

Special Issue Featuring Papers from the 2024 Best Estimate Plus Uncertainty International Conference (BEPU 2024)

Contents

- iii Foreword
Marco Cherubini, Timothy Valentine

RESEARCH ARTICLES

- 1987** Assessment of JEFF Nuclear Data Libraries for Reactor Physics and Spent Fuel Composition Applications
Mathieu Hursin, Fan Xia, Dimitri Rochman
- 2001** Case Study on the Performance of Bayesian and Frequentist Statistical Approaches for Criticality Safety Evaluations with Used Nuclear Fuel
Alexander Vasiliev, Matthias Frankl, Dimitri Rochman, Hakim Ferroukhi
- 2018** Methodology for Sample Size Reduction in Uncertainty Analysis with High-Fidelity Fuel Performance Tools
Alejandra de Lara, Zsolt Soti, Arndt Schubert, Paul van Uffelen, Eugene Shwageraus
- 2037** Impact of Irradiation History on Boltzmann/Bateman Coupled Sensitivities: Application to Sodium-Cooled Fast Reactor Subassembly
Victor Viallon, Elias Y. Garcia Cervantes, Laurent Buiron
- 2055** Development of a Statistical Model of Uncertainty in Time-Dependent Channel Power Distribution Predictions
J. Rogers, Y. Parlatan
- 2066** Decay Heat Power Uncertainty Quantification in Studsvik's System for Spent Fuel Analyses
Teodosi Simeonov, Charles Wemple, Joshua Hykes
- 2073** Derivation of Uncertainty Distributions for Channel Flow Rate and Fuel Critical Heat Flux Predictions for Best-Estimate Plus Uncertainty Analysis of Slow Loss-of-Reactor Power Regulation Accidents in CANDU Stations
Y. Parlatan, J. Rogers, M. Koivisto
- 2083** Uncertainty Quantification Framework for High-Temperature Gas-Cooled Reactors Using VSOP and DAKOTA
Gregory K. Delipei, Muhammad Altahhan, Pascal Rouxelin, Sonat Sen, Nathan George, Maria Avramova, Kostadin Ivanov

—continued—

Contents continued

VOLUME 199 · NUMBER 12 · DECEMBER 2025

- 2110** Multi-Physics Simulations and Sensitivity Analysis of a Main Steam Line Break Transient in a Pressurized Water Reactor

Thomas Croisette, Paolo Olita, Claire Vaglio-Gaudard, Pablo Rubiolo, Raphaël Pr  a

- 2129** Bayesian Calibration and Sensitivity Analysis of Rayleigh Scattering Fiber Optic Distributed Temperature Sensing in Water Flow Loop

Lauren Kohler, Darius Lisowski, Matthew Weathered, Xu Wu, Alexander Heifetz

REGULAR RESEARCH ARTICLES

- 2143** A Reactor Transient Benchmark for Molten Salt Reactor Experiment Pump Transient Tests

Mohamed Elhareef, Youssef Abouhussien, Zeyun Wu, Massimiliano Fratoni, Eva Davidson, Tingzhou Fei, Kurt Harris

- 2172** Advanced Modeling of the Core of a Prismatic Block Gas-Cooled Reactor

K. Podila, Q. Chen, P. Pfeiffer, X. Huang, S. Golesorkhi, A. Trottier, A. John, S. Kelly

- 2193** Daily Load-Follow Operation in APR1400 Without Soluble Boron Adjustment Using the Mode-K+

Husam Khalefih, Yunseok Jeong, Yonghee Kim

- 2214** Computational Investigation of Optimal Discharge Header Design in a Typical Open Pool-Type Research Reactor for Flow Stability in Hot Water Layer System

Haris Iqbal, Muhammad Nadeem, Arif Arif, Adnan Hamid

- 2234** Ceramic Composite Inert Matrix Fuel Forms in High-Temperature Gas-Cooled Microreactors

Donald L. Doyle, Edward M. Duchnowski, Jason R. Trelewicz, Nicholas R. Brown