Pre-Conference Workshops

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Workshop 1-CFD (Computational Fluid Dynamics)

9 am-4:30 pm, Sunday, June 22

C102, 1F, Exchange center

The CFD workshop will target young researchers and engineers to provide the basis and results for selection of several CFD applications for certain thermal-hydraulic problems. Wide variety knowledge and up-to-date information on CFD will be presented by foreign CFD specialists. The presentations may begin with the fundamental equations and numerical solution methods, and then continues to recent developments and some practice guidelines of CFD for nuclear engineering applications. Informal discussions and questions will be conducted.

Chair

Wenxi TIAN, Xi'an Jiaotong University

Co-Chairs

Shripad Revankar, Purdue University

Kei Ito, Kyoto University

Instructors

1.Wenxi TIAN, Xi'an Jiaotong University

Verification, Validation and Uncertainty Quantification (VVUQ) and Best Practice Guideline (BPG) in CFD computation

2.Kei Ito, Kyoto University

Fundamental and application of two-phase flow simulation

3.Francesco D'Auria, University of Pisa

CFD applicability to fission nuclear reactor design and safety: an insight

4.Dahuan ZHU, Nuclear Power Institute of China

The study of CFD application in supporting thermal-hydraulic and safety design of nuclear reactor

5.Jinbiao XIONG, Shanghai Jiao tong University

Turbulence model calibration based on data assimilation and its application in fuel assembly flow

6.Koji Morita, Kyushu University

Application of Particle-Based Simulation to the Analysis of Multi-Component, Multi-Phase Flows in Fast Reactor Severe Accidents

7.Mingjun WANG, Xi'an Jiaotong University

Development Progress of Steam Generator Three-dimensional Thermal Hydraulic Code STAF at XJTU

Workshop 2-Thermal Hydraulic Methods, Experimentation and Benchmarking

9 am-4:30 pm, Sunday, June 22

C103, 1F, Exchange center

This workshop will present an overview of some of the key Thermal-Hydraulic methodologies, experimentation procedure and its application to nuclear power plants. The relevant computer code model and theory will be described and real experimental work will be presented and discussed. Meanwhile, computer code simulations of experiments and benchmarking will be both presented. For exchanging information and experience purposes, this workshop is applicable to both students/professors and engineers in the relevant industry fields.

Chair

Liangming PAN, Chongqing University

Co-Chairs

Guoqiang WANG, PNNL

Tomio Okawa, TheUniversity of Electro-Communications

Instructors

1.**Xinjian DUAN,** Candu Energy Inc

Leak Rate Calculation for Leak Before Break Assessment?

2.**Tomio Okawa,** The University of Electro-Communications

Flow boiling CHF: Liquid film dryout and DNB

3.**Liangming PAN,** Chongqing University

Research on Interfacial Behavior of Liquid Lead-Bismuth and Water Mixed Flow

4.**Shripad Revankar,** Purdue University

Scaling methodologies for designs and analysis of of integral and separate effect thermal hydraulics experiments

5.**Kui ZHANG,** Xi'an Jiaotong University

Experimental research on critical heat flux with low mass flux under motion conditions

6.**Asif Arastu,** Bechtel Power Corporation (Retired)

Waterhammer Mechanisms and Analysis in Piping Systems

7.**Dewen YUAN,** Nuclear Power Institute of China

High Temperature Sodium Heat Pipe: A Choice for SMR

Workshop 3-Nuclear Codes & Standards

1:30 pm-4:30 pm,Sunday, June 22

C107AB, 1F, Exchange center

The topic of this workshop centers on the development of nuclear engineering analysis codes and the establishment of nuclear energy standards. Participants of the workshop will engage in discussions and share insights on the research, development, and verification & validation (V&V) of codes related with reactor physics, thermal hydraulics, and nuclear materials, etc. Besides, the workshop will provide a platform for sharing experiences related to the formulation and application of standards in nuclear engineering. The workshop also aims at encouraging new ideas and practices in the field of nuclear engineering.

Chair

Xiaojing LIU, Shanghai Jiao tong University

Co-Chairs

Xinjian DUAN, Candu Energy Inc

Koji Yamada, Chubu Electric Power Co., Inc.

Instructors

1.**Wei ZENG,** Nuclear Power Institute of China

Research on Advanced Reactor Models and Numerical Calculation Methods

2.Xinjian DUAN, Candu Energy Inc

Best Practice Guide for Probabilisitc Fracture Mechanics (PFM) Code Development and application

3.Ting WANG, China Nuclear Power Technology Research Institute

Development and V&V of the NATENE Software Package for Core and Fuel Design inLarge Pressurized Water Reactors

4.Koji Yamada, Chubu Electric Power Co., Inc.

JSME Nuclear Codes & Standards Updates (2025)

5.Feng SHEN, State Power Investment Corporation Research Institute

Improvement and Application of COre and System INtegrated Engine for design and analysis (COSINE) by State Power Investment Corporationt (SPIC)

6.Ruilin DONG, Institute for Standardization of Nuclear Industry

Standard system for mechanical equipment of nuclear islands in Chinese pressurized water reactor nuclear power plants

Workshop 4-Safety analysis and Severe Accident

9 am-12 noon,Sunday, June 22

C108AB, 1F, Exchange center

This workshop will present overview of nuclear safety in light water reactors, along with the safety analysis to support nuclear reactor licensing, as well as the severe accident R&D and perspectives. The development of relevant computer code model will be described and the experimental study will be presented and discussed. This workshop is applicable to both students and engineers in the relevant industry fields.

Chair

Yidan YUAN, China Nuclear Power Engineering Co., Ltd.

Co-Chairs

Ivo Kljenak, Jozef Stefan Institute

Koji Morita, Kyushu University

Instructors

1.Qiang GUO, China Nuclear Power Engineering Co., Ltd.

Experiment on focusing effect of stratified molten pool under IVR strategy

2.Mohammad Syed Sohaib, Canadian Nuclear Laboratories

Preparation of Safety Analysis in Radioactive Waste Management Using a Deterministic Approach

3.Zhiyi YANG, Nuclear and Radiation Safety Center, Ministry of Ecology and Environment

Current status and developmental considerations in the regulation of severe accidents

4.Xinjian DUAN, Candu Energy Inc

Methodology for Establishing the Threshold Break Size for Large Break LOCA Reclassification

5.Yapei ZHANG, Xi'an Jiaotong University

Research on accident tolerant characteristics of Cr coated Zr cladding under condition of high temperature vapor

6.Tomio Okawa, The University of Electro-Communications

Phenomenological modeling of quenching of hot vertical wall with a falling liquid film

Workshop 5-Method, Application and Risk of Artificial Intelligence (AI)

9 am-12 noon,Sunday, June 22

C107AB, 1F, Exchange center

This workshop will provide an overview of the methods and applications of Artificial Intelligence (AI) within the field of nuclear engineering. Attendees will explore how AI technologies can enhance the safety and economy of nuclear energy. Additionally, the workshop will address the risks associated with AI implementation, such as uncertainties, cybersecurity challenges and ethical considerations. This workshop is designed for researchers, industry professionals, and students interested in the intersection of AI and nuclear engineering.

Chair

Sichao TAN, Harbin Engineering University

Co-Chairs

Paul Cheng, FuseRing

Yoichi Utanohara, Komatsu University

Instructors

1.Sichao TAN, Harbin Engineering University

AI for Nuclear Thermal-Hydraulic Research: Modeling, Calculation and Optimization

2.Hugo Laffolley, JAEA/CLADS

Challenges and Strategies in Applying Machine Learning for Particle Discrimination in 2D-imaging Semiconductor Radiation Detectors

3.Dong LIU, Nuclear Power Institute of China

Deep Learning Numerical Computation Methods and Their Applications in Reactor Engineering

4.Paul Cheng, FuseRing

AI Strength is Predictive. But How Will It Analyze Weld Integrity for Nuclear? It Needs Data.

5.Zhao XU, China Nuclear Power Engineering Co., Ltd.

The Data-Driven Intelligent Decision-Making Technology and System for Nuclear Power Plant