Abdel-Khalik (Purdue Univ)

Cochairs: Cristian Rabiti (INL), Kenji Yokoyama (JAEA)

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