

Workshop on Multi-Physics Model Validation and Uncertainty Quantification of SMR Simulators and Digital Twins

DATE: May 20 – May 21, 2026

LOCATION: North Carolina State University, Raleigh NC, USA

COST: None; refreshments, lunches & dinner/social reception provided

WHO SHOULD ATTEND: Participants from industry, academia, national labs, research organizations, and government agencies (e.g. U.S. DOE & U.S. NRC), as well as international agencies (e.g. OECD/Nuclear Energy Agency (NEA) & International Atomic Energy Agency (IAEA))

FOCUS: Knowledge of state-of-the-art concepts, principles, procedures, and challenges for validation and uncertainty quantification of small modular reactors (SMR) simulators and digital twins (DTs). Panel and technical sessions on challenges, developments, and applications related to SMRs will include the following topics, but not limited to:

- Modeling and Simulation (M&S) of SMRs Including Verification and Validation (V&V) and Uncertainty Analysis in Modeling (UAM)
- Development of Simulators for SMRs, Including V&V and UAM
- Machine Learning and Artificial Intelligence Applications for Experimental Facilities and SMRs, including V&V and UAM
- Development of Digital Twins for Experimental Facilities and SMRs, Including V&V and UAM
- Advanced Digital Technologies, Control, and Automation Research
- Digital Twins, Simulators, and SMR Operations Training
- Construction Performance Modeling and Simulation
- SMR PSA/PRA Including Safety Cases

Plenary presentations & a graduate student poster session on related activities within the Consortium will also occur.

Questions: Dr. Kostadin Ivanov, knivanov@ncsu.edu

Further information @ <https://ne.ncsu.edu/workshops/> | **Register HERE**

This workshop is part of the U.S. Department of Energy (DOE) Consortium for Strategic Revitalization of Cyber-Physical Nuclear Infrastructure for Advanced Small Modular Reactors. Support is provided by the U.S. Department of Energy (DOE), OECD/Nuclear Energy Agency (NEA), NC State's Consortium for Nuclear Power (CNP), and the NC Nuclear Advisory Council (NAC).

