M&C-2023 Conference Program (Final Version)

Prepared by Wei Shen
on August 19, 2023

Sunday

Strategy Room 2: Workshops
08:00 to 12:00, Sunday, August 13
Workshop on Artificial Intelligence and Machine Learning

Scientific Machine Learning for Nuclear Engineering Applications (495)
Xu Wu (North Carolina State University)

Strategy Room 3: Workshops
08:00 to 12:00, Sunday, August 13
OpenMC Workshop morning

OpenMC workshop (492)
Patrick Shriwise (UCHICAGO ARGONNE, LLC)

Great Room A: Meals and Breaks
12:00 to 13:00, Sunday, August 13
Luncheon for Workshop presenters and attendees

Strategy Room 1: Workshops
13:00 to 17:00, Sunday, August 13
ARIANT Workshop

ARIANT Thermalhydraulics Code (494)
Nusret Aydemir

Strategy Room 3: Workshops
13:00 to 17:00, Sunday, August 13
OpenMC Workshop afternoon

OpenMC workshop (493)
Patrick Shriwise (UCHICAGO ARGONNE, LLC)

Strategy Room 2: Workshops
13:00 to 17:00, Sunday, August 13
Workshop on IAEA Nuclear Reactor Simulators

IAEA Nuclear Reactor Simulators (496)
Alexei Miassoedov (IAEA)

Great Room Foyer: General Infomation
17:00 to 18:00, Sunday, August 13
Conference Registration and Opening of Exhibits

Great Room C: General Infomation
17:00 to 18:00, Sunday, August 13
Student introductions and briefing for session assistants
Session Chair 1: Eleodor Nichita (Ontario Tech University)
Session Chair 2: Benjamin Rouben (12 & 1 Consulting)

Great Room ABC: Meals and Breaks
18:00 to 20:00, Sunday, August 13
Welcome Reception

Monday

Great Room C: Plenary Session
08:30 to 09:00, Monday, August 14
Mo1P1 Conference Opening
Session Chair 1: Adriaan Buijs (McMaster University)

Great Room C: Plenary Session
09:00 to 10:20, Monday, August 14
Mo2P1 Opening Plenary Session Part 1.
Session Chair 1: Adriaan Buijs (McMaster University)
Session Chair 2: Benjamin Rouben (12 & 1 Consulting)

09:00 Some Open Issues in Reactor Physics Simulations (499)
Akio Yamamoto (Nagoya University)

09:40 Advances in Sensitivity and Uncertainty analysis (505)
Tomasz Kozlowski (University of Illinois Urbana-Champaign)

Great Room B: Meals and Breaks
10:20 to 10:40, Monday, August 14
Coffee Break - 1

Great Room C: Plenary Session
10:40 to 12:00, Monday, August 14
Mo2P2 Opening Plenary Session Part 2.
Session Chair 1: Adriaan Buijs (McMaster University)
Session Chair 2: Benjamin Rouben (12 & 1 Consulting)

10:40 Simulation Methods for Severe Accident Analysis (504)
Florian Fichot (IRSN)

11:20 Advances in Artificial Intelligence and Machine Learning and Their Application in the Nuclear Field (506)
Lefteri Tsoukalas (Purdue University)

Great Room A: Meals and Breaks
12:00 to 13:30, Monday, August 14
Conference Luncheon and ANS Pomraning Award Ceremony

Strategy Room 1: Technical Session - Oral Presentation
13:30 to 15:20, Monday, August 14
Mo3T1 Deterministic Transport Methods and Applications - 1
Session Chair 1: Piero Ravetto (Politecnico di Torino)
Session Chair 2: Yousry Azmy (North Carolina State University)

13:30 Application of the RSE Method for the Resonance Treatment of HTGR Fuel with Double Heterogeneity (19)

Akio Yamamoto (Nagoya University), Tomohiro Endo (Nagoya University), Satoshi Takeda (Osaka University), Hiroki Koike (Mitsubishi Heavy Industries, Ltd.), Kazuya Yamaji (Mitsubishi Heavy Industries, Ltd.), Koji Asano (Mitsubishi Heavy Industries, Ltd.)

13:52 A Deterministic Approach for Proton Transport (31)
Danny Lathouwers (Delft University of Technology)

14:14 Sweep-Free Transport Using AIR-G (51)
Richard Smedley-Stevenson (AWE)

14:36 Incomplete Parabolic Short Characteristics in IDT (61)
Francesco Filiciotto (Université Paris-Saclay, Commissariat à l'énergie atomique et aux énergies alternatives, CEA Paris-Saclay), Emiliano Masiello (Commissariat à l'Energie Atomique et aux énergies alternatives), Sandrine Cochet-Lapuerta (Commissariat à l'Energie Atomique et aux énergies alternatives), Roland Lenain (Commissariat à l'Energie Atomique et aux énergies alternatives)

14:58 An Alternative Criterion for Driving An A Posteriori AMR Strategy in a 1D-DSN Solver (78)
Nans Odry (French Atomic Energy Commission - CEA), Julien Cartier (CEA)

Strategy Room 2: Technical Session - Oral Presentation
13:30 to 15:20, Monday, August 14
Mo3T2 Monte Carlo Methods and Applications - 1
Session Chair 1: Tim Burke (Los Alamos National Lab)

13:30 Examining the Contributions of Various Source Layers and Transport Pathways to Dose Rates Exterior to a LILW Storage Facility Using ADVANTG/MCNP (3)
Bo-Lun Lai (Radiation Protection Association R.O.C.), Szu-Li Chang (Radiation Protection Association R.O.C.), Rong-Jiun Sheu (Institute of Nuclear Engineering and Science)

13:52 A New Stochastic Geometry Type Based on Voronoi Tessellation in the Serpent 2 Monte Carlo Code (8)
Jaakko Leppänen (VTT Technical Research Centre of Finland)

14:14 A Stochastic Calculus Approach to Boltzmann Transport (26)
J. Darby Smith (Sandia National Laboratories), Rich Lehoucq (Sandia National Laboratories), Brian Franke (Sandia National Laboratories)

14:36 Recent Developments to the MONK Monte Carlo Code for Criticality Safety and Reactor Physics (38)
Simon Richards (Jacobs), Adam Bird (Jacobs), Andrew Cox (Jacobs), Jessica Fildes (Jacobs), Timothy Fry (Jacobs), David Hanlon (Jacobs), Richard Hiles (Jacobs), **Brian Jones** (Jacobs), Francesco Tantillo

14:58 A new Monte Carlo Next-Event Estimator and its Neutron Scattering Kernel in TRIPOLI-4® (47)
Henri Hutinet (CEA Cadarache)

Strategy Room 3: Technical Session - Oral Presentation
13:30 to 15:20, Monday, August 14
Mo3T3 Machine Learning and Artificial Intelligence - 1

Session Chair 1: Imre Pázsit (Chalmers University of Technology)
Session Chair 2: Gerald Rimpault (CEA Cadarache)

13:30 Proper Orthogonal Decomposition Mode Coefficient Interpolation: A Non-Intrusive Reduce-Order Model for Parametric Reactor Kinetics (14)
Zachary Hardy (Los Alamos National Laboratory), Jim Morel (Texas A&M University)

13:52 Emulating Time-Dependent Reactor Behaviour Using a Combined Reduced Order Model and Deep Neural Network for TWIGL benchmark (25)
Basma Borai (McMaster University), David Novog (McMaster University), R R. ELZOHERY (Oak Ridge National Laboratory), A ATEYA (Egypt Atomic Energy Authority)

14:14 Examining the Potential for Adversarial Reprogramming Cyber Attacks on Nuclear Machine Learning Systems Utilizing Iterative FGSM (108)
Eric Hill (Idaho State University), Pedro Mena (Idaho State University), Kallie Mclaren (Idaho State University), Emily Elzinga (Idaho State University), Christopher Spirito (Idaho National Laboratory), Leslie Kerby (Idaho State University)

14:36 Predicting Model Bias of the Neutronics Code APOLLO3 at a Lattice Scale Using Machine-Learning Algorithms (71)
Claire Terrazzoni (CEA - Aix Marseille Université), Axel RIZZO (CEA), Jean-Marc PALAU (CEA)

14:58 Classification and Location of Neutron Noise Perturbations Using CNNs (140)
Monica Chillaron Perez (Universitat Politenica de Valencia), Antoni Vidal-Ferrandiz (Polytechnic University of Valencia), Vicente Vidal Gimeno (Universitat Politècnica de València), **Gumersindo Verdú Martín** (Universitat Politecnica de Valencia)

Strategy Room 5: Technical Session - Oral Presentation
13:30 to 15:20, Monday, August 14
Mo3T4 Nuclear Data - 1
Session Chair 1: Grégoire Kessedjian (CEA Cadarache)

13:30 Nuclear Data Uncertainty Quantification Based on ENDF-6 Formatted Evaluated Data Files (488)
Yihan Huang (Xian Jiaotong University), Tiejun Zu (Xian Jiaotong University), **Jiahe Bai** (Xi'an Jiaotong University), Liangzhi Cao (Xi'an Jiaotong University), Hongchun Wu (Xi'an Jiaotong University)

13:52 Impact of Using JENDL-5 on Neutronics Analysis of Transmutation Systems (46)
Takanori Sugawara (JAEA), Satoshi Kunieda (JAEA)

14:14 Construction of Low Cost Nuclear Data Resonance Parameters (53)
James Benstead (AWE)

14:36 Sensitivity of Gamma Flux to n/g Nuclear Data – An Example of KFK Gamma Leakage Benchmark Analysis (57)
Ivan Kodeli (UKAEA)

14:58 Probability Density Functions of Experimental and Evaluated 235U(nth,f) Fission Yields and their Impacts on Reactivity Losses (174)
Grégoire Kessedjian (CEA Cadarache)

Strategy Room 7: Technical Session - Oral Presentation
13:30 to 15:20, Monday, August 14
Mo3T5 Computer Codes, Modelling and Simulation - 1
Session Chair 1: Guillaume Giudicelli (Idaho national laboratory)

13:30 Standalone FISPACT-II advanced inventory simulation: - accounting for self-shielding effects - (16)
Jean-christophe Sublet (International Atomic Energy Agency), Mark Gilbert (UKAEA)

13:52 Convergence Analysis of the Ronen Method using Anderson Acceleration Schemes (33)
Johan Cufe (Ben-Gurion University of the Negev), **Daniele Tomatis** (newcleo SrL), Erez Gilad (Ben-Gurion University of the Negev)

14:14 Validation of the FENNECS SP3 Solver with Control Rod Insertion Simulations of the ESFR Using Serpent Cross Sections (70)
Silvia lo Muzio (Gesellschaft für Anlagen- und Reaktorsicherheit - Technische Universität München), Armin Seubert

14:36 Radial Power Profiles in Gadolinium-Bearing Fuel Pellets in CMS5 (461)
Joshua Hykes (Studsvik Scandpower, Inc.), Rodolfo Ferrer (Studsvik Scandpower, Inc.)

14:58 Research of Single-Point Calibration Method Based on the Axial-Offset Correction for Ex-Core Detectors (489)
Jiahe Bai (Xi'an Jiaotong University), Chenghui Wan (Xi'an Jiaotong University), Yunzhao Li (Xi'an Jiaotong University), Hongchun Wu (Xi'an Jiaotong University)

Upper Fallsview Studio B: Technical Session - Oral Presentation
13:30 to 15:20, Monday, August 14
Mo3T6 CFD and Thermalhydraulics - 1
Session Chair 1: Krishna Podila (Canadian Nuclear Laboratories)
Session Chair 2: John Cui (CNL)

13:30 TRACE Assessment for CANDU Applications Using RD-14M Station Blackout Experiment (316)
Songyu Liu (Canadian Nuclear Laboratories), Geoff Waddington (Canadian Nuclear Laboraties)

13:52 ARIANT Assessment against RD-14M Loss-of-Flow Experiment (337)
John Cui (CNL), Geoff Waddington (Canadian Nuclear Laboraties)

14:14 Establishment of a CFD Model for Steam Explosion during a Severe Accident using STAR-CCM+ Code (48)
Hae-Yong JEONG (Sejong University), In-Sik Ra (Sejong University), Jeong-Hyeon Eom (Sejong University), Gi-Young Tak (Sejong University)

14:36 Hybrid Nodal Integral-Finite Element Method (NI-FEM) for Incompressible Fluid Flow (115)
Sundar Namala (University of Illinois at Urbana-Champaign), Rizwan Uddin (University of Illinois at Urbana-Champaign), **Aya Hegazy** (University of Illinois at Urbana-Champaign)

14:58 Study of Anticipated Transient Without Scram with the Coupled code TRACE-SubChanFlow for the SMART Small Modular Reactor (365)
Javier Etcheto (Karlsruhe Institute of Technology), Victor Hugo Sanchez Espinoza (Karlsruhe

Institute of Technology (KIT)), **kanglong zhang** (Karlsruhe Institute of Technology)

Strategy Room Foyer: Meals and Breaks
15:20 to 15:40, Monday, August 14
Coffee Break - 2

Strategy Room 1: Technical Session - Oral Presentation
15:40 to 17:30, Monday, August 14
Mo4T1 Deterministic Transport Methods and Applications - 2
Session Chair 1: Ricardo Barros (Rio de Janeiro State University)

15:40 A Modified S2 Method for Calculating the Uncollided Flux from a Point Source Without Ray Effects (97)
Emerson Shands (Texas A&M University), Joshua Hanophy (Idaho National Laboratory), **Jim Morel** (Texas A&M University)

16:02 A Second-Moment Method for k-Eigenvalue Acceleration (98)
James Tutt (Texas A&M University), **Jim Morel** (Texas A&M University), Connor Woodsford (Texas A&M University)

16:24 High-Precision Benchmarks for the Stochastic Rod (99)
Eugene d'Eon (NVIDIA), Anil Prinja (University of New Mexico)

16:46 Nystrom Method Applied to the Two-dimensional Transport Problem in Heterogeneous Medium (100)
Gustavo Lorensi (Universidade Federal do Rio Grande do Sul), Esequia Sauter (UFRGS), Fabio Azevedo (Universidade Federal do Rio Grande do Sul)

17:08 Improvement of Axial Reflector Constants Calculation Using Equivalence Theory (102)
Adrien Rispo (FRAMATOME - Paris Saclay University), Xavier Doligez (CNRS/IN2P3), Simon Ravaux (FRAMATOME), Christos Trakas (FRAMATOME)

Strategy Room 2: Technical Session - Oral Presentation
15:40 to 17:30, Monday, August 14
Mo4T2 Monte Carlo Methods and Applications - 2
Session Chair 1: Ilham Variansyah (Oregon State University)

15:40 The Effect of Branchless Collisions on Neutron Clustering (50)
Hunter Belanger (Rensselaer Polytechnic Institute), Théophile Bonnet (Université Paris-Saclay, CEA, Service d'Etudes des Réacteurs et de Mathématiques Appliqué), Davide Mancusi (CEA), Andrea Zoia (CEA/Paris-Saclay)

16:02 The Statistics of Family Histories in Kinetic Monte Carlo Simulations (52)
Théophile Bonnet (Université Paris-Saclay, CEA, Service d'Etudes des Réacteurs et de Mathématiques Appliqué), Davide Mancusi (CEA), Andrea Zoia (CEA/Paris-Saclay)

16:24 Improving Variance Estimation for Time-Dependent Detectors in Monte Carlo Dynamic Calculations Using Adaptive Sampling of Neutrons (62)
Kévin Fröhlicher (IRSN), Mariya Brovchenko (IRSN), Julien Taforeau (IRSN), Eric Dumonteil (CEA/IRFU)

16:46 Development of a New Method for Neutron Spectra Analysis Based on a Deep Learning Algorithm for the Detection of Illicit Materials (72)
Clément Besnard-Vauterin (Université Paris-Saclay), Valentin Blideanu (French Atomic Energy Commission), Benjamin Rapp (French Atomic Energy Commission)

17:08 Particle Transport Benchmarks in Non-homogeneous Markov Media with Volume Fraction Gradients (77)
Andrea Zoia (CEA/Paris-Saclay), **Mikolaj Kowalski** (Université Paris-Saclay, CEA, Service d'Etudes des Réacteurs et de Mathématiques Appliquées, 91191, Gif-sur-Yvette, France), Coline Larmier (CEA)

Strategy Room 3: Technical Session - Oral Presentation
15:40 to 17:30, Monday, August 14
Mo4T3 Machine Learning and Artificial Intelligence - 2
Session Chair 1: Xu Wu (North Carolina State University)

15:40 Forecasting Axial Offset using Tree-based Models : a Step Towards Improved Nuclear Power Plants Manoeuvrability (150)
Madina Traoré (EDF / LS2N (Centrale Nantes))

16:02 Characterizing Reactor Operations from Realistic Simulated Environmental Samples: Combining High-Performance Computing and Data Analytics (151)
Ken Dayman (Oak Ridge National Laboratory), Birdy Phathanapirom (Oak Ridge National Laboratory), Jordan Stomps (University of Wisconsin Madison), Jason Hite (Oak Ridge National Laboratory), Andrew Conant (Oak Ridge National Laboratory)

16:24 Acceleration of LWR Simulations Using Machine Learning Algorithms (159)
Anna Detkina (University of Liverpool), Dzianis Litskevich, Bruno Merk

16:46 Preliminary Investigation on Multivariate Control Scheme and Optimization for Advanced Reactors (166)
Andy Rivas (North Carolina State University), Gregory Delipei (NORTH CAROLINA STATE UNIVERSITY), Satyan Bhongale (X-energy), Ian Davis (X-energy), Jason Hou (North Carolina State University)

17:08 Unsupervised Learning for Improved Gamma-ray Spectrometry in Pixelated Cadmium Zinc Telluride (CZT) Detector (173)
Gabriel Aversano (Lawrence Berkeley National Laboratory), Jayson Vavrek, Hannah Parrilla

Strategy Room 5: Technical Session - Oral Presentation
15:40 to 17:30, Monday, August 14
Mo4T4 Nuclear Data - 2
Session Chair 1: Grégoire Kessedjian (CEA Cadarache)

15:40 High Resolution Modelling without Computation Slowdown for PETALE in CROCUS (233)
Thomas Ligonnet (EPFL), Axel Laureau (CNRS - LPSC), Vincent Lamirand (EPFL), Andreas Pautz

16:02 Applications of Graph theory to nuclear data (214)
David Foster (ukaea), Mark Gilbert (UKAEA)

16:24 Uncertainty Quantification of Stability Parameters due to Nuclear Data (211)
Abdelhamid Dokhane (Paul Scherrer Institute), Alexander Vasiliev (Paul Scherrer Institute), Hakim Ferroukhi (Paul Scherrer Institute), Mathieu Hursin

16:46 Alternative Weighting Functions for Group Collapsing of Nuclear Data in Lead Fast Reactors Time-dependent Analyses (320)
Nicolò Abrate (Politecnico di Torino), Sandra Dulla (Politecnico di Torino), Piero Ravetto (Politecnico di Torino), Paolo Saracco, Christian Vita (Politecnico di Torino)

17:08 Nuclear Criticality Safety Integral Experiment Covariance Determination (384)
Eric Aboud (Lawrence Livermore National Laboratory), Daniel Siefman (Lawrence Livermore National Laboratory), Jesse Norris (Lawrence Livermore National Laboratory)

Strategy Room 7: Technical Session - Oral Presentation
15:40 to 17:30, Monday, August 14
Mo4T5 Computer Codes, Modelling and Simulation - 2
Session Chair 1: Kevin Clarno (University of Texas at Austin)

15:40 Method Research and Effect Analysis of Fuel-Assembly Bowing on Neutronic Simulation Based on Bamboo-C (490)
Lin Guo (Xi'an Jiaotong University), Chenghui Wan (Xi'an Jiaotong University), Hongchun Wu (Xi'an Jiaotong University), **Wei Shen** (CANDU Owners Group)

16:02 Derivation and Numerical Validation of an Enhanced Expression of the Cross-Power Spectral Density of Neutron Fluctuations at Zero Power (73)
Nicolas Guillevic (CEA Cadarache), Guillaume Truchet (Commissariat à l'Énergie Atomique et aux Énergies Alternatives), Christian Jammes (Commissariat à l'Énergie Atomique et aux Énergies Alternatives)

16:24 An Application of Reduced Basis Methods to Core Computation in APOLLO3 (81)
Yonah Conjungo Taumhas (Université Paris-Saclay, CEA, Service d'Etudes des Réacteurs et de Mathématiques Appliquées), François Madiot (CEA), Tony Lelievre (Ecole des Ponts ParisTech), Virginie Ehrlacher, Geneviève Dusson

16:46 Improved Methodology for Incremental Cross Sections of Reactivity Devices for CANDU Reactors (89)
Benoit Arsenault (Kinectrics), Zachary Demers (Kinectrics), Richard Chambon (Kinectrics), Emmanuel St-Aubin (Kinectrics), Constantin Banica (OPG), Jakub Szymandera (Ontario Power Generation)

17:08 Stationary Coupled Neutron/Photon Core Calculations in APOLLO3 (130)
François Madiot (CEA), Andrea Gammicchia (CEA Saclay), Emiliano Masiello (Commissariat à l'Energie Atomique et aux énergies alternatives), Pietro Mosca (CEA Saclay)

Upper Fallsview Studio B: Technical Session - Oral Presentation
15:40 to 17:30, Monday, August 14
Mo4T6 CFD and Thermalhydraulics - 2
Session Chair 1: April Novak (University of Illinois)
Session Chair 2: Aleksandar Delja (CNSC)

15:40 One-Dimensional Model of Melt Flow in a CANDU Terminal Debris Bed (334)

Robert David (Canadian Nuclear Laboratories)

16:02 Development of High-Fidelity Modelling Capabilities for Gas-Cooled Pebble Bed Reactors at Canadian Nuclear Laboratories (346)
Krishna Podila (Canadian Nuclear Laboratories), Qi Chen (Canadian Nuclear Laboratories), Onder Nihan (CNL)

16:24 Effects of Heat and Mass Flux on Heat Transfer Characteristics in a 64-element Fuel Bundle via CFD Analysis (355)
Huirui Han (Western University), Chao Zhang (Western University), Jing Jiang (University of Western Ontario)

16:46 An Equation-free Based CFD/Nodal Codes Coupling Approach (453)
Qiyun Cheng (Rensselaer Polytechnic Institute), **Wei Ji** (Rensselaer Polytechnic Institute)

Great Room C: General Infomation
18:00 to 19:30, Monday, August 14
Student Professional Development Panel

Tuesday

Strategy Room 1: Technical Session - Oral Presentation
08:00 to 09:50, Tuesday, August 15
Tu1T1 Deterministic Transport Methods and Applications - 3
Session Chair 1: Yousry Azmy (North Carolina State University)
Session Chair 2: Hansol Park (Argonne National Laboratory)

08:00 Resonance Calculation of the FCM Fuel Based on the Global-Local Method (119)
Siyu Yi (Xi'an Jiaotong University), Zhouyu Liu (Xi'an Jiaotong University), **Wei Shen** (CANDU Owners Group)

08:22 GPU-accelerated Method of Characteristics with Discontinuous Galerkin Method in Unstructured Mesh Geometry (125)
Kyung Min Kim (Seoul National University), Han Gyu Lee (Seoul National University), Jooil Yoon (KEPCO Nuclear Fuel Company, Limited), Han Gyu Joo (Seoul National University)

08:44 Adaptive Gradient-Driven Coupled Linear Schemes and their Usefulness for Charged Particle Transport (193)
Charles Bienvenue (Polytechnique Montréal), Ahmed Naceur, Jean-François Carrier, Alain Hebert (Polytechnique Montréal)

09:06 Generalized Fokker-Planck Approximations for Fast-Ion Slowing Down (198)
Kyle Beling (University of New Mexico), Anil Prinja (University of New Mexico), James Warsa (Los Alamos National Laboratory)

09:28 Efficient Computation of Legendre Moments of Doppler-broadened Elastic Scattering Kernel in Griffin (199)
Hansol Park (Argonne National Laboratory), Yeon Sang Jung (Argonne National Laboratory), Changho Lee (Argonne National Laboratory), Yaqi Wang (Idaho National Lab)

Strategy Room 2: Technical Session - Oral Presentation
08:00 to 09:50, Tuesday, August 15
Tu1T2 Monte Carlo Methods and Applications - 3
Session Chair 1: Tim Burke (Los Alamos National Lab)

08:00 Computing the Sensitivity of Effective Kinetics Parameters by Monte Carlo Methods Using a Super-History Approach (79)
Andrea Zoia (CEA/Paris-Saclay), Paul-Edouard Dufour (CEA/Paris-Saclay), Alexis Jinaphanh (CEA/Paris-Saclay)

08:22 Development of Tracking Module for Unstructured Mesh Geometry in PRAGMA Employing Hardware-accelerated Ray Tracing Engine (126)
Jaeuk Im (Seoul National University), Namjae Choi (Seoul National University), Han Gyu Joo (Seoul National University)

08:44 A Functional Expansion Tally Method with Numerical Basis Sets Generated by Singular Value Decomposition for One Dimensional Monte Carlo (128)
Ryoichi Kondo (Japan Atomic Energy Agency), Yasunobu Nagaya (Japan Atomic Energy Agency)

09:06 Critical Spectrum Burnup Calculations with Serpent Monte Carlo Code (132)
Ville Valtavirta (VTT Technical Research Centre of Finland)

09:28 Implicit Compton Scattering for Implicit Monte-Carlo\\ in Radiative Transfer Problems (136)
Elad Steinberg (Hebrew University), Shay Heizler (Racah Institute of Physics, The Hebrew University)

Strategy Room 3: Technical Session - Oral Presentation
08:00 to 09:50, Tuesday, August 15
Tu1T3 Machine Learning and Artificial Intelligence - 3
Session Chair 1: Jason Hou (North Carolina State University)

08:00 Reactor Core Loading Pattern Optimization with Reinforcement Learning (205)
Gregory Delipei (NORTH CAROLINA STATE UNIVERSITY), Jake Mikouchi-Lopez (NORTH CAROLINA STATE UNIVERSITY), Pascal Rouxelin (NORTH CAROLINA STATE UNIVERSITY), **Jason Hou** (North Carolina State University)

08:22 Development of Machine Learning Model for Neutron Clustering Classification in Monte Carlo Criticality Simulation (207)
Arief Rahman Hakim (Ulsan National Institute of Science and Technology), Ilham Variansyah (Oregon State University), Douglas Fynan (Ulsan National Institute of Science and Technology (UNIST))

08:44 Pareto Envelope Augmented with Reinforcement Learning: Multi-Objective Reinforcement Learning-Based Approach for Pressurized Water Reactor Optimization. (225)
Paul Seurin (Massachusetts Institute of Technology), Koroush Shirvan (Massachusetts Institute of Technology)

09:06 A Comparison of the Performance of Three Nongradient-Based Optimization Algorithms During the Design of an Accelerator-Driven Subcritical Assembly for Mo-99 Production (253)
Noel Nelson (Oak Ridge National Laboratory), Andrew Conant (Oak Ridge National Laboratory), Jorge Navarro (Oak Ridge National Laboratory), Chad Denbrock (Niowave, Inc.), Robert Wahlen (Niowave, Inc.), Terry Grimm (Niowave, Inc.)

Strategy Room 5: Technical Session - Oral Presentation
08:00 to 09:50, Tuesday, August 15
Tu1T4 Nuclear Data - 3
Session Chair 1: Jean-christophe Sublet (International Atomic Energy Agency)

08:00 Improved Evaluated Data in the Resonance Region by Combining Energy Dependent Cross Section (412)
Mathieu Hursin, Dimitri Rochman (Paul Scherrer Institute), Peter Schillebeeckx, Stefan KOPECKY, **Tom Mager** (EPFL)

08:22 Resonance Parameter Sensitivity Translation from The Pole Representation to R-Matrix (441)
Matthew Lazaric (University of New Mexico), Christopher Perfetti (University of New Mexico)

08:44 PyNjoy2016: an Open Source System for Producing Cross Sections Libraries for DRAGON5 and SERPENT2 (64)
Vivian Salino (IRSN), Alain Hebert (Polytechnique Montréal)

09:06 Preliminary Code-to-Code Comparisons for the Implementation of Neutron and Photon Physics in the new Monte Carlo Transport Code TRIPOLI-5 (385)

Coline Larmier (CEA), Mikolaj Kowalski (Université Paris-Saclay, CEA, Service d'Etudes des Réacteurs et de Mathématiques Appliquées, 91191, Gif-sur-Yvette, France), Alexis Jinaphanh (CEA/Paris-Saclay), Valentin Franchini (Université Paris-Saclay, CEA, Service d'Etudes des Réacteurs et de Mathématiques Appliquées), Dinh Quoc Dang Nguyen (French Alternative Energies and Atomic Energy Commission (CEA)), Fausto Malvagi (IRSN), Davide Mancusi (CEA), Andrea Zoia (CEA/Paris-Saclay)

09:28 Variational Algorithm to Find Eigenvalues of Nuclear Models (129)
Isaac Hobday, **James Benstead** (AWE)

Strategy Room 7: Technical Session - Oral Presentation
08:00 to 09:50, Tuesday, August 15
Tu1T5 Computer Codes, Modelling and Simulation - 3
Session Chair 1: Emily Shemon (Argonne National Laboratory)

08:00 A Three-dimensional Diffusion Solver for Hexagonal-Assembly Core Based on the Nonlinear-Iteration Strategy and Conformal Mapping (491)
Haozhe Yang (Xi'an Jiaotong University), Chenghui Wan (Xi'an Jiaotong University), Jiahe Bai (Xi'an Jiaotong University), Hongchun Wu (Xi'an Jiaotong University)

08:22 APOLLO3®: Overview of the new Code Capabilities for Reactor Physics Analysis (160)
Pietro Mosca (CEA Saclay)

08:44 Control Blade History Model in ARTEMIS-B (182)
Alexander Bennett (Framatome), Jaron Senecal (Framatome)

09:06 Energy Deposition Post-Shutdown in the Guide Boxes of the OPAL Reactor (192)
Nir Kastin (NRCN), Aviv Barnea, Guy Stein (NRCN)

09:28 Bunup-dependent Pin Power Reconstruction with Embedded Calculation (220)
Yunseok Jeong (KAIST), Taesuk Oh (KAIST), Yonghee KIM (KAIST)

Upper Fallsview Studio B: Technical Session - Oral Presentation
08:00 to 09:50, Tuesday, August 15
Tu1T6 Modelling and Simulation of Fuel, Materials - 1
Session Chair 1: Markus Piro (Ontario Tech University)
Session Chair 2: Cong Dai (Canadian Nuclear Laboratories)

08:00 On Time Integration and Final Time Perturbation Prediction for Coupled Stiff Differential Equations in the Chemistry Kinetics Code CK-SIMUL (56)
Rene van Geemert (Framatome)

08:22 Coupling Nuclear Predictions into Damage Simulations with SPECTRA-PKA (196)
Mark Gilbert (UKAEA)

08:44 Modeling of Zircaloy Oxidation Through Dynamic Mesh Deformation (170)
Alessandro Scolaro (EPFL), Edoardo Brunetto (École Polytechnique Fédérale de Lausanne), Carlo Fiorina (Texas A&M University)

09:06 Fuel Shape Optimization Using Simulated Annealing (282)
Nicholas Herring (North Carolina State University (Current Affiliation UTA)), Yousry Azmy (North Carolina State University)

Strategy Room Foyer: Meals and Breaks
09:50 to 10:10, Tuesday, August 15
Coffee Break - 3

Strategy Room 1: Technical Session - Oral Presentation
10:10 to 12:00, Tuesday, August 15
Tu2T1 Deterministic Transport Methods and Applications - 4
Session Chair 1: Alain Hebert (Polytechnique Montréal)

10:10 Improvement to the Resonance Calculation Using Energy Spectrum Expansion Method for Direct Whole-Core Calculation (209)
Han Gyu Lee (Seoul National University), Changhyun Lim (KEPCO Nuclear Fuel Company Limited), Han Gyu Joo (Seoul National University)

10:32 A Linear Programming-Based Methodology to Determine the Minimal Neutron Source Distribution in Subcritical Systems (219)
Leonardo Moraes (The Ohio State University), Richard Vasques (The Ohio State University), Ricardo Barros (Rio de Janeiro State University)

10:54 Derivation of Spherical Harmonic Approximations to the Nonclassical Particle Transport Equation (224)
Sunday Agbo (The Ohio State University), Leonardo Moraes (The Ohio State University), Richard Vasques (The Ohio State University)

11:16 P1 Synthetic Acceleration and Convergence Analysis for the Solution of the One-Speed Non-Classical Spectral SN Equations in Slab Geometry (260)
Alan Silva (Universidade do Estado do Rio de Janeiro), Leonardo Moraes (The Ohio State University), **Ricardo Barros** (Rio de Janeiro State University), Richard Vasques (The Ohio State University)

11:38 A Collision-Based Coupling Scheme from Monte Carlo to Discrete Ordinates Neutron Transport Codes for Ray Effects Mitigation in Detector Applications (261)
Noah Higgins (North Carolina State University), **Nicholas Herring** (North Carolina State University (Current Affiliation UTA)), Yousry Azmy (North Carolina State University)

Strategy Room 2: Technical Session - Oral Presentation
10:10 to 12:00, Tuesday, August 15
Tu2T2 Monte Carlo Methods and Applications - 4
Session Chair 1: Dan Kotlyar (Georgia Institute of Technology)

10:10 iQMC: Iterative Quasi-Monte Carlo with Krylov Linear Solvers for k-Eigenvalue Neutron Transport Simulations (168)
Samuel Pasmann (University of Notre Dame), Ilham Variansyah (Oregon State University), Charles Kelley (North Carolina State University), Ryan McClarren (University of Notre Dame)

10:32 Preliminary Monte Carlo and Thermal Hydraulic Analysis using a Hybrid ETF-Corrected-Diffusion Prediction Block (169)
Bailey Painter (Georgia Institute of Technology), Dan Kotlyar (Georgia Institute of Technology), Stefano Terlizzi

10:54 Tool developments in the OpenMC code: Correlated Sampling and Transient Fission Matrix approach using OpenFOAM CFD mesh (175)
Axel Laureau (CNRS - LPSC), Elsa Merle (CNRS – LPSC G-INP)

11:16 Frequency Transform Variance Reduction on a Simple Time-Dependent Monte Carlo Problem (197)
John Tchakerian (Massachusetts Institute of Technology), Benoit Forget (Massachusetts Institute of Technology), Travis Trahan (Los Alamos National Labratory)

11:38 Estimation of Kinetics Parameters for Point Kinetics Equation Considering Delayed Photoneutrons (206)
YOUNG IN KIM (Seoul National University), Hyung Jin Shim (Seoul National University)

Strategy Room 3: Technical Session - Oral Presentation
10:10 to 12:00, Tuesday, August 15
Tu2T3 Machine Learning and Artificial Intelligence - 4
Session Chair 1: Xu Wu (North Carolina State University)

10:10 Improving SAFARI-1 Control Follower Assembly Axial Flux Prediction by Combining Supervised and Unsupervised Machine Learning (400)
Lesego Moloko (North Carolina State University), Pavel Bokov (Necsa), **Xu Wu** (North Carolina State University), Kostadin Ivanov (North Carolina State University)

10:32 Structural Stability Analysis in Nuclear Power Design Optimisation (359)
Dominic Brennan (University of Cambridge), Geoff Parks (University of Cambridge)

10:54 Analyzing Hierarchical Division and Agglomeration with Random Neutron Multigroup Structures (372)
Leo Tunkle (Los Alamos National Laboratory), **Mario Ortega** (Los Alamos National Laboratory), Andrew Till (LLNL), Nathan Gibson (Los Alamos National Laboratory), Thomas Saller (Los Alamos National Laboratory)

11:16 Burnup Correlation with Gamma Spectrum of the Pebble Bed Reactor Fuel Using Machine Learning (392)
Nick Rollins (North Carolina State University), Jason Hou (North Carolina State University), India Allen (North Carolina State University)

11:38 An Analytical Approach for the Determination of the Power History of HTR Fuel Elements from Isotopic Assays (218)
Weijian ZHANG (Tsinghua University), Jingang LIANG (Tsingahua University), Liguo ZHANG (Tsinghua University), Ding She (Tsinghua University)

Strategy Room 5: Technical Session - Oral Presentation
10:10 to 12:00, Tuesday, August 15
Tu2T4 Sensitivity Analysis on Thermalhydraulics
Session Chair 1: John Cui (CNL)

10:32 Taillefer - A Tool for Sensitivity Analysis and Uncertainty Propagation Studies for Steady-State Thermal-Hydraulic Simulations of Involute Fuel Element Research Reactors (263)
Ronja Schönecker (Technical University of Munich), Paolo Bianchini (Milano Multiphysics), Frederic Thomas (Institut Laue-Langevin), Yoann Calzavara (Institut Laue-Langevin), Winfried Petry (Technical

University of Munich), Christian Reiter (Technische Universität München)

10:54 A Natural Circulation Model and its Sensitivity Analysis for Verification of Dry Cask Storage Contents (269)
Zi Liang Tan (University of Cambridge)

11:16 Effect of solution Bifurcations in the two-dimensional Rayleigh-Benard Problem on Sensitivity Analysis (450)
Fadel Nasr (North Carolina State University), Yousry Azmy (North Carolina State University)

11:38 Bayesian Estimation of a Machine Learning-based Representation of Model Discrepancy (457)
Ziyu Xie (North Carolina State University), Xu Wu (North Carolina State University)

Strategy Room 7: Technical Session - Oral Presentation
10:10 to 12:00, Tuesday, August 15
Tu2T5 Computer Codes, Modelling and Simulation - 4
Session Chair 1: Constantin Banica (OPG)

10:10 First Steps of a Serpent-McStas Coupling for the Optimization of Experimental Facilities at FRM II during Conversion (232)
Daniel Bonete Wiese (Technical University of Munich), Christoph Hauf (Technical University of Munich), Christian Reiter (Technische Universität München)

10:32 Experimental Benchmark of BSOLVE using the WSU TRIGA Reactor (236)
Meng-Jen (Vince) Wang (University of Nevada Las Vegas), **Glenn Sjoden** (University of Utah), Tanner Hall (University of Utah), Christopher Hines (Washington State University), Zachariah Heiden (Washington State University Nuclear Science Center & NUCS Core Facility), Hillary Bennett (Washington State University Nuclear Science Center & NUCS Core Facility), Watrous Matthew (Idaho National Laboratory)

10:54 An Analysis of Error Associated with Reprocessing Methods in Molten Salt Reactors (238)
Luke Seifert (University of Illinois at Urbana-Champaign), Madicken Munk (University of Illinois at Urbana-Champaign)

11:16 A Three-Dimensional Two-Energy Group Heterogeneous Intrusive Reduced Order Model of Xenon Oscillations in PWRs (250)
Kristoffer Pedersen (Chalmers University of Technology), Christophe Demaziere (Chalmers University of Technology), Paolo Vinai (Chalmers University of Technology)

11:38 A Coupled Deterministic Transport Calculation in Comsol Using Proper Orthogonal Decomposition (467)
John Ross (The University of Texas at Austin), Kevin Clarno (University of Texas at Austin), Benjamin Collins (University of Texas at Austin), Tristan Villarreal (University of Texas)

Upper Fallsview Studio B: Technical Session - Oral Presentation
10:10 to 12:00, Tuesday, August 15
Tu2T6 Modelling and Simulation of Fuel, Materials - 2
Session Chair 1: Markus Piro (Ontario Tech University)

10:10 Simultaneous Fuel Cracking and Pellet Cladding Mechanical Interaction using Multiphysics Phase-Field Modeling (386)

Vincent A GAUTHIER (MIT), **Koroush Shirvan** (Massachusetts Institute of Technology)

10:32 Comparison of Thickness Prediction Methods for CANDU Feeder Wall Thickness (390)
Ming Li (Ontario Power Generation)

10:54 Atomistic simulations of silicon carbide layer in Tristructural Isotropic fuel particles (4)
Cong Dai (Canadian Nuclear Laboratories), Mike Welland (Canadian Nuclear Laboratories)

11:16 Fluoride-salt High-temperature Reactor (FHR) NEA Benchmark. Phase I-C: Fuel Element 3D (478)
Bojan Petrovic (Georgia Institute of Technology), **Jonathon Faulkner** (Georgia Institute of Technology)

Establishment of own choice: Meals and Breaks
12:00 to 13:30, Tuesday, August 15
Free time for lunch

Strategy Room 1: Technical Session - Oral Presentation
13:30 to 15:20, Tuesday, August 15
Tu3T1 Deterministic Transport Methods and Applications - 5
Session Chair 1: Imre Pázsit (Chalmers University of Technology)
Session Chair 2: Gerald Rimpault (CEA Cadarache)

13:30 A 'Consistent' Quasidiffusion Method for Iteratively Solving Particle Transport Problems (306)
Edward Larsen (University of Michigan), Tomas Paganin (The Ohio State University), Richard Vasques (The Ohio State University)

13:52 Stabilization Techniques for 2D/1D Fusion Methods: Application to Sodium Fast Reactors (276)
Giorgio Valocchi, **Jean-François Vidal** (CEA Cadarache), Faure Bastien

14:14 Study on a Data-Driven Neutron Transport Calculation Method Using Proper Orthogonal Decomposition (326)
Shunya Teratani (Nagoya University), Tomohiro Endo (Nagoya University), Akio Yamamoto (Nagoya University), Masato Ito (Nagoya University)

14:36 A Non Intrusive Reduced Order Model via Sparse Grids for Parametric Neutron Transport (336)
Jean Ragusa (Texas A&M University), Jason Rodriguez (Texas A&M University)

14:58 Evaluation of Neutron Flux Expansion Error by POD Bases Based on Wilks' Method (339)
Masato Ito (Nagoya University), Tomohiro Endo (Nagoya University), Akio Yamamoto (Nagoya University), Yasuhiro Kodama (Nuclear Fuel Industries, Ltd.), Hiroaki Nagano (Nuclear Fuel Industries, Ltd.)

Strategy Room 2: Technical Session - Oral Presentation
13:30 to 15:20, Tuesday, August 15
Tu3T2 Monte Carlo Methods and Applications - 5
Session Chair 1: Farzad Rahnema (Farzad Rahnema)

13:30 Challenges of Near Critical-Fixed Source Monte Carlo Simulations of CANDU-6 Reactor: Bundle Power Tally Bias and Error Autocorrelation from Exceeding Random-Number Stride (208)
Arief Rahman Hakim (Ulsan National Institute of Science and Technology), Douglas Fynan (Ulsan National Institute of Science and Technology (UNIST))

13:52 Evaluation of Effective Point Kinetic Parameters and Mesh-Based Adjoint Flux Distribution in the iMC Monte Carlo code (215)
Taesuk Oh (KAIST), **Inyup Kim** (KAIST), Yonghee KIM (KAIST)

14:14 Resonance Upscatter Sampling without Tables or Rejection via the Windowed Multipole Formalism (255)
Gavin Ridley (MIT), Benoit Forget (Massachusetts Institute of Technology)

14:36 Burnup and Analytical Analysis of Neutron Poison Accumulation in the Beryllium Reflector of the Jules Horowitz Reactor (275)
Jussi Peltonen (VTT Technical Research Centre of Finland), Patrick Carter-Cortez (University of Cambridge)

14:58 Dynamic Load Balance for Monte Carlo Shielding Simulations (273)
Kaiwen Li (Tsinghua University), **Wu Wang** (Tsinghua University), Nan An (Tsinghua University), Shanfang Huang, Kan Wang

Strategy Room 3: Technical Session - Oral Presentation
13:30 to 15:20, Tuesday, August 15
Tu3T3 Machine Learning and Artificial Intelligence - 5
Session Chair 1: Youssef Shatilla (Idaho National Laboratory)

13:30 Reactor Physics Prediction in Subcritical Regime by Deep Learning (424)
Ronald Daryll Gatchalian (Texas A&M University), Pavel Tsvetkov (Nuclear Engineering Department, Texas A&M University)

13:52 Reduced Order Modeling of a MOOSE-based Advanced Manufacturing Model with Operator Learning (431)
Mahmoud Yaseen (North carolina state university), Dewen Yushu (Idaho National Laboratory), Peter German (Idaho National Laboratory), Xu Wu (North Carolina State University)

14:14 Machine Learning to Extract Patterns in In-situ Monitoring Signals for Additive Manufacturing (437)
Anant Raj (Purdue University), **Charles Owen** (Purdue University), Benjamin Stegman (Purdue University), Hany Abdel-Khalik (Purdue University), Xinghang Zhang (Purdue University), John Sutherland (Purdue University)

14:36 Using Entropy Estimation to Quantify Nonlinear Experimental Relevance (479)
Congjian Wang (Idaho National Laboratory), Jeongwon Seo (Purdue University), Mohammad Abdo (Idaho National Laboratory), **Hany Abdel-Khalik** (Purdue University)

14:58 Secure Data Masking for Anomaly Detection with DIOD (480)
Tyler Lewis (Purdue University), Arvind Sundaram, Ahmad Al Rashdan (Idaho National Laboratory), Hany Abdel-Khalik (Purdue University)

Strategy Room 5: Technical Session - Oral Presentation
13:30 to 15:20, Tuesday, August 15
Tu3T4 SMR and GEN-IV Reactors - 1
Session Chair 1: Markus Piro (Ontario Tech University)

13:30 Validation of Neutronic and Thermal-hydraulic Multi-physics Calculations for SMRs Rod Ejection

Accident with PARCS/TWOPORFLOW (21)
Alejandro Campos Muñoz (Karlsruhe Institute of Technology)

13:52 Loose Coupled Fast-Thermal Reactor for Long-Life Power Generation: Inverted Core Fast Reactor (IC-FR) Case Study (69)
Muhammad Khandaq (Ulsan National Institute of Science and Technology (UNIST)), Deokjung Lee (UNIST)

14:14 Improved Variance Reduction Implementation in NuScale's Fast Neutron Fluence Analysis Using ADVANTG (85)
Wei Zhang (NuScale Power LLC)

14:36 Dynamic Modeling of the Neutronic Behavior of Pressure Wave Propagation in the Phenix Reactor Core by Using Nodal Diffusion Code DYN3D (90)
Evgeny Nikitin (HZDR - Germany), Emil Fridman (Helmholtz-Zentrum Dresden-Rossendorf)

14:58 Development Status of VHTR Analysis Module in PRAGMA (123)
Sung Joon Kwon (Seoul National University), Namjae Choi (Seoul National University), Jaeuk Im (Seoul National University), Han Gyu Joo (Seoul National University)

Strategy Room 7: Technical Session - Oral Presentation
13:30 to 15:20, Tuesday, August 15
Tu3T5 Computer Codes, Modelling and Simulation - 5
Session Chair 1: Benoit Arsenault (Kinectrics)

13:30 A Digital Twin for Refueling Strategy Simulation of Stable Salt Fast Reactors (264)
Puran Deng (University of Michigan), Won Sik Yang (University of Michigan), **Yan Cao** (Argonne National Laboratory), Thanh Hua (Argonne National Laboratory), Luke Godfrey (Moltex Energy Canada), Andrew Ballard (Moltex Energy Canada)

13:52 Deterministic Computation of Leakage Neutron Multiplicity Moments in PARTISN (294)
Jawad Moussa (University of New Mexico), Anil Prinja (University of New Mexico), Nathan Hart (Los Alamos National Laboratory), Erin Davis (Los Alamos National Laboratory)

14:14 Time-Dependent Modelling of Checkerboard Voiding for a PT-HWR using Neutron Transport and Diffusion Theory (314)
Peter Schwanke (Ontario Tech University), Eleodor Nichita (Ontario Tech University)

14:36 Development of a Multi-Parameter Library Generator Prototype for VVER and PWR Applications Based on APOLLO3 (321)
Alberto Brighenti (Framatome), Barbara Vezzoni (FRAMATOME), Alain Hebert (Polytechnique Montréal), Barbara CALGARO (Framatome), Elias-Yammir GARCIA-CERVANTES (CEA), Gianfranco Huaccho (KIT), Laurent GRAZIANO (Framatome), Pierre LAURENT (EDF), Luigi MERCATALI (KIT), Pietro Mosca (CEA Saclay), Alberto PREVITI (Framatome), Simone SANTANDREA (CEA), Jean-François Vidal (CEA Cadarache), Adrien WILLIEN (EDF), Igor Zmijarevic (CEA)

14:58 An Initial Study of the Convergence Rate of Griffin's Pebble Bed Reactors Algorithm (280)
Tomas Paganin (The Ohio State University), Sebastian Schunert (Idaho National Laboratory), Leonardo Moraes (The Ohio State University), Richard Vasques (The Ohio State University)

Upper Fallsview Studio B: Technical Session - Oral Presentation

13:30 to 15:20, Tuesday, August 15
Tu3T6 Multi-Scale, Multiphysics Simulations - 1
Session Chair 1: Mathew Cleveland (LANL)

13:30 A Neutronics and T/H Coupled Calculation of Critical Channel Power in a CANDU6 Channel with Pressure Tube Deformation (20)
EUN HYUN RYU (Korea Atomic Energy Research Institute), Jong Yeob Jung (KAERI)

13:52 Designing the Second Target Station with a coupled neutronics-mechanical optimization workflow (86)
Kristel Ghoos (Oak Ridge National Laboratory), Lukas Zavorka, Joseph Tipton, Igor Remec

14:14 An FMI Framework to Enable Multi-scale, Multi-fidelity and Control-oriented Simulations of Nuclear Reactors Using OpenFOAM/GeN-Foam and Modelica (127)
Carlo Fiorina (Texas A&M University), Nahom Habtemariam (Politecnico di Milano), Stefano Lorenzi, Alessandro Scolaro (EPFL), Thomas Guilbaud, Andrea Alfonsi

14:36 Hybrid Mesh Based Predictions of Rod Level Thermal Margins (149)
Riku Tuominen (VTT Technical Research Centre of Finland Ltd), Ville Valtavirta (VTT Technical Research Centre of Finland)

14:58 Verification of the Cardinal Multiphysics Solver with the Doppler Slab Benchmark (106)
Aya Hegazy (University of Illinois at Urbana-Champaign), April Novak (University of Illinois)

Strategy Room Foyer: Meals and Breaks
15:20 to 15:40, Tuesday, August 15
Coffee Break - 4

Strategy Room 1: Technical Session - Oral Presentation
15:40 to 17:30, Tuesday, August 15
Tu4T1 Deterministic Transport Methods and Applications - 6
Session Chair 1: Leonardo Moraes (The Ohio State University)
Session Chair 2: Gerald Rimpault (CEA Cadarache)

15:40 Development of a Fast Solver for Multi-Dimensional Low-Order Transport (371)
Matt Kabelitz (University of Michigan), Qicang Shen (University of Michigan--Ann Arbor), Brendan Kochunas (University of Michigan)

16:02 Adjoint-Informed Synthesis of Steady State Source Analogs in Deterministic Transport Models (375)
Tanner Hall (University of Utah), Meng-Jen (Vince) Wang (University of Nevada Las Vegas), **Glenn Sjoden** (University of Utah)

16:24 A Comparison of the Variable Eddington Factor and Second Moment Methods (382)
Samuel Olivier (Los Alamos National Laboratory)

16:46 Diffusion-Limit-Preserving Lumped DFEM's on AMR Meshes (388)
Andrew Till (LLNL)

17:08 Performance Analysis of a Coarse-Group Subgroup Method Based on the Physical Probability Tables in APOLLO3® (408)

Emeline Rosier (CEA), **Li Lei-Mao** (CEA Saclay), Richard Sanchez (CEA), Lui Leal (IRSN), Igor Zmijarevic (CEA)

Strategy Room 2: Technical Session - Oral Presentation
15:40 to 17:30, Tuesday, August 15
Tu4T2 Monte Carlo Methods and Applications - 6
Session Chair 1: Benoit Arsenault (Kinectrics)

15:40 Programmatic Modeling and Unification for Monte Carlo Codes (278)
Peter Kowal (Naval Nuclear Laboratory), Camden Blake (Rensselaer Polytechnic Institute), Wei Ji (Rensselaer Polytechnic Institute)

16:02 Improving the Accuracy of Scattering Distributions for Multigroup Monte Carlo (281)
Tim Burke (Los Alamos National Lab), Nathan Gibson (Los Alamos National Laboratory)

16:24 Variance Reduction Method for High Energy Nuclear Systems (292)
Nancy Granda Duarte (University of Wisconsin-Madison), Paul Wilson (UW-Madison Eng. Physics Dept.)

16:46 High-Fidelity Treatment for Object Movement in Time-Dependent Monte Carlo Transport Simulations (300)
Ilham Variansyah (Oregon State University), Ryan McClarren (University of Notre Dame)

17:08 Equivalence of Conditional Point Sampling with the Atomic Mix Approximation and Chord Length Sampling when Using Simple User Options (415)
Aaron Olson (Sandia National Laboratories), Anil Prinja (University of New Mexico)

Strategy Room 3: Technical Session - Oral Presentation
15:40 to 17:30, Tuesday, August 15
Tu4T3 Machine Learning and Artificial Intelligence - 6
Session Chair 1: Akio Yamamoto (Nagoya University)

15:40 Comparing Performance of Different Gamma-Spectrum Processing Methods for Isotope Identification (303)
Jude Alexander (Canadian Nuclear Laboratories), Vinicius Anghel (CNL), Martin Thompson (Canadian Nuclear Laboratories), David PErez Loureiro, Krassimir Stoev (CNL), Michael Echlin (Canadian Nuclear Laboratories), Gang Li (Canadian Nuclear Laboratories), Eli Simova (Canadian Nuclear Laboratories)

16:02 Partitioned Dynamic Mode Decomposition for Nonlinear or Transient Dynamics (32)
Zachary Hardy (Los Alamos National Laboratory), Jim Morel (Texas A&M University)

16:24 Machine Learning Approaches to Predict Spent Fuel Parameters based on In-situ Gamma Spectrometry at Paks NPP (376)
Péter Kirchknopf (Budapest University of Technology and Economics), Bálint Batki (Centre for Energy Research)

16:46 Using Machine Learning to Unfold Neutron Spectra with a Passive Neutron Spectrometer (274)
Zachary Condon (Ohio State University), Richard Vasques (The Ohio State University), Daniel Siefman (Lawrence Livermore National Laboratory)

Strategy Room 5: Technical Session - Oral Presentation
15:40 to 17:30, Tuesday, August 15
Tu4T4 Sensitivity Analysis and Uncertainty Quantification - 1
Session Chair 1: Ian HILL (OECD/NEA)

15:40 A Comparison of Different Methods for Uncertainty Quantification due to Manufacturing Tolerances in Estimating keff (67)
Christian Fedon (Nuclear Research and Consultancy Group (NRG)), Steven Marck (Nuclear Research and Consultancy Group (NRG))

16:02 Application of the Transposition Method Involving Industrial Nuclear Plants Measurements: Case of the Critical Boron Concentration (75)
Eric Karson Njayou Tsepeng (EDF), David COUYRAS (Électricité de France (EDF)), Patrick BLAISE (CEA (Commissariat à l'énergie atomique et aux énergies alternatives)), Jean-Philippe Argaud (Électricité de France (EDF)), Nicolas DOS SANTOS (Électricité de France (EDF))

16:24 Advanced Tools for Uncertainties Visualization and Analysis in Fuel Cycle Simulations (82)
Marc Ernoult (CNRS/IN2P3), Xavier Doligez (CNRS/IN2P3), Nicolas Thiollière (Subatech, University of Nantes, IMT Atlantique, CNRS/IN2P3)

16:46 Sensitivity Analysis and Uncertainty Quantification Studies in Parametric Design Domain Evaluations using MCNP PSTUDY and Dakota (445)
James Passmore (Texas A&M University), Davis Golden (Texas A&M University), Ryan Brownfield (Texas A&M University), Pavel Tsvetkov (Nuclear Engineering Department, Texas A&M University), **Jason Hearne** (Texas A&M University)

17:08 Extension of Reactivity Decrement Uncertainty to Advanced LWR Fuels via Stochastic Sampling and Sensitivity-Based Verification (189)
Rodolfo Ferrer (Studsvik Scandpower, Inc.), Joshua Hykes (Studsvik Scandpower, Inc.), Hatice Akkurt (EPRI), Robert Hall

Strategy Room 7: Technical Session - Oral Presentation
15:40 to 17:30, Tuesday, August 15
Tu4T5 Computer Codes, Modelling and Simulation - 6
Session Chair 1: Kevin Clarno (University of Texas at Austin)

15:40 Development and Benchmarking of Transient Nodal Code SIMULATE-5K Neutron Kinetics solver for VVERs and Hexagonal Geometries (332)
William Dawn (Studsvik Scandpower, Inc.), Tamer Bahadir (Studsvik Scandpower, Inc.)

16:02 A Parallel Implementation of Finite Element Model with Variational Multiscale Stabilization to Solve Advection-diffusion Equations (389)
Qiyue Lu (University of Illinois at Urbana-Champaign), Bruno Abreu

16:24 Preliminary Results of Load Follow Simulation for Holos-Quad Microreactor using PROTEUS and Model Predictive Control (407)
Sooyoung Choi, **Brendan Kochunas** (University of Michigan), Changho Lee (Argonne National Laboratory), Qicang Shen (University of Michigan--Ann Arbor), Claudio Filippone (HolosGen LLC)

16:46 Recoverable Energy per Fission Discrepancies in NEA FHR Benchmark Depletion Studies (419)
Jonathon Faulkner (Georgia Institute of Technology), Bojan Petrovic (Georgia Institute of Technology), Kyle Ramey (ANL), Zeyun Wu (Virginia Commonwealth University), Cihang Lu (Brookhaven National

Lab), Ezven Losa (Research Centre Rez), Gwendolyn Chee (University of Illinois at Urbana-Champaign), Javier Gonzalez Mantecon (McMaster University), Ian HILL (OECD/NEA)

17:08 Improved Methodology for Depletion of Gadolinia Bearing Nuclear Fuel (455)
Chase Lawing (BWXT), Scott Palmtag (North Carolina State University)

Upper Fallsview Studio B: Technical Session - Oral Presentation
15:40 to 17:30, Tuesday, August 15
Tu4T6 Multi-Scale, Multiphysics Simulations - 2
Session Chair 1: Kirk Atkinson (Ontario Tech University)
Session Chair 2: Timothy Valentine (ORNL)

15:40 Coupled Neutronics–Thermal-hydraulics Modelling of the Aircraft Reactor Experiment (153)
François Martin (CEA), André Bergeron (CEA), Guillaume Campioni (CEA), Nathan Greiner (CEA), Yannick Gorsse (CEA), Elsa Merle (CNRS – LPSC G-INP)

16:02 Multiphysics Coupling of OpenMC CAD-Based Transport to MOOSE using Cardinal and Aurora (187)
April Novak (University of Illinois), Helen Brooks (United Kingdom Atomic Energy Authority), Patrick Shriwise (UCHICAGO ARGONNE, LLC), Aya Hegazy (University of Illinois at Urbana-Champaign), Andrew Davis (UKAEA)

16:24 Semi-analytical Stability Analysis of a Neutronics / Thermal-hydraulics Coupling Based on Automatic Differentiation (190)
Rodrigue Abbé (CEA), Cyril Patricot, Marc Médale

16:46 Going Beyond Global Responses in Benchmarking Multiphysics Simulations (227)
Santiago Bazzana (Comisión Nacional de Energía Atómica), Juan Beliera (Comisión Nacional de Energía Atómica), **Alexandre Trottier** (CNL), Dumitru Serghiuta (CNSC)

17:08 Influence of Reactivity Insertion Rate on Evolution of Core Disruptive Accident in Heavy Liquid Metal Fast Reactor - Case Study: MYRRHA (179)
Dorde Petrovic (Katholieke Universiteit Leuven - KU Leuven), Matteo Zanetti (Belgian Nuclear Research Centre), Guy Scheveneels (Belgian Nuclear Research Centre), **Luca Fiorito** (SCK CEN)

Great Room B: Technical Session - Poster Presentation
18:00 to 20:30, Tuesday, August 15
Tu5T1 Poster Session with Wine and Cheese

Homogenization and Reactivity Extrapolation Effects for Transient Calculations with the Fission Matrix Method (265)
Maximiliano Dalinger (The Pennsylvania State University), William Walters (The Pennsylvania State University), Mahmoud Eltawila (The Pennsylvania State University)

Shutdown Dose Rate Calculations of a Gas-Cooled Microreactor (287)
Roberto Fairhurst-Agosta (University of Illinois at Urbana-Champaign), **Tomasz Kozlowski** (University of Illinois Urbana-Champaign)

ARIANT Assessment against RD-14M Small-Break Loss-of-Coolant Experiment (338)
John Cui (CNL), Geoff Waddington (Canadian Nuclear Laboraties)

Development of ARIANT for High Temperature Gas-Cooled Reactor Simulations (414)
Tao Xu (Canadian Nuclear Laboratories), Xianmin Huang, Nusret Aydemir, **John Cui** (CNL)

Development of Multi-Physics Burnup Calculation Code System: COMPASS (352)
Motomu Suzuki (Central Research Institute of Electric Power Industry)

Core Performance Study of HTGR-SiC for Higher Burn Up: Thorium Based Fuel Loading Pattern (40)
Yosuke Nishimura (The University of Tokyo), Shoichiro Okita, Minoru Goto, Koji Okamoto (The University of Tokyo)

MPACT/PARCS Verification with the OECD/NEA Watts Bar Benchmark (258)
Thomas Folk (University of Michigan), Brendan Kochunas (University of Michigan)

MxN Reflector Cross Section Sensitivity and Functionalization (422)
Thomas Folk (University of Michigan)

Verification of two-step code MCS/RAST-F for ANTS-100e (403)
Tung Nguyen (Ulsan National Institute of Science and Technology), **Tuan Tran** (Ulsan National Institute of Science and Technology), Deokjung Lee (UNIST)

Optimizing the Implementation of Small Modular Reactors into Ontario's Energy Mix Using Recursive Modelling (463)
Colin Colterjohn (McMaster University)

Derivation of a Multigroup Diffusion Equation for Nonclassical Problems (270)
Lisa Enomoto (Universidade do Estado do Rio de Janeiro), Hermes Filho (Universidade do Estado do Rio de Janeiro), **Richard Vasques** (The Ohio State University)

On Diffusion Limit Preserving Unlocked Step Method (474)
Milan Holec (LLNL)

Verification of the Serpent-Griffin Workflow using the SNAP 8 Experimental Reactor (152)
Isaac Naupa Aguirre (Georgia Institute of Technology), Samuel Garcia (University of Wisconsin-Madison), Stefano Terlizzi, **Dan Kotlyar** (Georgia Institute of Technology)

Solution Verification with the Method of Nearby Problems for Neutron Transport Applications (223)
Benjamin Whewell (University of Notre Dame), Ryan McClarren (University of Notre Dame)

Multi-label Classification for Gamma Spectroscopy Using Machine Learning: A Comparison among Techniques (66)
Antonio Piccolo (Universita' di Pisa), Edo Frederix (Nuclear Research and Consultancy Group (NRG)), **Christian Fedon** (Nuclear Research and Consultancy Group (NRG))

The Use of Variance Reduction in Estimating Photon Dose for Designing Radiotherapy Facility at 10 and 15 MeV via Monte Carlo Simulations (65)
Christian Fedon (Nuclear Research and Consultancy Group (NRG)), Robert Kollaard (Nuclear Research and Consultancy Group (NRG)), Bert Metz (Nuclear Research and Consultancy Group (NRG))

A Non-Intrusive Emulator for Characterizing Parametric Behaviors of Time-Eigenvalues (289)
Zachary Hardy (Los Alamos National Laboratory), Jim Morel (Texas A&M University)

Multilevel Method for Thermal Radiative Transfer Problems with Method of Long Characteristics for the Boltzmann Transport Equation (369)

Joseph Coale (Los Alamos National Laboratory), Dmitriy Anistratov (North Carolina State University)

Robust Subcriticality Monitoring of Xenon-Poisoned CANDU-6 Core using Intense Delayed-Photoneutron Source from Activated-Sodium Adjustor Rod Design (353)
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Method for Neutron Transport Streaming Through a Long Duct with MCNP Using DXTRAN Spheres (456)
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Mark Gilbert (UKAEA), Lee Packer (UKAEA)

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Verification and Demonstration of TRITON for Molten Salt Reactors (311)
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On the Convergence Rate of the SDE Approximation to Branching Processes Associated with Reactor Noise (104)
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Rodrigue Abbé (CEA), Cyril Patricot, Marc Médale

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Antonia Zipfel (TUEV NORD EnSys GmbH & CO.KG), Mehmet Kadiroglu (TUEV NORD EnSys GmbH & CO.KG), Kai-Martin Haendel (TUEV NORD EnSys GmbH & CO.KG)

Semi-Analytical Solution of the 1D SN Transport Equation with Some Non-Constant External Sources (80)
Nans Odry (French Atomic Energy Commission - CEA), **Julien Cartier** (CEA)

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Julian Arturo Duran Gonzalez (Karlsruhe Institute of Technology)

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Niels Palmans (Tractebel Engineering), Javier Etcheto (Karlsruhe Institute of Technology)

Verification of Practical Modeling Approaches of the Main Steam Line Break Event Simulation with S3K Code Using TRACE Boundary Conditions (217)
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A Preliminary Fluid-Structure Coupling of NekRS and MOOSE via Cardinal (42)
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Joanna Morgan (Oregon State University), Travis Trahan (Los Alamos National Labratory), Tim Burke (Los Alamos National Lab), Colin Josey (Los Alamos National Lab), Kyle Niemeyer

V&V of VVER-1000 Core Simulations at Framatome (34)
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Dynamical Localization of Radioactive Sources for Material Control and Accounting (340)
Jean Ragusa (Texas A&M University), Ian Halvic (Texas A&M University)

Our Experience with the Rostov-2 Benchmark - Modeling of the Initial Reactor Core State - (404)
Helmut Glöde (TUEV NORD EnSys GmbH & Co. KG), Kai-Martin Haendel (TUEV NORD EnSys GmbH & CO.KG), Elina Oberlander, **Emiliya Georgieva** (Studsvik Scandpower GmbH), Gerd Anton (Studsvik Scandpower GmbH)

Nodal Integral Method in 2D/3D for Coupled Neutronics and Heat Conduction (167)
Aya Hegazy (University of Illinois at Urbana-Champaign), Rizwan Uddin (University of Illinois at Urbana-Champaign)

Using OpenMC for Geometry Parameterized Micro Nuclear Reactor Design (391)

Peter Kriemadis (McMaster University), Adriaan Buijs (McMaster University), Elena Jolovic (McMaster University)

Analytical Solution of the Time-Dependent Monoenergetic Neutron Telegraph Equation in One-Dimensional Space (120)
Weiguo Wang (Xi'an Jiaotong University), Yunzhao Li (Xi'an Jiaotong University)

A Neutronics/Thermal-hydraulic Coupling System for Hexagonal Geometry Reactors Based on NECP-X/CTF (135)
Shuaizheng Li (Xi'an Jiaotong University), Zhouyu Liu (Xi'an Jiaotong University), Liangzhi Cao (Xi'an Jiaotong University), Hongchun Wu (Xi'an Jiaotong University), **Wei Shen** (CANDU Owners Group)

Improved RMC Energy Deposition Model and Application in Multi-Physics Simulation (110)
Hao Luo (Tsinghua University), Kaiwen Li (Tsinghua University), Shanfang Huang, Kan Wang

Neutron Multiplicity Simulations Based on Monte Carlo Code RMC (226)
Yuanhao Gou (Tsinghua University), Kan Wang, Conglong Jia (Tsinghua University)

Kinetics Parameters Validation of MOC Assembly Code PINE (138)
Ruihan Li (Tsinghua University), Jingang Liang, Jun Chen, Jiali Liang

An Effective Initial Particle Sampling Technique for Monte Carlo Reactor Transient Simulations (331)
Ilham Variansyah (Oregon State University), Ryan McClarren (University of Notre Dame)

Utilizing Machine Learning to Model and Analyze the Run-In Scenario of a Pebble Bed Reactor (58)
Ryan Stewart (Idaho National Laboratory), Shovan Chowdhury (The University of Tennessee Knoxville), **Leslie Kerby** (Idaho State University)

Wednesday

Strategy Room 1: Technical Session - Oral Presentation
08:00 to 09:50, Wednesday, August 16
We1T1 Deterministic Transport Methods and Applications - 7
Session Chair 1: Akio Yamamoto (Nagoya University)
Session Chair 2: Hansol Park (Argonne National Laboratory)

08:00 Heuristics for the Automatic Generation of Unstructured Mesh for Method of Characteristics Calculations (430)
Kyle Vaughn (University of Michigan), Brendan Kochunas (University of Michigan)

08:22 Trajectory Sweep Optimization for the Axial Polynomial Method of the APOLLO3 Method of Characteristics (436)
Simone SANTANDREA (CEA), Andrea Gammicchia (CEA Saclay), **Arthur Le Bars** (CEA)

08:44 3D Full Core BEAVRS Using OpenMOC with Transport Equivalence (454)
Guillaume Giudicelli (Idaho national laboratory), Benoit Forget (Massachusetts Institute of Technology), Kord Smith (MIT)

09:06 A multi-level dynamic homogenization scheme for 3D core calculations (466)
Antonio Galia (CEA)

09:28 Transport Calculation of the Multiplicity Moments with Energy Depencence and Anisotropic Scattering (402)
Imre Pázsit (Chalmers University of Technology), Victor Dykin (Chalmers University of Technology), Senada Avdic (University of Tuzla)

Strategy Room 2: Technical Session - Oral Presentation
08:00 to 09:50, Wednesday, August 16
We1T2 Monte Carlo Methods and Applications - 7
Session Chair 1: Thomas Sutton (Rensselaer Polytechnic Institute)
Session Chair 2: Christophe Murphy (Jacobs)

08:00 Generating Simulated Gamma-Ray Spectral Data using Geant4 for the Purpose of Training Radioisotope Identification Algorithms (301)
Gang Li (Canadian Nuclear Laboratories), Krassimir Stoev (CNL), Michael Echlin (Canadian Nuclear Laboratories), Martin Thompson (Canadian Nuclear Laboratories)

08:22 Automated Domain Decomposition for Multi-GPU Electron-Photon Monte Carlo (319)
Vanessa Goss (University of California, Berkeley), Kerry Bossler

08:44 Deep Penetration Calculation Methods Combining Proper Orthogonal Decomposition and Monte-Carlo Methods (341)
Kaito Mori (Nagoya University), Akio Yamamoto (Nagoya University), Tomohiro Endo (Nagoya University)

09:06 Generalised Sensitivities Calculations utilising Superhistory Powering in MONK (363)
Andrew Cox (Jacobs), Simon Richards (Jacobs), Glynn Hosking (Jacobs), Paul Smith (Jacobs), **Christophe Murphy** (Jacobs)

09:28 The Application of Kernel Density Estimation Techniques to Reduce Neutron Clustering (374)
Thomas Sutton (Rensselaer Polytechnic Institute), William Martin (University of Michigan), Kaushik Banerjee (PNNL)

Strategy Room 3: Technical Session - Oral Presentation
08:00 to 09:50, Wednesday, August 16
We1T3 SMR and GEN-IV Reactors - 2
Session Chair 1: Grace Wang (Bruce Power)
Session Chair 2: Farzin Abbasian (Stern Laboratories Inc.)

08:00 XDOSE: A Tool for Radiological Consequences for Accidental Releases (137)
Peter Maka (Kinectrics)

08:22 Distributed-Parameter Linear Stability Analysis of a Double-Pass Circulating Fuel Reactor (158)
Lubomir Bures (Seaborg Technologies), Mario Ponce Tovar (Seaborg Technologies), Jacob Groth-Jensen (Seaborg Technologies)

08:44 Serpent-OpenFOAM Coupling of an eVinci Motivated Microreactor Design for Burnup-Dependent Critical Drum Positions (188)
Dean Price (University of Michigan), Brendan Kochunas (University of Michigan), Nathan Roskoff (Westinghouse Electric Company LLC), Majdi Radaideh (University of Michigan)

09:06 Demonstration of Coupling Between Hyper-fidelity Depletion and Discrete Element Method for Pebble Bed Reactors (203)
Yves Robert (University of California, Berkeley), Massimiliano Fratoni (University of California, Berkeley), Ludovic Jantzen (University of California, Berkeley)

09:28 Core Designs of BANDI-60 Soluble Boron-free Small Modular Reactor with Different Types of Burnable Absorbers (204)
Dokyun Kim (Seoul National University), Hyung Jin Shim (Seoul National University), Jong Tae Seo (Yeon Dan Scientist Cooperative)

Strategy Room 5: Technical Session - Oral Presentation
08:00 to 09:50, Wednesday, August 16
We1T4 Sensitivity Analysis and Uncertainty Quantification - 2
Session Chair 1: Grégoire Kessedjian (CEA Cadarache)

08:00 Sensitivity of ATF Experiments in the Center Flux Trap of the Advanced Test Reactor to Adjacent Experiments (84)
Travis Labossiere-Hickman (Idaho National Laboratory; University of Illinois Urbana-Champaign), Tristen Rogers (Idaho National Laboratory), Michael Worrall (Idaho National Laboratory), Mehmet Turkmen (Idaho National Laboratory)

08:22 Development and Enhancement of Generalized Sensitivity Analysis Capability of Continuous-Energy Nuclear Data in NECP-MCX (116)
Jinlong Huang (Xi'an Jiaotong University), Liangzhi Cao (Xi'an Jiaotong University), Qingming He (Xi'an Jiaotong University), **Wei Shen** (CANDU Owners Group), Hongchun Wu (Xi'an Jiaotong University)

08:44 Preliminary Sensitivity Test of the Moderator Temperature Coefficient on the Control Rod Worth Uncertainty (118)

Gil Soo Lee (Korea Institute of Nuclear Safety), Beomseok Han (Korea Institute of Nuclear Safety), Ju Yeop Park (Korea Institute of Nuclear Safety)

09:06 Propagation of Uncertainty Due to Nuclear Data: Stochastic Methodology vs. First-order Approach (124)
Sonia Panizo Prieto (CIEMAT - UCM), Vicente Bécares (CIEMAT), Pablo Romojaro (SCK CEN), Francisco Álvarez-Velarde (CIEMAT)

09:28 Impact of PDF Propagating Fission Yield Uncertainties in Burnup Calculations (164)
Enrica Belfiore (Politecnico di Torino), **Luca Fiorito** (SCK CEN), Federico Grimaldi (Université libre de Bruxelles), Pablo Romojaro (SCK CEN), Gašper Žerovnik, Sandra Dulla (Politecnico di Torino)

Strategy Room 7: Technical Session - Oral Presentation
08:00 to 09:50, Wednesday, August 16
We1T5 Computer Codes, Modelling and Simulation - 7
Session Chair 1: kanglong zhang (Karlsruhe Institute of Technology)
Session Chair 2: Rodolfo Ferrer (Studsvik Scandpower, Inc.)

08:00 High-fidelity Simulation of the Empire Micro Reactor Benchmark Problem Using Griffin with Online Cross Section Generation (475)
Changho Lee (Argonne National Laboratory), Hansol Park (Argonne National Laboratory), Yeon Sang Jung (Argonne National Laboratory), Yaqi Wang (Idaho National Laboratory)

08:22 A Diffusion Scale Approximation for Stochastic Fission Chains with State Feedback (88)
Chen Dubi (NRCN), Anil Prinja (University of New Mexico)

08:44 A Super-Homogenisation(SPH)-based Pin-wise Cross-Section (XS) Optimization Scheme for PARCS: Development, Verification, and First Application to a Small Modular Reactor (SMR) (13)
kanglong zhang (Karlsruhe Institute of Technology)

09:06 Impact of Modelling Assumptions on Muon Scattering Images of Loaded Dry Storage Casks (243)
Julia Niedermeier (Technical University Munich), Maik Stuke (BGZ mbh)

09:28 Optimization Methods for Liquid Metal Fast Reactor Cores (435)
Khaldoon Al-Dawood (North Carolina State University), **Scott Palmtag** (North Carolina State University)

Upper Fallsview Studio B: Technical Session - Oral Presentation
08:00 to 09:50, Wednesday, August 16
We1T6 Multi-Scale, Multiphysics Simulations - 3
Session Chair 1: Dan Kotlyar (Georgia Institute of Technology)

08:00 Integration of the Subchannel Code CTF in the KMACS Core Simulator and Offline Coupling to ATHLET-QUABOX/CUBBOX for BEPU Analysis (343)
Yann Périn (Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) gGmbH), Aures Alexander (Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) gGmbH), Simone Palazzo (Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) gGmbH)

08:22 Development of Improved and Efficient Sodium Cooled Fast Reactor Core Modelling Capabilities in the Subchannel Thermal Hydraulics Code CTF and Nodal Neutronics Code NEM (348)
Cole Takasugi (North Carolina State University), Agustin Abarca (North Carolina State University), **Spencer Ercanbrack** (North Carolina State University), Maria Avramova (North Carolina State

University), Kostadin Ivanov (North Carolina State University)

08:44 Demonstration of Autonomous Control in High-Fidelity Simulations for Load Follow Transients with MPACT (395)
Qicang Shen (University of Michigan--Ann Arbor), Sooyoung Choi, **Brendan Kochunas** (University of Michigan)

09:06 Verification of the Cardinal Multiphysics Solver for 1-D Coupled Heat Transfer and Neutron Transport (246)
Lewis Gross (University of Wisconsin - Madison), April Novak (University of Illinois), Patrick Shriwise (UCHICAGO ARGONNE, LLC), Paul Wilson (UW-Madison Eng. Physics Dept.)

09:28 Development and Assessment of the Coupled Code System CRANE for Nuclear Reactor Analysis (443)
Spencer Ercanbrack (North Carolina State University), Muhammad Altahhan (NC State University), Agustin Abarca (North Carolina State University), David Holler (North Carolina State University), Maria Avramova (North Carolina State University), Kostadin Ivanov (North Carolina State University)

Strategy Room Foyer: Meals and Breaks
09:50 to 10:10, Wednesday, August 16
Coffee Break - 5

Strategy Room 1: Technical Session - Oral Presentation
10:10 to 12:00, Wednesday, August 16
We2T1 Deterministic Transport Methods and Applications - 8
Session Chair 1: Colin Colterjohn (McMaster University)

10:10 Verification and Comparison of Finite Element Bases for an Upwind Discontinuous Galerkin Discretization of the Transport Equation on Honeycomb Meshes (184)
David Labeurthre (EthiFinance), **Ansar Calloo** (CEA), Romain Le Tellier (CEA), Ali Abboud (Université Paris-Saclay)

10:32 On the Smoothness of the Solution to the Two-Dimensional Radiation Transfer Equation (43)
Dean Wang (The Ohio State University)

10:54 Deterministic Calculation Method for Continuous-Energy Neutron Transport Equation in Unresolved Resonance Energy-Range (367)
Haopo Liu (Xi'an Jiaotong University), Yunzhao Li (Xi'an Jiaotong University), **Jiahe Bai** (Xi'an Jiaotong University)

11:16 On Using the Method of Characteristics to Determine Finite Element Expansion Coefficients (423)
Adam Lam (Lawrence Livermore National Laboratory), Richard Vega (Lawrence Livermore National Laboratory)

11:38 Application of MPACT to Generate Few-group Cross Sections for PARCS (257)
Thomas Folk (University of Michigan), Andrew Ward (University of Michigan), Brendan Kochunas (University of Michigan)

Strategy Room 2: Technical Session - Oral Presentation
10:10 to 12:00, Wednesday, August 16

We2T2 Monte Carlo Methods and Applications - 8
Session Chair 1: Farzad Rahnema (Farzad Rahnema)
Session Chair 2: Thomas Sutton (Rensselaer Polytechnic Institute)

10:10 On the Errors Introduced by the Multi-Group Approximation in Fusion Neutronics (379)
Valeria Raffuzzi (University of Cambridge), Paul Cosgrove (University of Cambridge), Lee Morgan (AWE), Eugene Shwageraus (University of Cambridge)

10:32 New Capabilities in MONK for Modelling Stochastic Media (36)
Jessica Fildes (Jacobs), Richard Hiles (Jacobs), **Brian Jones** (Jacobs), Simon Richards (Jacobs)

10:54 Implementation of Doppler Broadening Rejection Correction and Target Motion Sampling in SCONE (417)
Jamie Edwards (University of Cambridge), Valeria Raffuzzi (University of Cambridge), Paul Cosgrove (University of Cambridge)

11:16 Criticality Safety Analysis of a Spiral Plate Heat Exchanger for Molten Salt Reactors (458)
Christopher Brady (North Carolina State University), William Murray, Laura Moss, John Zino, Earl Saito, Xu Wu (North Carolina State University)

11:38 Semi-Analytic Monte Carlo Solutions to a Set of Time-Dependent Pin-Cell Problems (471)
Farzad Rahnema (Farzad Rahnema)

Strategy Room 3: Technical Session - Oral Presentation
10:10 to 12:00, Wednesday, August 16
We2T3 SMR and GEN-IV Reactors - 3
Session Chair 1: Benoit Arsenault (Kinectrics)
Session Chair 2: Yan Cao (Argonne National Laboratory)

10:10 Peridynamic Modelling of Cracking in TRISO Coated Particle Fuel for High Temperature Reactor (HTRs) – The Importance of Residual Stresses to the Crack Patterns Formed (210)
Thomas Haynes (University of East Anglia), Angelo Battinisti (Imperial College London), Mark Wenman (Imperial College London)

10:32 Coupled Neutronics and Thermal-Hydraulics Calculations on the Molten Salt Fast Reactor: Identification and Study of Cliff Edge Effects (247)
Thomas Sornay (CNRS - LPSC / Framatome), Elsa Merle (CNRS – LPSC G-INP), Axel Laureau (CNRS - LPSC), Thomas Boisseau (Framatome), Arthur Lemarchand (Framatome), Florian Vaiana

10:54 Low Fidelity Simulations of the Molten Salt Reactor Experiment using a Response-Matrix Diffusion Model (288)
Robert Farkas (Ontario Tech University), Eleodor Nichita (Ontario Tech University)

11:16 SAM Model of the Reactivity Feedback from Fuel Axial Expansion in Static Fueled Molten Salt Reactors (284)
Yan Cao (Argonne National Laboratory), Thanh Hua (Argonne National Laboratory), Guojun Hu (Argonne National Laboratory), Rui Hu (Argonne National Laboratory), Andrew Ballard (Moltex Energy Canada)

11:38 Neutronics/Thermal-Hydraulics Coupling in Simulation of Advanced Nuclear Reactors (322)
Thabit Abuqudaira (Nuclear Engineering Department, Texas A&M University), Pavel Tsvetkov (Nuclear Engineering Department, Texas A&M University), Piyush Sabharwall (Idaho National Laboratory), **Ronald Daryll Gatchalian** (Texas A&M University)

Strategy Room 5: Technical Session - Oral Presentation
10:10 to 12:00, Wednesday, August 16
We2T4 Sensitivity Analysis and Uncertainty Quantification - 3
Session Chair 1: Ian HILL (OECD/NEA)

10:10 GEAR-MC Generalized Sensitivity Analysis with Electron-Photon Transport in the Integrated TIGER Series (172)
Mekiel Olguin (University of New Mexico), Brian Franke (Sandia National Laboratories), Christopher Perfetti (University of New Mexico), Aaron Olson (Sandia National Laboratories)

10:32 A Polynomial Chaos Approach for Uncertainty Quantification of Monte Carlo Transport Codes (229)
Gianluca Geraci (Sandia National Laboratories), Kayla Clements (Oregon State University), Aaron Olson (Sandia National Laboratories)

10:54 Global Sensitivity Analysis in Monte Carlo Radiation Transport (249)
Kayla Clements (Oregon State University), Gianluca Geraci (Sandia National Laboratories), Aaron Olson (Sandia National Laboratories), Todd Palmer (Oregon State University)

11:16 Uncertainty Quantification of Prompt Neutron Decay Constant α due to Thermal Neutron Scattering Law of Water (327)
Yoshinari HARADA (Nagoya university), Hibiki YAMAGUCHI (Nagoya university), Tomohiro Endo (Nagoya University), Akio Yamamoto (Nagoya University)

11:38 Application of Riemann Metrics for Mathematical Formulation of Data Validation and Reconciliation (DVR) Method in Reactor Thermal Power Calculation (462)
Yuri Gurevich (Research in Flows Inc.), **Alexander Gurevich** (Humber College), Hanna Gurevich (GERA Laboratories)

Strategy Room 7: Technical Session - Oral Presentation
10:10 to 12:00, Wednesday, August 16
We2T5 High-Performance Computing - 1
Session Chair 1: John Tramm (ANL)

10:10 On the GPU Acceleration of a 3D MOC Code STREAM Using OpenACC (107)
Siarhei Dzianisau (Ulsan National Institute of Science and Technology), **Muhammad Khandaq** (Ulsan National Institute of Science and Technology (UNIST)), Tuan Tran (Ulsan National Institute of Science and Technology), Deokjung Lee (UNIST)

10:32 Progress Porting LLNL Monte Carlo Transport Codes to Nvidia GPUs (113)
Mike Pozulp (Lawrence Livermore National Laboratory)

10:54 CT Image Reconstruction Using the QR Method: Single vs Double Precision (141)
Monica Chillaron Perez (Universitat Politenica de Valencia), Gregorio Quintana-Ortí (Universitat Jaume I), Vicente Vidal Gimeno (Universitat Politècnica de València), Gumersindo Verdú Martín (Universitat Politecnica de Valencia)

11:16 Development of MC/DC: a Performant, Scalable, and Portable Python-Based Monte Carlo Neutron Transport Code (298)
Ilham Variansyah (Oregon State University), Joanna Morgan (Oregon State University), Jordan Northrop (Oregon State University), Kyle Niemeyer, Ryan McClarren (University of Notre Dame)

11:38 The PN form of the Neutron Transport Problem Achieves Linear Scalability Through Domain Decomposition (60)
Kenneth Assogba (CEA), Lahbib Bourhrara (French Alternative Energies and Atomic Energy Commission)

Upper Fallsview Studio B: Technical Session - Oral Presentation
10:10 to 12:00, Wednesday, August 16
We2T6 Multi-Scale, Multiphysics Simulations - 4
Session Chair 1: Youssef Shatilla (Idaho National Laboratory)

10:10 Development of Coupled Code System with Griffin, MOOSE and NekRS for Hot Channel Factor Evaluation in Fast Reactors (200)
Hansol Park (Argonne National Laboratory), Yiqi Yu (Argonne National Laboratory), Emily Shemon (Argonne National Laboratory), April Novak (University of Illinois)

10:32 The NILO-CMFD Iterative Method for Loosely-Coupled Neutron Transport-Thermal Hydraulics Problems (305)
Edward Larsen (University of Michigan), Yuxuan Liu (University of Michigan), Nickolas Adamowicz (Naval Nuclear Laboratory), Annalisa Manera, Brendan Kochunas (University of Michigan)

10:54 Study of SMART Steam Line Break with the coupled codes TRACE-PARCS and TRACE-PANTHER (364)
Javier Etcheto (Karlsruhe Institute of Technology), Victor Hugo Sanchez Espinoza (Karlsruhe Institute of Technology (KIT)), **Niels Palmans** (Tractebel Engineering)

11:16 A Coupled Griffin and Thermochimica Method for Redox Potential Control and Off-Gas Analysis during Depletion in Molten Salt Reactors (259)
Samuel Walker (Idaho National Laboratory), Mauricio Tano Retamales (Idaho National Laboratory), Abdalla Abou Jaoude (Idaho National Laboratory), **Guillaume Giudicelli** (Idaho national laboratory)

11:38 A Coupled Griffin and Pronghorn Method for Spatially Resolved Depletion Analysis of Molten Salt Reactors (351)
Mauricio Tano Retamales (Idaho National Laboratory), Samuel Walker (Idaho National Laboratory), Abdalla Abou Jaoude (Idaho National Laboratory), **Guillaume Giudicelli** (Idaho national laboratory)

Establishment of own choice: Meals and Breaks
12:00 to 13:30, Wednesday, August 16
Free time for lunch

Strategy Room 1: Technical Session - Oral Presentation
13:30 to 15:20, Wednesday, August 16
We3T1 Verification and Validation - 1
Session Chair 1: Jean-François Vidal (CEA Cadarache)

13:30 Verification and Validation of SARAX Code System on BFS Critical Facility (133)
Aixin Li (Xi'an Jiaotong University), Xianan Du (Xi'an Jiaotong University), Youqi Zheng (Xi'an Jiaotong University), Yongping Wang (Xi'an Jiaotong University), **Wei Shen** (CANDU Owners Group)

13:52 Calculation of TVA Watts Bar Unit 1 Benchmark using the ARCADIA code system (35)

Veronica Jauregui Chavez (Framatome GmbH), Matias Zilly (Framatome GmbH)

14:14 Verification and Validation of the CASMO5-VVER/PARCS Code System for VVER-1000 Steady State and Cycle Analysis (361)
Marianna Papadionysiou (Paul Scherrer Institut), Mathieu Hursin, Alexander Vasiliev (Paul Scherrer Institute), Hakim Ferroukhi (Paul Scherrer Institute), Andreas Pautz

14:36 VVER-440 'FULLCORE' and VVER-440 'FULLCORE' Extended Numerical Benchmark Evaluations with Studsvik's CMS5 Codes (399)
Emiliya Georgieva (Studsvik Scandpower GmbH), Tamer Bahadir (Studsvik Scandpower, Inc.)

14:58 Summary of comparative study on Deterministic Time-Dependent Neutron Transport Benchmark without Spatial Homogenization (C5G7-TD) (147)
Khang Nguyen (NCSU), **Jason Hou** (North Carolina State University), Kingsley Ogujiuba (NCSU)

Strategy Room 2: Technical Session - Oral Presentation
13:30 to 15:20, Wednesday, August 16
We3T2 Monte Carlo Methods and Applications - 9
Session Chair 1: Jaakko Leppänen (VTT Technical Research Centre of Finland)
Session Chair 2: Guillaume Giudicelli (Idaho national laboratory)

13:30 MCNP Neutronic Design Optimization of an Accelerator-Driven Subcritical Assembly for Mo-99 Production (272)
Andrew Conant (Oak Ridge National Laboratory), Noel Nelson (Oak Ridge National Laboratory), Jorge Navarro (Oak Ridge National Laboratory), Chad Denbrock (Niowave, Inc.), Robert Wahlen (Niowave, Inc.), Terry Grimm (Niowave, Inc.)

13:52 CASTOR, a Monte Carlo Sampler of Random Media for Particle Transport Applications (387)
Coline Larmier (CEA), Mikolaj Kowalski (Université Paris-Saclay, CEA, Service d'Etudes des Réacteurs et de Mathématiques Appliquées, 91191, Gif-sur-Yvette, France), **Andrea Zoia** (CEA/Paris-Saclay)

14:14 Comparing the Performance of the New Tally Architectures in the MCNP Code (449)
Colin Josey (Los Alamos National Lab)

14:36 Implementation, Verification, and Scaling of History- and Event-Based Time-Dependent Shift (473)
Aaron Reynolds (TerraPower, LLC), Todd Palmer (Oregon State University), **Ilham Variansyah** (Oregon State University)

14:58 Weight Window Variance Reduction Capabilities in OpenMC (420)
Patrick Shriwise (UCHICAGO ARGONNE, LLC), Andrew Davis (UKAEA), Ethan Peterson (Massachusetts Institute of Technology), Stephen Coleman (Radiasoft LLC), Paul Romano (Argonne National Laboratory)

Strategy Room 3: Technical Session - Oral Presentation
13:30 to 15:20, Wednesday, August 16
We3T3 SMR and GEN-IV Reactors - 4
Session Chair 1: Krishna Podila (Canadian Nuclear Laboratories)
Session Chair 2: Yan Cao (Argonne National Laboratory)

13:30 Optimization of Nuclear Fuel Management for Multi-module SMRs (342)
Yoshiki Yamashita (Nagoya University), Tomohiro Endo (Nagoya University), Akio Yamamoto (Nagoya

University)

13:52 A Study on the Applicability of Initial Discontinuity Factors to Burned Core in Molten Salt Fast Reactor (358)
Sungtaek Hong (Korea Atomic Energy Research Institute), Taesuk Oh (KAIST), **Yonghee KIM** (KAIST)

14:14 Coupling Neutron Transport and Thermal Conduction with Hydrogen Diffusion by Use of Functional Expansion Tallies (451)
William Kendrick (Massachusetts Institute of Technology)

14:36 Optimized LMFR Core Design using TRU Fuel (448)
Khaldoon Al-Dawood (North Carolina State University), **Scott Palmtag** (North Carolina State University)

14:58 Stability and Bifurcation Analysis of a Generation IV HTR-type Microreactor (349)
Doron Sivan (Ben-Gurion University), Ehud Meron, Shai Kinast (NRCN)

Strategy Room 5: Technical Session - Oral Presentation
13:30 to 15:20, Wednesday, August 16
We3T4 Sensitivity Analysis and Uncertainty Quantification - 4
Session Chair 1: Ivan Kodeli (UKAEA)

13:30 MOX assembly design at the VENUS-F reactor for the representativity study of MYRRHA (357)
Federico Grimaldi (Université libre de Bruxelles), Patrick BLAISE (CEA (Commissariat à l'énergie atomique et aux énergies alternatives)), Anatoly Kochetkov (SCK CEN), Antonin Krasa (SCK CEN), Pierre Labeau (Université libre de Bruxelles), Guido Vittiglio (SCK CEN), Jan Wagemans (SCK CEN)

13:52 Sensitivity Study of Stability Margins of HTR-type Microreactor (383)
Shai Kinast (NRCN), Dean Price (University of Michigan), Doron Sivan (Ben-Gurion University), Claudio Filippone (HolosGen LLC), Brendan Kochunas (University of Michigan)

14:14 Nuclear data uncertainty propagation to the Doppler coefficient of MYRRHA (405)
Luca Fiorito (SCK CEN), Matteo Zanetti (Belgian Nuclear Research Centre), Federico Grimaldi (Université libre de Bruxelles), Pablo Romojaro (SCK CEN), Gert Van den Eynde (SCK CEN)

14:36 Comparison of Differential Operator and Malliavin Sensitivity Methods for Particle Transport (421)
Brian Franke (Sandia National Laboratories), Rich Lehoucq (Sandia National Laboratories), Scott McKinley (Tulane University), **J. Darby Smith** (Sandia National Laboratories)

14:58 Fixed Source CLUTCH Calculations in MCNP (425)
Colin Weaver (University of New Mexico), **Christopher Perfetti** (University of New Mexico)

Strategy Room 7: Technical Session - Oral Presentation
13:30 to 15:20, Wednesday, August 16
We3T5 High-Performance Computing - 2
Session Chair 1: Steven Hamilton (Oak Ridge National Laboratory)
Session Chair 2: Emily Shemon (Argonne National Laboratory)

13:30 Weight Window Variance Reduction on GPUs in the Shift Monte Carlo Code (345)
Katherine Royston (ORNL), Thomas Evans (Oak Ridge National Laboratory), Steven Hamilton (Oak Ridge National Laboratory), Gregory Davidson (Oak Ridge National Laboratory)

13:52 Impact of Asymmetric Multicore Processors on Monte Carlo Particle Transport Code Performance (394)
Paul Romano (Argonne National Laboratory), John Tramm (ANL), Patrick Shriwise (UCHICAGO ARGONNE, LLC)

14:14 Power at Your Fingertips: Assessing the Performance of a Monte Carlo Neutron Transport Mini-App on Consumer Laptop GPUs (433)
John Tramm (ANL), Kazutomo Yoshii (Argonne National Laboratory), Paul Romano (Argonne National Laboratory)

14:36 Exploring One-Cell Inversion Method for Transient Transport on GPU (452)
Joanna Morgan (Oregon State University), Ilham Variansyah (Oregon State University), Todd Palmer (Oregon State University), Kyle Niemeyer

14:58 Efficient and portable vectorised sweep kernels for the transport equation on 3D Cartesian grids using the Kokkos framework (180)
Gabriel Suau (CEA), **Ansar Calloo** (CEA), Rémi Baron (CEA), Romain Le Tellier (CEA)

Upper Fallsview Studio B: Technical Session - Oral Presentation
13:30 to 15:20, Wednesday, August 16
We3T6 Time-Dependent Transport
Session Chair 1: Ryan McClarren (University of Notre Dame)

13:30 Probability of Divergence of Neutron Chains in Coupled Assemblies (76)
Anil Prinja (University of New Mexico), Patrick O'Rourke (Los Alamos National Laboratory), Scott Ramsey (Los Alamos National Laboratory)

13:52 Compressed Dynamic Mode Decomposition for Time-Eigenvalue Calculations (268)
Ryan McClarren (University of Notre Dame), Ilham Variansyah (Oregon State University), Ethan Smith (University of Notre Dame)

14:14 Development of Real-Time 3D Fine Mesh Kinetics Calculation Method Based on POD (325)
Kaito Ito (Nagoya University), Kosuke Tsujita (Nuclear Engineering, Ltd.), Tomohiro Endo (Nagoya University), Akio Yamamoto (Nagoya University)

14:36 Reduced-Memory Methods for Linear Discontinuous Discretization of the Time-Dependent Boltzmann Transport Equation (432)
Rylan Paye (North Carolina State University), Dmitriy Anistratov (North Carolina State University), Jim Morel (Texas A&M University), James Warsa (Los Alamos National Laboratory)

14:58 Extended-Paasschens solution to the time-dependent Boltzmann equation and the (non)-universality of the diffusion coefficient in spherical geometry (186)
Shay Heizler (Racah Institute of Physics, The Hebrew University), Menahem Krief (Racah Institute of Physics, The Hebrew University)

Strategy Room Foyer: Meals and Breaks
15:20 to 15:40, Wednesday, August 16
Coffee Break - 6

Strategy Room 1: Technical Session - Oral Presentation

15:40 to 17:30, Wednesday, August 16
We4T1 Verification and Validation - 2
Session Chair 1: Timothy Valentine (ORNL)

15:40 Using Multigroup Monte Carlo Simulations to Calibrate the Errors of Deterministic Transport Calculations (63)
Jean-François Vidal (CEA Cadarache), Henri Hutinet (CEA Cadarache)

16:02 CEFR Control Rod Drop Simulation Using RAST-F Nodal Diffusion Code System (109)
Tuan Tran (Ulsan National Institute of Science and Technology), Xingkai Huo (China Institute of Atomic Energy), Deokjung Lee (UNIST)

16:24 Verification of the High Fidelity Model of the CROCUS Experimental Reactor (122)
Tom Mager (EPFL), Mathieu Hursin, Carlo Fiorina (Texas A&M University), Andreas Pautz

16:46 Kinetic Parameters Validation Using Condor-Citvap (315)
Ignacio Ferrari (INVAP S.E)

17:08 Impact of the Fuel Rod Modeling on the X2 Control Rod Cluster Ejection Results (397)
Yurii Bilodid (Helmholtz-Zentrum Dresden-Rossendorf), Matias Zilly (Framatome GmbH), Markus Fischer (Framatome GmbH), ROMAIN HENRY (Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) gGmbH), Sören Kliem (Helmholtz-Zentrum Dresden-Rossendorf e.V.), Aures Alexander (Gesellschaft für Anlagen- und Reaktorsicherheit (GRS) gGmbH), Robert Kilger (Gesellschaft für Anlagen- und Reaktorsicherheit gGmbH)

Strategy Room 2: Technical Session - Oral Presentation
15:40 to 17:30, Wednesday, August 16
We4T2 Monte Carlo Methods and Applications - 10
Session Chair 1: Aaron Olson (Sandia National Laboratories)
Session Chair 2: Yannick Peneliau (French Alternative Energies and Atomic Energy Commission)

15:40 A Generic Implementation of the D1S Methodology for Dose Rate Assessment by Monte Carlo Codes in Fusion Applications (105)
Yannick Peneliau (French Alternative Energies and Atomic Energy Commission), JONATHAN DUFOUR (AIX-MARSEILLE University)

16:02 High-Fidelity Monte Carlo Analysis of Highly-Localized Fission Power Peaking near Water Gaps in the Reactor Core (242)
Hadi Abuzlf (Department of Nuclear Engineering, Ben-Gurion University of the Negev)

16:24 Adaptation of Temperature Dependent Thermal Neutron Libraries for Fast On-The-Fly Monte Carlo Sampling at Arbitrary Temperatures (313)
Camden Blake (Rensselaer Polytechnic Institute), Wei Ji (Rensselaer Polytechnic Institute)

16:46 Numerical Power Tilts in Full-Core Monte Carlo CANDU Model Exacerbated by Equilibrium Xenon (354)
Yeseul Seo (Ulsan National Institute of Science and Engineering), Arief Rahman Hakim (Ulsan National Institute of Science and Technology), Douglas Fynan (Ulsan National Institute of Science and Technology (UNIST))

17:08 A Monte Carlo Source Convergence Diagnosis Method Based on Functional Expansion Tallies (101)

Nan An (Tsinghua University), Xiaoyu Guo, Tianyi Huang$, Kan Wang

Strategy Room 3: Technical Session - Oral Presentation
15:40 to 17:30, Wednesday, August 16
We4T3 SMR and GEN-IV Reactors - 5
Session Chair 1: Yan Cao (Argonne National Laboratory)

15:40 Corrosion and Reduction Behavior Investigation in Molten Salt Reactor: Species Transport Modeling with Redox Reaction Kinetics in MOOSE (442)
Huihua Yang (Rensselaer Polytechnic Institute), Ling Zou, Rui Hu (Argonne National Laboratory), **Wei Ji** (Rensselaer Polytechnic Institute)

16:02 Application of the OFFBEAT Fuel Performance Code to IAEA Verification Exercises on LMFBR Core Bowing (55)
Arthur Cornet (École Polytechnique Fédérale de Lausanne), **Edoardo Brunetto** (École Polytechnique Fédérale de Lausanne), Alessandro Scolaro (EPFL), Carlo Fiorina (Texas A&M University), Andreas Pautz

16:24 Modeling and Simulation of Xe-100 type Pebble-Bed Gas-Cooled Reactor with SCALE (92)
Zoe Richter (University of Illinois at Urbana-Champaign), Eva Davidson (Oak Ridge National Laboratory), Steve Skutnik (Oak Ridge National Laboratory), Madicken Munk (University of Illinois at Urbana-Champaign)

16:46 High-fidelity and Reduced-Order Modelling of a micro-HTGR (157)
Marc van den Berg (Delft University of Technology), Danny Lathouwers (Delft University of Technology)

17:08 Core Design Optimization of the ALLEGRO Gas-Cooled Fast Reactor (266)
Bálint Batki (Centre for Energy Research)

Strategy Room 5: Technical Session - Oral Presentation
15:40 to 17:30, Wednesday, August 16
We4T4 Sensitivity Analysis and Uncertainty Quantification - 5
Session Chair 1: Grégoire Kessedjian (CEA Cadarache)

15:40 Representativity Factors to Assess Uncertainty in Select TerraPower Reactors (472)
Michael Branco-Katcher (Oregon State University), Tommy Cisneros (TerraPower), Zhiwen Xu (TerraPower), Todd Palmer (Oregon State University)

16:02 Nuclear Data Sensitivity Tool, Testing New Nuclear Data Libraries ENDF/B-VIII.1 (beta) and JEFF-4 Test Libraries (398)
Ian HILL (OECD/NEA), Nicolas Soppera (OECD/NEA)

16:24 Continuous-Energy Depletion Sensitivity Coefficients in OpenMC (483)
Benjamin Murphy (University of New Mexico), Christopher Perfetti (University of New Mexico)

16:46 Non-intrusive Uncertainty Propagation in the ARC Fusion Reactor through the nemoFOAM Multi-physics Tool (381)
Alex Aimetta (Politecnico di Torino), Marco Caravello (Politecnico di Torino), Nicolò Abrate (Politecnico di Torino), Sandra Dulla (Politecnico di Torino), Antonio Froio (Politecnico di Torino)

17:08 Nuclear Data Uncertainties and Adjustments Using Deterministic and Monte-Carlo Methods along

with PWR Measurements (406)
Vivian Salino (IRSN), Dimitri Rochman (Paul Scherrer Institute), Eric Dumonteil (CEA/IRFU), Fausto Malvagi (IRSN), Alain Hebert (Polytechnique Montréal)

Strategy Room 7: Technical Session - Oral Presentation
15:40 to 17:30, Wednesday, August 16
We4T5 EU-McSAFER project
Session Chair 1: Jaakko Leppänen (VTT Technical Research Centre of Finland)

15:40 The H2020 McSAFER Project: Experimental and Analytical Investigations for the Safety Evaluation of Water-Cooled SMRs (370)
Victor Hugo Sanchez Espinoza (Karlsruhe Institute of Technology (KIT))

16:02 The H2020 McSAFER Project: Analyses of Boron Dilution for the NuScale Reactor (356)
Marek Bencik (UJV Rez a.s.), **Jorge Sanchez-Torrijos** (Universidad Politécnica de Madrid), Victor Hugo Sanchez Espinoza (Karlsruhe Institute of Technology (KIT))

16:24 On the Application of Advanced Modeling Tools to the SLB Analysis in NuScale. Part I: TRACE/PARCS, TRACE/PANTHER and ATHLET/DYN3D (378)
Jorge Sanchez-Torrijos (Universidad Politécnica de Madrid), Elena Redondo_Valero, Cesar Queral, Cabellos Oscar (Universidad Politécnica de Madrid), Radim Mecaº (ÚJV Řež, a. s.), Ondřej Petrásek (ÚJV Řež, a. s.), Eduard Diaz-Pescador (Helmholtz-Zentrum Dresden-Rossendorf EV), Sören Kliem (Helmholtz-Zentrum Dresden-Rossendorf e.V.), Niels Palmans (Tractebel Engineering), Victor Hugo Sanchez Espinoza (Karlsruhe Institute of Technology (KIT))

16:46 High-Fidelity and State-of-the-Art Multi-Physics Computational Tools for Analyzing a CAREM-like SMR Core in a Full Power State (380)
Gianfranco Huaccho (KIT), Luigi MERCATALI (KIT), Victor Hugo Sanchez Espinoza (Karlsruhe Institute of Technology (KIT)), Maximiliano Dalinger (The Pennsylvania State University), Héctor Lestani (CNEA)

17:08 Coupled Analyses of Steam Line Break for Integral PWR (318)
Jussi-Pekka Ikonen (VTT Technical Research Centre of Finland)

Upper Fallsview Studio B: Technical Session - Oral Presentation
15:40 to 17:30, Wednesday, August 16
We4T6 Thermal Radiative Transfer
Session Chair 1: Ben Yee (LLNL)
Session Chair 2: Alex Bland (University of Cambridge)

15:40 A Survey of Multimaterial Treatments for Thermal Radiative Transfer at LLNL (333)
Ben Yee (LLNL), Andrew Till (LLNL), Quincy Huhn

16:02 Automatic Dynamic Load Balancing for Implicit Monte Carlo via ParMETIS (411)
Kendra Long (Los Alamos National Lab)

16:24 Using Kernel Density Estimators for Smoothing in Monte Carlo Thermal Radiation Transport (447)
Mathew Cleveland (LANL)

16:46 Implementation of a Hybrid Grid Tracking Scheme Applied to Implicit Monte Carlo Simulations (485)
Alex Bland (University of Cambridge), Paul Cosgrove (University of Cambridge)

17:08 A Reduced-Order Model for Thermal Radiative Transfer Based on POD-Petrov-Galerkin Projection of the Normalized Boltzmann Transport Equation (17)
Joseph Coale (Los Alamos National Laboratory), Dmitriy Anistratov (North Carolina State University)

17:30 A Nonlinear Projection-Based Iteration Scheme with Cycles over Multiple Time Steps for Solving Thermal Radiative Transfer Problems (91)
Joseph Coale (Los Alamos National Laboratory), Dmitriy Anistratov (North Carolina State University)

Great Room A: Meals and Breaks
18:30 to 21:00, Wednesday, August 16
Cocktails and Conference Banquet

Thursday

Great Room C: Plenary Session
08:30 to 10:15, Thursday, August 17
Th1P1 Software Development for High-Fidelity Modelling in China, USA and Canada
Session Chair 1: Guy Marleau (Polytechnique Montréal)
Session Chair 2: Wei Shen (CANDU Owners Group)

08:30 Advancements in Software Development for High-Fidelity Modelling and Simulation of Power Reactors in China (508)
Liangzhi Cao (Xi'an Jiaotong University)

08:55 Enabling Predictive Nuclear Reactor Simulation (502)
Emily Shemon (Argonne National Laboratory)

09:20 Recent Advances in High-Performance Computing at Canadian Nuclear Laboratory (509)
Darren Radford (Canadian Nuclear Laboratories), Ashlea Colton (CNL), Ali Siddiqui (Canadian Nuclear Laboratories)

Great Room B: Meals and Breaks
10:00 to 10:20, Thursday, August 17
Coffee Break - 7

Great Room C: Plenary Session
10:20 to 11:50, Thursday, August 17
Th2P1 Nuclear Capabilities in Emerging Countries and SMR Deployment
Session Chair 1: Guy Marleau (Polytechnique Montréal)
Session Chair 2: Wei Shen (CANDU Owners Group)

10:20 Modeling and Simulation Capabilities for Emerging Nuclear Nations: The Case of South Africa (503)
Ramatsemela Masango (Mzansi Energy Solutions and Innovations)

10:45 Pragmatism in Modeling & Simulation to Accelerate Commercial Reactor Designology (510)
Florent Heidet (USNC)

11:10 Modeling and Simulation Techniques and Tools for the US Micro-Reactor Program (511)
Jess Gehin (Idaho National Laboratory), **Youssef Shatilla** (Idaho National Laboratory)

Great Room C: Plenary Session
11:50 to 12:00, Thursday, August 17
Th3P1 Conference Closing Session
Session Chair 1: Adriaan Buijs (McMaster University)

Great Room A: Meals and Breaks
12:00 to 13:30, Thursday, August 17
Conference Luncheon and Best Student Paper Awards

Tours and Events
13:30 to 17:30, Thursday, August 17
Technical Tours

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