

## Special Session Description

Session Title: **Uncertainties Propagation in multi-physics simulations**

Subject Area: 5. Uncertainty Quantification and sensitivity analysis

### Organizers

Palmiotti Giuseppe  
Idaho National Laboratory  
+1 208 360-3544  
Giuseppe.Palmiotti@inl.gov

Rabiti Cristian  
Idaho National Laboratory  
+1 208 526 6821  
Cristian.Rabiti@inl.gov

### Description

The development of more sophisticated software platforms allows simulating complex multi-physical phenomena in a coupled fashion. This opens the question on how to estimate the uncertainties associated to such simulations.

In multi-physics phenomena the presence of high dimensionality spaces (e. g. cross sections) in connection with non-linear phenomena (e. g. thermo-hydraulics) poses a challenge to the current uncertainties quantification methodologies. For example brute force approaches, e.g. stochastic methodologies, compete with simulation fidelity in terms of computational resources, while adjoint approaches are less suitable when non-linear effects are significant.

This session is seeking papers, which analyze the possible application of both current and new uncertainty quantification methodologies to multi-physical phenomenon simulations.