

Innovation in Thermal Hydraulics for Nuclear Future

NURETH-21

21st International Topical Meeting on Nuclear Reactor Thermal Hydraulics

August 31 (Sun) - September 5 (Fri), 2025

BEXCO • Busan, Korea

1st Announcement

Important Dates

- Abstract submission deadline *October 25, 2024*
- Author notification of acceptance *November 15, 2024*
- Full paper submission deadline *January 31, 2025*
- Full paper review notification *March 17, 2025*
- Revised paper submission deadline *April 15, 2025*
- Final paper submission deadline *May 15, 2025*





Invitation



Welcome to NURETH-21

It is my great pleasure to welcome you all to the 21st International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH-21), August 31 - September 5, 2025, in the city of Busan, which is the second largest city in Korea and the world's fifth busiest port.

Since the first meeting in 1980, the NURETH Conference series has staged the largest international technical meetings in nuclear thermal hydraulics and safety, providing forums to present and discuss the advancements in R&D and applications of art, science, and technology. The NURETH-21 is organized by the Thermal Hydraulics Division of the Korean Nuclear Society (KNS) in close cooperation with ANS, ENS, CNS and AESJ, and many other co-sponsoring organizations around the world.

Drawing on the outstanding experiences of the successful organization and operation of two flagship topical meetings previously held in Korea, NURETH-10 (Seoul, 2003) and NUTHOS-11 (Gyeongju, 2016) among others, we are looking forward to continuing and further expanding the long and successful tradition of NURETH Conference series in the early fall of 2025.

The theme of the Conference is “**Innovation in Thermal Hydraulics for Nuclear Future**” and the program will feature a full spectrum of activities designed to appeal to all participants, from students to early career professionals as well as senior leaders. The program will also include optional technical tours and a diverse cultural program to offer uncommon and exciting opportunities to both participants and their accompanying persons.

I would like to sincerely encourage colleagues and friends from all over the world to actively participate by attending the Conference, submitting and presenting papers, volunteering to organize sessions, and supporting the peer-review of the papers.

I firmly believe that all participants will find the Conference very productive professionally and enjoyable personally with plentiful cultural experiences on the breathtakingly scenic world-famous seashore of Busan.

With warmest regards,

Chul-Hwa SONG, Ph.D.

NURETH-21 General Chair

NURETH Fellow

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Technical Tracks

1. Fundamental Thermal Hydraulics

- General Fundamental Thermal Hydraulics
- Single Phase Thermal Hydraulics
- Two-Phase Flow
- Boiling and Condensation
- Critical Heat Flux (CHF) and DNB
- Core and Sub-Channel Thermal Hydraulics
- Natural Circulation
- Thermal Hydraulic Scaling
- Instabilities and Special Thermal Hydraulic Phenomena
- Turbulence
- Adv. Modelling - IAT, Droplets, etc.

3. SET & IET

- Measurement Techniques and Visualization
- SET & IET (1): LWR
- SET & IET (2): Non-LWR
- CFD-grade Tests
- Experiments and Databases for Validation
- Rod Bundle Experiments
- CHF for SMR and Accident Tolerant Fuel
- Uncertainty Quantification and Best Practice Guidelines for Experiments

5. Severe Accident

- Severe Accident Management and Mitigation in PWR
- In-Vessel Corium Behavior and Coolability
- Ex-Vessel Corium Behavior and Coolability
- FCI and Containment Integrity
- Hydrogen Issues & Management
- Fission Products Behavior and Reduction
- Passive Autocatalytic Recombiners
- Severe Accident in Advanced Reactor
- Severe Accident in PHWR
- Severe Accident Uncertainty Analysis

7. Digital Technologies for Thermal Hydraulics

- AI Application to Thermal Hydraulics
- AI Application to Operation and Safety
- Reduced Order Modelling (ROM) for Nuclear Thermal Hydraulics
- Virtual Reactor Design
- Monitoring and Diagnosis of Thermal Hydraulics

9. Panel/Forum Sessions

- Licensing Approaches on BEPU for Passive System
- Thermal Hydraulics Issues on HALEU Fuels
- LWR Fuel Reliability
- MSR Forum
- Water-cooled SMR
- Thermal Hydraulics Challenges and Opportunities in Operating Reactors
- Deployment of Advanced Reactors
- Safety and Thermal-Hydraulics in Fukushima Decommissioning

2. Computational Thermal Hydraulics

- Computational Fluid Dynamics
- Computational Multi-Fluid Dynamics
- Sub-channel Analysis
- System Code Analysis
- Multi-field Analysis and Modelling
- High-fidelity Coupled Analysis
- DNS and LES
- Uncertainty Quantification and Best Practice Guidelines for Analysis

4. Water-cooled Reactor Thermal Hydraulics

- WCR Operation and Safety - PWR & VVER
- WCR Operation and Safety - HWR
- WCR Transient & Accident Analysis
- ALWR Thermal Hydraulics & Safety
- ATF & LEU+ Issues
- LTO and Flexible Operation
- BEPU - Methodology & Analysis

6. Advanced Reactor Thermal Hydraulics and Safety

- Water-cooled SMRs
- Non-water-cooled SMRs
- Micro-Reactors
- Non-electricity Generation Applications
- Test/Research Reactors
- Molten Salt Reactors
- Gas-Cooled Reactors
- Liquid Metal Reactors: SFR, LFR
- Other Advanced Reactors - SCWR
- Thermal Hydraulics in Fusion Reactors

8. Special Topics

- Thermal Hydraulics in Waste Management
- Thermal Hydraulics in H₂ Production/Transport
- Multi-scale Multi-Physics
- Coolant Chemistry
- Microchannel Thermal Hydraulics
- Space Applications
- Marine Applications
- Fluid-Structure Interaction
- Post-Fukushima Safety Issues
- Reliability of Passive Systems
- Emerging Thermal Hydraulics & Safety Issues
- Thermal Hydraulics in Thermal Storage System
- Integrated Energy Systems
- Risk-informed Safety Assessment
- Multi-Organizational Cooperative Programs
- International Cooperative Programs

Submission Guidelines

Step 1. Online Submission of Abstracts by October 25, 2024

- English abstract (text only, no template) of 250 words.
- Enter 5 keywords max.
- Select your preferred technical topic number and presentation type between oral, poster and either.



Step 2. Full Paper Submission by January 31, 2025

- Once abstracts have been accepted, authors may then submit 14-pages (max.) full papers.
- Please use provided template.
- Upload PDF file only.



Step 4. Final Paper Submission by May 15, 2025

- Once revised papers are reviewed and approved, authors may then submit their final papers.
- Please use provided template.
- Upload PDF file only.



Step 3. Revised Paper Submission by April 15, 2025

- Once full papers are reviewed and approved, authors may then submit their revised papers.
- Please use provided template.
- Upload PDF file only.



Registration

All participants wishing to participate in NURETH-21 must complete online registration and payment of the registration fee. Online registration will be available through the NURETH-21 website [from mid-September 2024](#).

Category	Early registration (~ June 30, 2025)	Standard & On-site registration (July 1 ~ September 5, 2025)
* Members	USD 850	USD 950
Non-members	USD 950	USD 1,050
Emeritus	USD 425	USD 475
** Student	USD 250	USD 350

* Members: Member registration fees apply to AESJ, ANS, CNS, ENS and KNS individual members.

** Student:

- At the time of online registration, students who are pursuing a bachelor's, master's or doctoral course can register under "Student Registration".
- In the online registration process, to register in the "Student" category, you must upload a copy of your student ID or equivalent supporting documents (such as a confirmation letter from the professor in charge) to register.

About Busan, Korea



Busan is the 2nd largest city and number one trading hub in Korea, with a population of 3.4 million and a total area of 770.2 square kilometers as of 2021. Since opening Korea's first international port in 1876, the city has become a hub of trade, commerce and industry.

Global events including the Asia-Pacific Economic Cooperation conference, Busan International Film Festival and Busan International Fireworks Festival, as well as various sea-related festivals are held throughout the year. The city is also a tourist destination and home to Asia's largest department store, Haeundae beach, and a yacht marina. Located on the southern tip of the Korean Peninsula, Busan is a historic city that served as the temporary capital during the Korean War and refuge for men, women and children fleeing the North to build new lives.



Contact

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