



# 19th International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH-19)

August 29 - September 3, 2021 • Brussels, Belgium • The Square

## CALL FOR PAPERS

### EXECUTIVE CHAIRS

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Chul-Hwa Song, KAERI  
Ferry Roelofs, NRG

**Steering Committee Chair**  
Steve Bajorek, US NRC

### ABSTRACT DEADLINE: NOVEMBER 8, 2020

NOVEMBER		SUBMISSION OF ABSTRACTS: November 8, 2020
DECEMBER		ABSTRACT ACCEPTANCE: December 18, 2020
FEBRUARY		DRAFT PAPER SUBMISSION: February 28, 2021
APRIL		PAPER REVIEW NOTIFICATION: April 30, 2021
MAY		FINAL PAPER SUBMISSION: May 28, 2021

### GUIDELINES

The limit for abstract submissions is 250 words. The limit for full-paper submissions is 16 pages. The conference proceedings will be distributed on a flash drive. Selected papers will be published in the Special issues of Nuclear Technology, Nuclear Science and Engineering, and Nuclear Engineering and Design.

### ABOUT THE MEETING

NURETH is one of the premier gatherings for experts in nuclear reactor thermal hydraulics and related topical areas. The meeting is held every two years. SCK CEN, the Von Karman Institute and NRG are pleased to host NURETH-19 in Brussels, Belgium. Brussels is more than the capital of Belgium: it is the vibrant heart of Europe. In Brussels cultures swirl together in a creative mix of art de vivre, know-how, heritage and surrealism. It has everything to make your stay unforgettable!

### SUBMIT AN ABSTRACT

[www.nureth19.com](http://www.nureth19.com)



### NURETH-19 HOSTS

Katrien van Tichelen, SCK CEN  
Philippe Planquart, VKI  
Ferry Roelofs, NRG



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## TECHNICAL TRACKS

HIGH-QUALITY PAPERS (16 PAGE MAXIMUM) ARE SOLICITED IN THE FOLLOWING AREAS

### 1. FUNDAMENTAL THERMAL HYDRAULICS

- 1a Fundamental Thermal Hydraulics
- 1b Two-phase Flow and Heat Transfer
- 1c Boiling and Condensation
- 1d Interfacial Area Transport
- 1e Natural Circulation
- 1f Reactor Core & Sub-channel Thermal Hydraulics
- 1g Experimental Methods and Instrumentation
- 1h Turbulent Heat and Mass Transfer

### 2. COMPUTATIONAL THERMAL HYDRAULICS

- 2a Thermal Hydraulics System Code Analysis
- 2b Computational Fluid Dynamics
- 2c Computational Multi-Fluid Dynamics
- 2d Multi-scale Analysis
- 2e Multi-physics Analysis
- 2f Multi-species Analysis

### 3. VERIFICATION, VALIDATION AND UNCERTAINTY QUANTIFICATION

- 3a Verification & Validation
- 3b Experiments and Databases for Validation
- 3c V&V for CFD
- 3d V&V for Thermal Hydraulics Codes
- 3e Best Practice Guidelines

### 4. WATER-COOLED REACTORS OPERATION AND SAFETY

- 4a LWR Operation and safety
- 4b HWR Operation and safety
- 4c Transient and Accident Analysis
- 4d Scaling Issues
- 4e BEPU Analysis and Challenges in Licensing
- 4f Instabilities and Nonlinear Dynamics
- 4g Next Generation LWRs

### 5. SEVERE ACCIDENTS

- 5a Severe Accidents
- 5b Design Features for Severe Accident Mitigation
- 5c Natural Convection
- 5d Debris Bed Cooling
- 5e Fuel-Coolant Interaction
- 5f Hydrogen Management
- 5g Fission Product Behavior
- 5h Containment Thermal Hydraulics

### 6. LIQUID METAL THERMAL HYDRAULICS

- 6a Turbulent Heat Transport Modelling
- 6b Fuel Assembly and Core Thermal Hydraulics
- 6c Pool Thermal Hydraulics
- 6d Chemistry Control
- 6e Sloshing and gas entrainment
- 6f Solidification
- 6g System Thermal Hydraulics
- 6h Severe Accidents and Containment

### 7. ADVANCED REACTORS

- 7a Advanced Reactors General
- 7b Small Modular Reactors
- 7c High-Temperature Gas-Cooled Reactors
- 7d Salt-Cooled High-Temperature Reactors
- 7e Molten Salt Fueled Reactors
- 7f Supercritical Water Reactors

### 8. SPECIAL TOPICS

- 8a Versatile Test Reactor
- 8b Transformational Challenge Reactor
- 8c UQ Methods for CFD
- 8d DNS for Model Development
- 8e Reduced Order Methods
- 8f CONUSAF/FONESYS
- 8g Sub-channel Code Analysis
- 8h Fluid Structure Interaction
- 8i Accident Tolerant Fuel
- 8j Machine Learning in Thermal Hydraulics
- 8k GEMINI-collaboration
- 8l All-regime Two-Phase Flow Modelling
- 8m Post-Fukushima Daiichi Accident Forensic
- 8n Nuclear Thermal Hydraulics Program UK BEIS
- 8o High Performance Computing
- 8p Advanced Instrumentation for TH Experiments
- 8q Thermal Hydraulics for Fusion
- 8r Microreactor Thermal Hydraulics
- 8s IAEA CRP on Benchmark Analysis of FFTF Loss of Flow Without Scram Test
- 8t Reflood Thermal Hydraulics Benchmark: Experimental Effort and Code Validation

### POSTER COMPETITION

Join the new 2-minute poster pitch competition. For each poster a full paper should be submitted in the system. All posters will be presented during the conference. The winning posters presenters will receive special attention.

### MOVIE COMPETITION

Prepare a one-minute movie of your experiment, simulation, or other related topic. All accepted movies will be shown during the conference and winning movies will be shown at a special event.

Movies submission deadline: 30 April 2021.

