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Nuclear Reactor Modelling and Simulation Toolkit (NuReMoST) – Numerical Reactor Model Configuration System with Interface to Simulation Codes

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Nuclear Reactor Modeling and Simulation Toolkit (NuReMoST) is a new generation system for numerical simulation of the nuclear reactor. The system integrates typical simulation tasks, such as preparation of the design and geometry data, setup of the initial and boundary conditions, meshing tools, visualization functions, as well as several other related utilities and services. The core point of the system is to provide a standard interface for coupling of numerous simulation codes. The reactor data storage system collects simulation-related data in a consistent database with all possible and necessary details. NuReMoST provides an access to the stored reactor data and a standard interface for coupling with reactor simulation codes.

The key feature of the system is to provide easy and effective tools for preparation of the reactor simulation model. Easy design with instant visualization provides a quick and effective tool for the model preparation and quick update thanks to the instant visual user interface.

NuReMoST is designed to provide easy coupling capabilities. The coupling tools with several popular reactor simulation codes are already included in NuReMoST, many others will be included in the near future. In addition, several simplified simulation tasks including steady-state thermal hydraulic and power distribution calculations are natively integrated into the system. Thus, even standalone REMCOS version can be used for a quick evaluation and for educational purposes.

At the moment, a conceptual prototype of the NuReMoST system is available. The samples of coupling interface with simple thermal hydraulics and neutronics models are presented and discussed. The coupling with reactor neutronics codes, such as ERANOS and SERPENT are under development.

Country/Int. Organization

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