

Special Issue on Advancements in Uncertainty and Sensitivity Analyses: Current Status and Perspectives

Contents

- v Foreword
Fulvio Mascari, Fabrizio Gabrielli

RESEARCH ARTICLES

- 1879** Uncertainty and Sensitivity Analyses for Postulated Severe Accidents of Reference PWRs and SMRs in the Frame of the IAEA CRP and Relevant Insights
Kwang-II Ahn, Federico Mezio, Shaukat Ali, Xuewu Cao, Yong Jin Cho, Bassam Khuwaileh, Victor Martinez-Quiroga, Fulvio Mascari, Fabrizio Gabrielli, David Luxat, Tatjana Jevremovic
- 1906** Adaptive Sampling Limit Surface Search Application to Identify Cliff-Edge Effects in Severe Accident Uncertainty Analysis
Pietro Maccari, Andrea Bersano, Fabrizio Gabrielli, Fulvio Mascari
- 1921** Applying Shapley Effect for Sensitivity Analysis During Reactor Transient
Basma Foad, Rabab Elzohery, Jeremy Roberts, David R. Novog
- 1937** Sensitivity Analysis on the DYNASTY Facility 1D Modelica Models with the DAKOTA-FMU Approach
Gabriele Benzoni, Carolina Introini, Andrea Missaglia, Xiang Wang, Antonio Cammi
- 1960** Major Achievements of the EC MUSA Project
L. E. Herranz, S. Beck, V. H. Sánchez-Espinoza, F. Mascari, S. Brumm, O. Coindreau, S. Paci
- 1971** Lessons Learned and Best Practices on BWR Severe Accident Uncertainty and Sensitivity Analysis in the Framework of the IAEA CRP I31033
J. Ortiz-Villafuerte, E. K. Bofo, L. Herranz, R. López-Morones, F. Mascari, Tatjana Jevremovic
- 1986** Implementation of the SP_3 Solver with Gray Boundary Conditions in OpenFOAM for Thermal Radiation Modeling: Application to Molten Salt Reactors
Mahdi Aghili Nasr, Antonio Cammi, AhmadReza Zolfaghari, Reza Akbari

—continued—

Contents continued

VOLUME 212 · NUMBER 8 · AUGUST 2026

- 2005** Monte Carlo Filtering Technique Applied to Both Quantitative and Qualitative Uncertain Variables in the Sensitivity Analysis of Hydrogen Generation and RPV Failure During a BWR STSBO
Javier Ortiz-Villafuerte, Heriberto Sánchez-Mora, Melisa Reyes-Fuentes, Cesar Queral, Edmundo Del Valle-Gallegos
- 2023** Impact of the Uncertainties Associated with Core Degradation on the State of the Corium at Vessel Rupture
Laure Carénini, Florian Fichot
- 2051** Study of the User Effect Impact in Forward Uncertainty Propagation Approaches Applied to Severe Accident
Kevin Fernández-Cosials, Cesar Queral, Miguel Sánchez-Perea, Fernando Robledo
- 2067** Investigation of the Applicability of the System Reliability Analysis Method to Identify the Cliff Edge Effect in Severe Accident Simulations
Nikolai Ryzhov, Valentina Svitelman, Kiselev Arkadi, Yudina Tatiana, Saveleva Elena
- 2077** Impact of the Uncertainties Associated with Core Degradation in H₂ Production During the In-Vessel Phase
Laure Carénini, Florian Fichot
- 2101** Application of Uncertainty and Sensitivity Analysis in Assessing the Consequences of Severe Accidents
Virginijus Vileiniškis, Tadas Kaliatka, Mindaugas Valinčius, Algirdas Kaliatka
- 2133** Evaluation of Decay Heat Calculation Uncertainties for Spent Fuel from RBMK-1500 Reactor
Andrius Slavickas, Tadas Kaliatka, Andrius Tidikas
- 2147** Iodine Source Term Uncertainty and Sensitivity Analysis with the Severe Accident Code ASTEC: Focus on Iodine Chemistry, Aerosol Behavior, and Containment Pressurization
Olivia Coindreau, Virginie Lombardi, Karine Chevalier-Jabet, Jean-Jacques Ingremeau
- 2167** Uncertainty and Sensitivity Analysis of the ASTEC Source Term Results of a MBLOCA Scenario with the Activation of Severe Accident Management Actions in a Generic Konvoi Plant
Anastasia Stakhanova, Fabrizio Gabrielli, Victor Hugo Sanchez Espinoza, Eva-Maria Pauli, Axel Hoefer

—continued—

Contents continued

VOLUME 212 · NUMBER 8 · AUGUST 2026

- 2185** Techniques for Sensitivity Analysis in Severe Accidents: A Comparative Study
Michela Angelucci, Luis E. Herranz, Sandro Paci
- 2200** A Summary and Future Work Plans of the Uncertainty and Sensitivity Analysis of a Severe Accident in a Generic CANDU 6 Plant in the Framework of IAEA CRP I31033
S. M. Petoukhov, A. C. Morreale, G. G. Patterson, J. H. Bae, K. I. Ahn, D. Dupleac, R-M. Nistor-Vlad
- 2213** Uncertainty Assessment of an iSMR Passive Safety System: Model Lifecycle Management Study Case
Federico Andrés Mezio, Marcelo Oscar Giménez, Pablo Gustavo Zanoocco, Cristian Fabián Aramayo