

## Special Session Description

Session Title: **Validation of Computer Codes**

Subject Area: 5. Uncertainty Quantification and Sensitivity Analysis

### Organizers

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### Description

With the increased reliance on modeling and simulation in predicting the behavior of nuclear power systems, new challenges arise in assessing the quality of models and their applicability to the wide range of conditions expected during normal and off-normal operation. This process is referred to as model validation. This session is designed to bring together experts in the area of model validation to overview the state-of-the-art techniques, and present new developments and advances in validation exercises. These advances are essential as modeling and simulation is shifting from a strategy that relies on phenomenological models assisted with huge amount of experimental data to a strategy that relies on first principles physics assisted with a small but optimized number of experiments. In particular, validation must be able to quantify the various sources of simulation errors and uncertainties such as modeling, numerical, and parameter uncertainties. Characterization of these sources of uncertainties is essential to providing a credible manner by which they can be extrapolated over the envisaged range of model application, referred to as the domain of validation. This session will seek papers that cover the wide spectrum of validation challenges as applied to existing as well as advanced modeling and simulation software.