

Within the scope of the school, the following topics will be addressed in an integrated fashion:

- Advanced reactor concepts that are under development by industry, university and national laboratories;
- Reactor physics modeling and analysis methods;
- Experimental measurements of reactor physics behavior;
- Nuclear data theory, measurements, and evaluations;
- Advances and challenges in modeling, experimentation, and validation (ME&V);
- Multiphysics (thermal hydraulics, neutronics, materials, fuels, etc.) of plant dynamics in operational, abnormal transients and accidents;
- Sensitivity analysis, uncertainty quantification and data assimilation methods; and
- Advanced verification and validation methods.

Students will be grouped in teams to work on course assignments that build on the lecture materials and address challenging questions in reactor safety.

Each team will be working closely with and mentored by senior scientists and professors who are leaders in the field. Successful students will take away a solid theoretical foundation, as well as a set of practical examples to guide their future work on advanced reactors, experimental design, model development and validation.

## Organization and Faculty

The MeV Summer School will provide early career engineers and scientists with advanced studies in integrated modeling, experimentation, and validation (MeV) to develop an understanding of the current and future challenges facing nuclear energy advancement. Successful students will leave with a holistic, forward-looking view of MeV that cannot be provided by any other current curriculum. The school provides a forum for drawing the best topical expertise from around the globe. It is the aim of the school to foster the development of a next-generation network of scientists and engineers capable of advancing nuclear energy in the 21st century through integrated modeling and experimentation. The MeV Summer School integrates a wide range of teaching and mentoring expertise, deeply underpinned by knowledge, skills, and experience.

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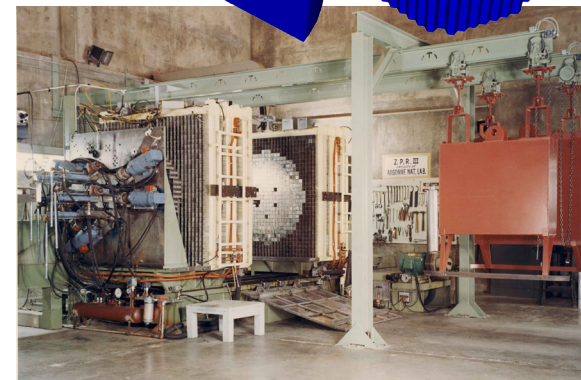
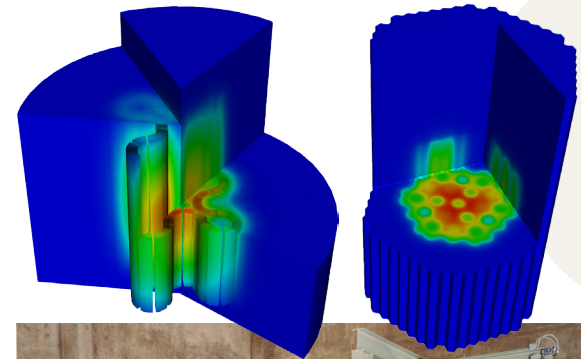
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## Advanced Reactor Systems and Novel Advances in Multi-Physics Modeling and Simulation

July 16 – July 26, 2018

Argonne National Laboratory



Theme of the 2018 MeV school is “Advanced Reactor Systems and Novel Advances in Multi-Physics Modeling and Simulation.” The school brings proponents and developers of advanced nuclear systems together to introduce ideas and share updates on current activities. In addition, top experts in academia, industry and government will provide updates on advances in modeling and simulation, experiments and other validation efforts in support of advanced reactor systems. The advanced reactors include small modular water-cooled reactors, liquid metal-cooled reactors, molten salt reactors, and gas-cooled reactors. The school is being organized through the cooperation of national laboratories, industry, government agencies, and universities that share the goal of building a strong workforce to support global nuclear expansion. The 2018 MeV school will be hosted at Argonne National Laboratory. The general organization and conduct of the school will be overseen by an executive committee that is organized by international senior experts. A local secretariat will provide technical, logistical and administrative support to students and faculty.

The courses are designed to broaden student knowledge and equip them with modern approaches to safety analysis; emphasis is placed on anticipating future needs of the profession.

Graduate credit from ISU will be awarded for the successful completion of the MeV Summer School.

