



Modern Simulation Methodologies for Advanced Water Cooler Reactor Systems 6 - 8 December, 2021

*For young scientists, engineers, and professionals involved in
computational nuclear science and engineering*

This course is an initiative of the IAEA Collaborating Center Pakistan Institute of Engineering and Applied Sciences (PIEAS) to bring together the leading experts around the world to discuss modern approaches for the analysis and design of the advanced water cooled reactor systems. The three-day virtual training course will cover the simulation methodologies related to neutronics (stochastic and deterministic approaches) and thermal hydraulics (currently established one-dimensional, sub-channel, and computational fluid dynamics (CFD) approaches) aspects of the advanced nuclear power plants.

Speakers

- Prof. Dr. Rizwan Uddin, Illinois University, USA
- Prof. Dr. Fatih Aydogan, Jacksonville, USA
- Mr. Matthias Krause, Canada
- Prof. Dr. Ravetto Piero, Politecnico di Torino, Italy
- Prof. Dr. Liangzhi Cao, Xi'an Jiaotong, China
- Prof. Dr. Tian Wenxi, Xi'an Jiaotong, China
- Prof. Dr. Henryk Anglart, KTH, Sweden
- Prof. Dr. Ruben Avila, UNAM, Mexico
- Mr. Chirayu Batra, IAEA, Austria
- Prof. Dr. Jiyuan Tu, RMIT, Australia
- Prof. Dr. Raimon Pericas, UPC, Spain
- Dr. Ahmed Amin Abdelhameed, ANL, USA

Topics

- Overview of Computational Methods for Nuclear Reactor Analysis
- Approximate Models for Neutron Transport: Physical and Numerical Aspects
- 3D Time Dependent Multi-Physics Simulation of Load Follow in Soluble Boron Free SMR
- Advanced Reactor Physics Analysis Methods and Code Development for Gen-III PWR
- Thermal-hydraulic Analysis of Water Cooled Reactors by using System Code
- Sensitivity Analysis in Severe Accident Calculations for Integral Type SMR using RELAP/SCDAPSIM mod3.5 Code
- Advances in Computational Fluid Dynamics and its Applications in Nuclear Reactor Simulation
- Advanced CFD Scheme for Efficient Coupled Neutronics-TH Simulations
- CFD Modelling of Two-phase Flow Boiling and Heat Transfer in BWRs
- Linear Thermal Stability Analysis of Oscillatory Fluid Layer using Spectral Method
- Evaluation of System Codes

Course Organizers

- Dr. Naseem Irfan
Dean Engineering, PIEAS
- Dr. Aman ur Rehman
Head DNE, PIEAS
- Dr. Haseeb ur Rehman
CFE, IAEA/PIEAS
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