ETHC
European
Thermal Hydraulics
Community

Newsletter 3 – February 2025

Contents

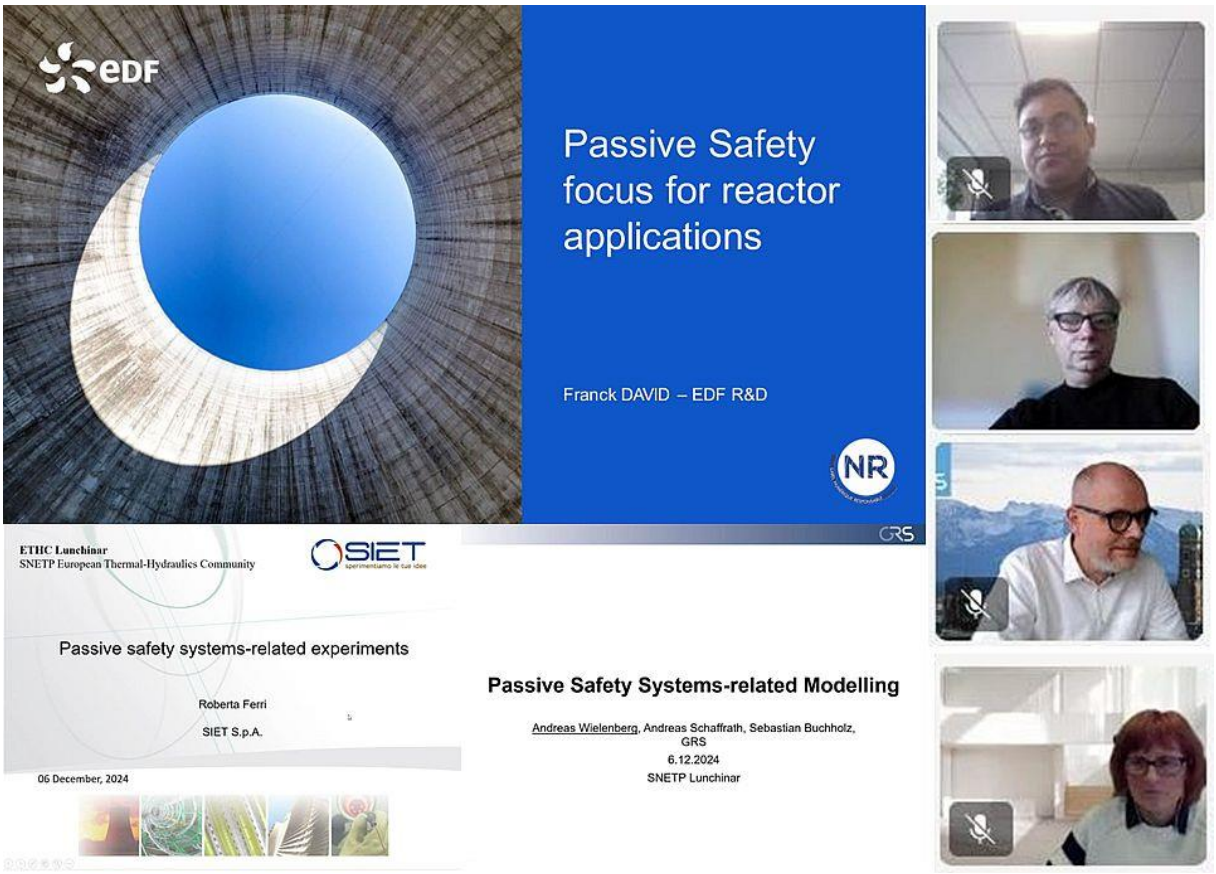
Contents 1
ETHC Activities 1
Announcements 2
Past Events 3
Upcoming Events 5
Find us! 9

ETHC Activities

Past ETHC lunchinar on Passive Safety

On December 6th, 2024, ETHC held its inaugural Lunchinar on passive safety systems for nuclear reactors. Key speakers were Frank David (EDF, France), Roberta Ferri (SIET, Italy), and Andreas Wielenberg (GRS, Germany), who discussed design, experimental challenges, and modelling advancements. Discussions covered scaling approaches for test facilities, licensing and reliability, expanding experimental databases, and the importance of large-scale testing under representative conditions to support safety demonstrations and code validation.

The presentations and recording of the Lunchinar have been made accessible to registered participants via the secured SNETP SharePoint platform.



Upcoming ETHC meeting at the FISA / EURADWASTE- SNETP Forum

The SNETP forum is organized together with the FISA and EURADWASTE conferences from 12 to 16 May 2025 in Warsaw, Poland. As ETHC we plan to take this opportunity to organize a short in-person informal gathering of our community. Unfortunately, we did not receive confirmation on our request for a timeslot and a room during the conference. Once we have more information, we will communicate that separately.

Announcements

OECD Nuclear Energy Agency

Joint nuclear safety projects and THEMIS-2

In the frame of OECD Nuclear Energy Agency, several joint nuclear safety research projects are currently under preparation to be launched in 2025/2026 timeframe. Of particular relevance to ETHC activities, the THEMIS-2 project focuses on addressing open R&D issues for large LWRs and water-cooled SMRs. Its scope includes thermal hydraulics, the performance of passive safety systems, and severe accident research, with a specific emphasis on containment safety. The project is currently in the development phase, with a preparatory meeting scheduled for 30 January 2025, at the OECD office in Paris.

More information on NEA joint nuclear safety research projects can be found here: https://www.oecd-nea.org/jcms/pl_72332/nuclear-safety-research-joint-projects

Validation database for reactor coolant system and containment thermal-hydraulic phenomena for current and advanced water-cooled reactor including SMR

OECD/NEA launches an activity on CSNI Code Validation Matrix (CCVM). This activity aims to update and extend the existing CCVMs to include recent experimental data related to current and advanced LWRs and PHWRs, including Water Cooled Small Modular Reactors. This CCVM update and extension activity covers Reactor Coolant System and containment Thermal-Hydraulics research. This represents the first step towards a broader update of the CCVM that will also address non-Water Cooled Reactor (WCR) designs in future phases.

The Kickoff Meeting of the activity will be held on online on 19 March 2025 from 12:00 to 15:00 Paris time. For more information, please contact Dr. Martina ADORNI, WGAMA, OECD Nuclear Energy Agency (NEA), Email: martina.adorni@oecd-nea.org

Journal Nuclear Engineering and Design

The History of Nuclear Technology through protagonists and their achievements

The Journal of Nuclear Engineering and Design is planning a series of six Virtual Special Issues, covering the history of nuclear technology through protagonists and prominent scientists, and their achievements after the first quarter of the 21st century. The sixth issue will be devoted to Nuclear Thermal Hydraulics.

Past Events

ATH International Panel

The Advances in Thermal Hydraulics (ATH) conference was embedded in the ANS Winter meeting from 17 to 21 November 2024, in Orlando. An international panel with the thermal hydraulic communities of the US, Canada, South Korea, Japan, and Europe was organized with the aim of discussing possibilities for inter-society exchanges, activities and events that provide added value to the community members. The representative from South Korea launched the idea of setting up a Global Alliance of Thermal Hydraulics networks in the nuclear field. This will be further discussed in the upcoming year.

SWINTH2024

The Specialist Workshop on Advanced Instrumentation and Measurement Techniques for Nuclear Reactor Thermal-Hydraulics and Severe Accidents (SWINTH-2024) was held on 17-20 June 2024 in Dresden hosted by HZDR and co-organized by the OECD Nuclear Energy Agency working group WGAMA, and SILENCE-Network.

A total of 66 papers from authors across 13 countries were presented at the workshop, covering various water-cooled reactor technologies, including PWRs, BWRs, VVERs, CANDUs, SCWRs, and SMRs, as well as cross-cutting technologies like SFRs, space reactors, and floating NPPs. The workshop covered topics such as advanced two-phase flow instrumentation, machine learning and AI applications, severe accident management, and validation databases for modelling. It emphasized the importance of international collaboration in accelerating the development of advanced instrumentation for R&D and reactor applications.

ETHC Council member Sanjeev Gupta delivered a presentation on ETHC activities to the SWINTH2024 participants. For more details about SWINTH2024, visit https://www.swinth2024.org/

SILENCE & FONESYS Networks

The SILENCE Network (Significant Light and Heavy Water Reactor Thermal Hydraulic Experiments Network for the Consistent Exploitation of the Data) is a collaborative platform focused on fostering innovation and knowledge exchange in nuclear thermal hydraulics. It aims to advance experimental research by addressing critical challenges in nuclear safety.

The SILENCE Network meeting took place on November 4-5, 2024, hosted by CEA Saclay. The ETHC Council member Sanjeev Gupta delivered a presentation outlining the objectives and planned activities of ETHC to the SILENCE-Network participants. The meeting also included some of the members of the FONESYS Network (Forum & Network of SYS-TH Codes in Nuclear Reactor Thermal-Hydraulics), which promotes cooperation among developers of system thermal-hydraulics codes used globally for reactor analysis.

For more information, consult the following websites: SILENCE https://www.nineeng.org/silence/ & FONESYS: https://nineeng.org/external/fonesys/

Upcoming Events

Overview

Schools & Lectures	Location	Dates	Deadlines
GO-VIKING Lecture "Fluid-Structure Interaction for Nuclear Applications"	St. Genesius-Rode (Belgium)	31 Mar – 4 Apr 2025	
THICKET-5	Lucca, Italy	19 – 23 May 2025	
GO-VIKING Lecture "Flow-Induced Vibration: The Experimental Approach"	Online	3 Jun 2025	
SAP2025	Jülich, Germany	23 – 27 Jun 2025	31 Mar 2025
SASCAMP2025	Jülich, Germany	30 Jun – 4 Jul 2025	31 Mar 2025
ISReCTHA-2	Lecco, Italy	28 – 30 Jul 2025	

Workshops & Conferences	Location	Dates	Deadlines
M&C 2025	Denver, USA	27 - 30 Apr 2025	⌛
ANS Annual	Chicago, USA	15 - 18 Jun 2025	⌛
PV&P	Montreal, Canada	20 – 25 Jul 2025	⌛
Euromech	Metz, France	25 – 29 Aug 2025	1 Mar 2025
NURETH-21	Busan, South Korea	31 Aug – 5 Sep 2025	25 Oct 2024
ICAPP 2025	Juan-Les Pins, France	17 – 19 Sep 2025	
ANS Winter	Washington DC, USA	9 - 12 Nov 2025	t.b.d.
MPF2025	Dresden, Germany	10 – 14 Nov 2025	
CFD4NRS	Mito, Japan	10 - 12 Dec 2025	⌛
ANS Annual	Denver, USA	31 May – 3 Jun 2026	t.b.d.
ANS Winter	Phoenix, USA	15-18 Nov 2026	t.b.d.

Are you organizing a TH event? Do not hesitate to send us an announcement via ETHC@snetp.eu.

Transfer of Thermal-Hydraulic and Severe Accident Knowledge Gained Through CSNI Activities (THICKET-5)

The CSNI/WGAMA is organizing the 5th seminar in the THICKET series, aimed at sharing three decades of knowledge and expertise on thermal hydraulics, severe accidents, and reactor safety analysis. This event is designed for technical specialists at all career stages, providing valuable insights from CSNI activities.

The seminar will be held on 19-23 May 2025, in Lucca, Italy. For more information: https://nineeng.org/external_courses/thicket2025/.

GO-VIKING

Online open lecture on "Flow-Induced Vibration: The Experimental Approach"

The second yearly Open Lecture of the GO-VIKING lecture series will be held on 3rd of June 2025, 15:00 – 17:00 CET and will be given online by Prof. Marwan Hassan (University of Guelph, Canada). Registrations will open in April 2025 (https://www.go-viking.eu/news-OpenLecture).

Flow-induced vibration (FIV) is a critical concern in various engineering applications, including piping systems, valves, and nuclear fuel bundles, where excessive vibration can lead to structural damage, fatigue failure, and flow instabilities. This lecture provides an overview of FIV mechanisms in practical engineering systems, with a particular focus on the vibration response of tube arrays subjected to crossflow. Experimental investigations play a crucial role in understanding and mitigating these vibrational effects. The lecture will discuss key experimental methodologies used to characterize FIV in tube arrays, including liquid, gas, and two-phase investigations. The aim is to demonstrate the role of experimental investigation in the development of predictive models and design guidelines aimed at enhancing the structural integrity and operational reliability of tube-based heat transfer systems.

Special sessions on GO-VIKING at the next PVP2025 conference

The 2025 ASME Pressure Vessels & Piping Conference in Montreal, Quebec, Canada contributes to supporting a rapidly changing world by advancements in Pressure Vessels & Piping Technologies. It takes place 20 to 25 July 2025. The program will include special sessions on GO-VIKING.

More details will be available on: https://event.asme.org/PVP .

Short course on Severe Accident Phenomenology (SAP2025)

This edition of the Short Course on Severe Accident Phenomenology (SAP2025) will take place from Monday 23 to Friday 27 June 2025 at FZJ Jülich (Germany) and followed by the first edition of the Severe Accident Summer Camp (SASCAMP2025) in June 30 - July 4 2025. Both events are organized in the framework of the SEAKNOT Euratom project on "Severe accident research and knowledge management for LWRs".

The Severe Accident Phenomenology short course is based on the knowledge gained on Severe Accident in the last three decades. The main purpose is to transfer it to M.Sc.-Ph.D. students, engineers and researchers recently involved in the study of severe accidents. The program will cover severe accident phenomenology, progression and mitigation in current and future advance water reactors (Generation 2, 3, 3+, SMRs). Severe accident codes and their uncertainties will be also addressed. A special focus will be done on the Fukishima-Daiichi severely damaged reactors and their decommissioning.

ENEN is kindly supporting 10 participants with a lumped sum of 900€ each. More information is available at https://www.fz-juelich.de/en/conferences/sap2025 .

SevereAccident Summer Camp (SASCAMP2025)

The first edition of the Severe Accident Summer Camp (SASCAMP2025) is organized in June 30 - July 4 2025, following the Short Course on Severe Accident Phenomenology (SAP2025). Both events are organized in the framework of the SEAKNOT Euratom project on “Severe accident research and knowledge management for LWRs”.

SASCamp is a new format residential camp offering a unique and focused opportunity to advance understanding and innovation in Severe Accident management for Gen 2, 3, and 3+ reactors. Over five intensive days, participants will engage in collaborative problem-solving, guided by highly qualified instructors who bring a wealth of experience and expertise. Organized in small groups of five, participants will tackle real-world assignments, develop innovative solutions, and benefit from the transfer of cutting-edge knowledge and practical know-how. This residential camp is designed to equip the next generation with the critical skills and insights needed to address complex challenges in nuclear safety and reactor management.

ENEN is kindly supporting 10 participants with a lumped sum of 900€ each. More information is available at https://www.fz-juelich.de/en/conferences/sap2025/programme/sas-camp .

ISReCTHA-2

The second edition of the International Seminar on Nuclear Reactor Core Thermal-Hydraulics Analysis will be organized from 28-30 July 2025 in Lecco (Italy) by Politecnico di Milano. Join leading experts from academia and industry from around the world to discuss the latest advancements and innovations in nuclear reactor core thermo-hydraulics. The seminar will focus on:

- SMR & AMR
- CFD
- Subchannel Analysis
- Licensing

Euromech conference: Films, bubbles, droplets and phase change

The Euromech conference “Films, bubbles, droplets and phase change” will be held in an industrial region known for its steelmaking industry, where heat and mass transfer play crucial roles. In the e-car industry, dielectric fluids manage battery thermal operations. The extension of nuclear power plants' lifespans, like Cattenom in France, requires studying severe accident scenarios involving thermal-hydraulic phenomena. Current numerical codes can't simulate all industrial scale processes and thus we are still facing some issues. This conference aims to explore heat and mass transfer in industrial processes with phase changes, from academic research to industrial applications, including experiments and simulations.

The conference is held from 25 to 29 August 2025 in Metz, France. More info on https://651.euromech.org/about/ .

International Congress on Advances in Nuclear Power Plants (ICAPP2025)

The International Congress on Advances in Nuclear Power Plants (ICAPP) provides a forum for leaders of the nuclear industry, researchers, academics, to exchange information and discuss future directions and needs for the deployment of new nuclear power plant systems around the world. The 2025 edition will be in Juan-Les Pins, France from 17 to 19 September (www.sfen.org/evenement/icapp-2025/).

Special focus on ICAPP 2025: Innovations to triple nuclear capacity

At COP28 in Dubai, more than 20 heads of governments pledged to triple nuclear capacity by 2050. Achieving this goal will require a combination of the long-term operation of existing reactors, the construction of large reactors and the development of SMRs including advanced technologies for new applications. Major innovation is required in all those fields.

21st Multiphase Flow Workshop- Conference and Short Course (MPF2025)

Multiphase flows are of great interest to a large variety of industries. The power generation, nuclear reactor technology, food production, chemical process, aerospace and automotive industries are all driving forces in this complex field. The goal of the workshop is to bring together experimental and numerical practitioners, and to foster discussion and exchange of knowledge. Experts from both areas are called upon to present their research and application results to a worldwide audience.

The conference will be in Dresden from 10 to 14 November 2025 (https://www.hzdr.de/multiphase).

NURETH

NURETH is the premier gathering for experts in nuclear reactor thermal hydraulics related topical areas. This meeting is held every two years.

The Thermal-Hydraulics Division of the Korean Nuclear Society is pleased to host NURETH-21 in Busan, Republic of Korea. Busan is an ideal location for the NURETH-21 participants for their dedicated discussion of the future of nuclear thermal-hydraulics and their relaxation with cultural experience on the world-famous seashore area.

We are excited and looking forward to welcome participants to NURETH-21 from around the world to a world-famous nuclear city.

It has been announced recently that NURETH-22 will be organized in Denver (USA) in 2027.

Find us!

More information on the ETHC is available at https://snetp.eu/european-thermal-hydraulics-community-ethc/. We prefer to keep our community together in a straightforward and easy way. For this, we use a mailing list that only contains names and email addresses. If you want to (un)subscribe, please send a message to ethc@snetp.eu .

For updates on future ETHC Lunchinars and other activities, follow the ETHC LinkedIn page at https://www.linkedin.com/groups/13007321 or by using the QR code:

SNETP European Thermal Hydraulics Community
LinkedIn Group