

Special Session Description

Session Title: **Advanced 2D/3D methods for neutron transport based on short or long characteristics.**

Subject Area: 1. Deterministic Transport Methods and Applications.

Organizers

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Description

This special session will focus on the short and long method of characteristics (MOC), which have received much attention in recent years for modelling complicated lattice geometries without any need for homogenization. Some topics of interest are:

- 3D tracking techniques: how to address the costly issue of computational tracking data.
- Nonlinear acceleration techniques for inner/outer iterations (CMFD or others).
- Synthetic Acceleration techniques for inner/outer iterations (ACA, DPn or others).
- Different parallelization techniques based on spatial domain decomposition methods, independent trajectories or angular sweeping front decomposition.
- Higher-order flux expansions.
- 1D-2D Fusion method, coupling 2D MoC with 1D Sn or SPn.
- Application of the MoC to the time-dependent transport equation.
- Double Heterogeneity problem for fuel assemblies.
- Verification and Validation for 3D full core calculations (or for industrial application).

The session will involve mathematical modeling, deterministic numerical methods, and comparisons with Monte-Carlo calculations to weigh the confidence of the mathematical/numerical models.