ETHC
European
Thermal Hydraulics
Community

Newsletter 4 – July 2025

Contents

Word from the council

We would like to share a quick update on an exciting initiative currently in the works — the ETHC Summer School. The first edition is likely to take place at the von Karman Institute in Belgium. Planning is already underway, with the goal of offering a combination of hands-on training and focused lectures on key thermal-hydraulic topics.

More details will follow soon, and we truly hope this will be a great opportunity for the community to come together, exchange ideas, and learn from one another.

ETHC Activities

Past ETHC meeting at the FISA / EURADWASTE- SNETP Forum

At the occasion of the SNETP Forum in Warsaw (Poland), the ETHC organized an in-person meeting in on Monday 12 May 2025. Despite the late hour, the attendance of the meeting was good in numbers and excellent in active participation. Prof. Marco Ricotti (Politecnico di Milano) and Dr. Christophe Schneidesch (ENGIE Tractebel) provided excellent teasers for the audience to join the discussions on "*education and training (E&T) needs*" and the "*added value of the ETHC*".

The main outcome of the discussions can be summarized as follows:

- E&T frameworks should promote developing skills both in the *experimental and numerical modelling field* and in their mutual interaction. Education and Training in the experimental domain should highlight topics as scaling, instrumentation and procedures.
- Education on simulations tends to favor CFD, multi-phase, multi-scale, multi-physics modelling for advanced reactor systems. However, it should be made clear that the workhorse for nuclear licensing is and will remain *system thermal hydraulics*. Proper use of system thermal hydraulics codes should be part of the curriculum of nuclear thermal hydraulics education.
- The interaction between thermal hydraulics and *other disciplines* (neutronics, structural mechanics) becomes increasingly important thanks to the multi-physics codes under development. This also requires nuclear engineers to be educated in a broader sense than only with a focus on thermal hydraulics.
- From an industry point of view, the ETHC should focus on *skills and knowledge*. For this purpose, industry and regulatory bodies should provide input on their needs for thermal hydraulics education. Also, the suggestion was made to create an *ETHC database* of direct contacts at companies and institutes for internships, MSc, and PhD thesis works.
- A suggestion was made to establish *links to non-nuclear thermal hydraulics communities*, e.g. the heat and mass transfer community, or the multi-phase community, and advertise nuclear there, e.g. through webinars dedicated to non-nuclear thermal hydraulics professionals.

The ETHC Council would like to thank the participants for their contributions and will take these recommendations to shape their future activities.

Upcoming ETHC lunchinar on Multiphysics (Thermal hydraulics + Neutronics)

After the successful lunchinar we organized end of 2024, we are now preparing for a new lunchinar. The topic we have selected is multi-physics simulation of advanced reactors. We are glad to share our distinguished and energetic line-up of speakers:

- Antoine Gerschenfeld (Stellaria, France)
- Stefano Lorenzi (PoliMi, Italy)
- April Novak (UIUC, USA)

A tentative date for this lunchinar could be Wednesday 29 October. We will keep you updated through our normal communication channels as soon as the date and the program are fixed.

Announcements

Member information survey

To help create a consolidated overview of partner resources relevant to ETHC activities, the ETHC Council has developed a "database template." The aim is to strengthen collaboration among members — for example, by supporting student training or opportunities for Master's and Doctoral theses at partner institutions.

Organizations not yet on the ETHC distribution list but interested in benefiting from the database are encouraged to join the ETHC distribution list by sending a request to ethc@snetp.eu .

NURETH Scholar Award

Dr. Jinzhao Zhang, global expert and technical director of Tractebel (ENGIE) in Belgium, was selected for the 2025 NURETH Scholar Award (NURETH Scholar Award -- Thermal Hydraulics Division), in recognition of his significant work on nuclear reactor thermal hydraulics and uncertainty analysis, and his outstanding contributions to numerous International Topical Meetings on Nuclear Reactor Thermal Hydraulics (NURETH).

Official presentations of the NURETH Scholar Award will take place at NURETH-21 in Busan, Korea in 2025 (https://www.nureth-21.org/).

OECD Nuclear Energy Agency

International Standard Problem-52

Within the framework of the WGAMA the OECD/NEA is organizing another International Standard Problem (ISP). The ISP-52 focuses on a hypothetical DEC-A scenario of a combined main steam line break (MSLB) and multiple steam generator tube rupture (MSGTR). The test was performed on the Primary Coolant Loop Test Facility (PKL) in Germany. The primary objective of the benchmark is the assessment of computer codes capabilities in predicting a DEC-A event. Both the blind and open phases were planned and are being conducted. The blind phase results were presented and discussed at the 3rd project meeting on 4-5 February 2025. Participants from 14 countries presented their results from analyses using the CATHARE, APROS and RELAP computer codes. The open phase results will be discussed at the 4th project meeting on 8-10 July 2025 at ENEA, Bologna.

International Standard Problem-53

The OECD/NEA, under the WGAMA and WGFS working groups, is conducting the International Standard Problem 53 (ISP-53), which focuses on the reflooding phase of a Loss-Of-Coolant Accident (LOCA). The objective is to perform code-to-experiment comparisons between thermal-hydraulic simulation tools and results from the COAL experimental program, driven by French ASNR, which investigates the reflooding behaviour of both intact and ballooned fuel rods, including the effects of fuel fragmentation and relocation. Four COAL experiments were selected: two involving a fuel rod bundle composed exclusively of intact rods, and two involving a bundle containing several ballooned rods. The benchmark is structured in three phases: an open phase for intact bundle simulations, a blind phase for ballooned bundles, and a final open phase revisiting all previous simulations. The first two phases have been completed. Results from the blind phase were presented and discussed during the fourth project meeting on 26 - 27 June 2025, with 18 code submissions from 9 countries. The results of the final open phase will be discussed during the fifth project meeting, scheduled for 26 - 27 February 2026.

ATH 2028

At the spring meeting of the Thermal Hydraulics Division of the American Nuclear Society, it has been proposed to organize the Advances in Thermal Hydraulics (ATH) 2028 conference in Europe. A call for proposals is under preparation and is expected later this year.

Past Events

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

The OECD/NEA 5th seminar on Transfer of Thermal-Hydraulic and Severe Accident Knowledge Gained Through CSNI Activities (THICKET-5) was held in Lucca, Italy, from 19 to 23 May 2025 (Nuclear Energy Agency (NEA) - NEA seminar on transfer of thermal-hydraulic and severe accident knowledge).

The event gathered 35 participants from 12 countries, which included NEA member countries as well as Singapore and Saudi Arabia, and 26 lecturers from 11 countries. The lectures covered the CSNI benchmarks, International Standard Problems (ISPs), experimental counterpart tests, methodology development, analysis of the state of the art and perspectives, best practice guidelines, technical opinion papers and more. Participants learned from 26 experienced specialists on design basis and severe accidents, fuel behavior and multi-physics modelling, passive safety systems and emerging reactor designs, probabilistic safety assessments, research related to the Fukushima Daiichi accident and future perspectives.

Severe Accident Phenomenology (SAP) Short Course and Severe Accident Summer Camp (SASCAMP)

From 23 to 27 June 2025, the Severe Accident Phenomenology (SAP) Short Course was held at Forschungszentrum Jülich as part of the EURATOM SEAKNOT Project, a European initiative focused on preserving and advancing knowledge on severe nuclear accidents, especially in the context of new reactor technologies. The course brought together 68 participants from around the world for a comprehensive training on severe accident phenomena and management approaches. The program included in-depth lectures and discussions on key lessons learned from historical nuclear accidents such as TMI, Chernobyl, and Fukushima, as well as fundamental insights into, e.g., core melt progression, source term, containment integrity, and current strategies for accident prevention and mitigation. A total of 15 experts from European research organizations, universities, technical support organizations (TSOs), and the nuclear industry contributed to the course as lecturers and facilitators.

The week after, the first Severe Accident Summer Camp (SASCAMP) was successfully conducted. This new training format was developed as a complement to the SAP Short Course. Over the course of five days, 20 international participants engaged in group-based assignments focused on key aspects of severe accident phenomena and mitigation strategies. Daily topics included in-vessel melt progression, ex-vessel melt behavior, containment integrity, as well as radiological source term and uncertainty analysis in severe accident analysis. The participants were supported by a team of experienced instructors, who provided structured introductions to each topic and facilitated end-of-day wrap-ups and discussions to consolidate the lessons learned.

The organizers like to thank all contributors — including the organizing team, lecturers, instructors, and participants — for their active engagement, commitment, and valuable input, which were essential to their successful realization of both E&T events.

Upcoming Events

Overview

Schools & Lectures	Location	Dates	Deadlines
ISReCTHA-2	Lecco, Italy	28 – 30 Jul 2025	
Go-Viking FSI (Trio CFD)	Paris-Saclay, France	9 – 10 Oct 2025	1 Sep 2025
SASPAM-SA Training	Rome, Italy	16-17 Oct 2025	30 Jul 2025
Go-Viking FSI (OpenFOAM)	Garching, Germany	22 – 23 Oct 2025	1 Sep 2025

Workshops & Conferences	Location	Dates	Deadlines
PV&P	Montreal, Canada	20 – 25 Jul 2025	⌛
Euromech	Metz, France	25 – 29 Aug 2025	⌛
NURETH-21	Busan, South Korea	31 Aug – 5 Sep 2025	⌛
ICAPP 2025	Juan-Les Pins, France	17 – 19 Sep 2025	⌛
Salome_CFD Users' Club	Paris-Saclay, France	6 Nov 2025	
ANS Winter	Washington DC, USA	9 - 12 Nov 2025	⌛
MPF2025	Dresden, Germany	10 – 14 Nov 2025	15 Aug 2025
CFD4NRS	Mito, Japan	10 - 12 Dec 2025	⌛
TH Scaling for SMR	Bologna, Italy	16 – 18 Dec 2025	
ANS Annual	Denver, USA	31 May – 3 Jun 2026	
NUTHOS-15	Kashiwa-no-ha, Japan	27-30 Sep 2026	
ANS Winter & ATH2026	Phoenix, USA	15-18 Nov 2026	
NURETH-22	Denver, USA	22-29 Aug 2027	

Go-Viking FSI Trainings

OpenFOAM

GRS is pleased to announce a two-day OpenFOAM training course with focus on FSI simulations with Arbitrary Lagrangian-Eulerian interface tracking method. The course will include the setting-up and the analysis of a simplified FSI test case with the CFD program OpenFOAM and the structural mechanics code CalculiX. Both programs will be coupled through the PreCICE interface to allow a bi-directional data exchange. Further, a simplified and fast-running analysis of the AMOVI experiment will be carried out using OpenFOAM with the Rigid Body Approach. The course will also teach how to post-process and analyze the generated results.

The training course will be held from 22 – 23 October and is hosted by GRS in Garching. Registration is free of charge. The maximum number of participants is 10 (https://go-viking.eu/).

TrioCFD

The TRUST/TrioCFD team is pleased to announce a two-day TrioCFD training course with focus on FSI simulations with Arbitrary Lagrangian-Eulerian interface tracking method.

The training course will take place from 9 – 10 October and is hosted by CEA in Paris-Saclay. Registration is free of charge. The maximum number of participants is 13 (https://go-viking.eu/).

1st SASPAM-SA Training on LWR-SMR Safety: From DBA to Severe accident

Light water cooled Small Modular Reactors (SMRs) are gaining significant attention as a near-term nuclear technology option due to their inherent safety features, compact design, modular construction potential, and reduced capital and operational costs. These designs are largely based on proven large LWR technology, offering opportunities for rapid deployment while maintaining high safety standards.

The 1st SASPAM-SA training aims to contribute to the capacity building needed to support the future licensing and deployment of SMRs in Europe. The training brings together researchers, engineers, and students to deepen their understanding of SMR-specific safety aspects, with a focus on accident phenomenology, mitigation strategies, and the application of state-of-the-art computational tools.

This training event is organized within the framework of the Horizon Euratom SASPAM-SA project and complements the broader dissemination and knowledge-transfer activities ongoing in the European and international SMR community.

The training will take place in Rome from 16 to 17 October 2025 and is hosted by Sapienza Università di Roma. The full agenda is available at: https://www.saspam-sa.eu/saspam-sa-1st-training-session/ .

2025 salome_cfd Users' Club

This event brings together the users of code_saturne and neptune_cfd. The latest updates in version 9.0 and user contributions will be showcased throughout the day.

The event is hosted by EDF in Paris-Saclay on 6 November 2025 (https://evenium.events/scfd-userclub-2025).

CFD4NRS

The Workshop of Computational Fluid Dynamics for Nuclear Reactor Safety is held for the first time in Japan and is hosted in Mito City, a cozy town 100 km northeast of Tokyo, by Nuclear Safety Research Center, Japan Atomic Energy Agency (JAEA).

Since the inauguration of the CFD4NRS in 2006, a biennial CFD4NRS workshop series has been held as part of the activities of WGAMA. CFD4NRS is one of the world's most comprehensive technical conferences focusing on the areas of computational fluid dynamics (CFD) and its applications to nuclear reactor safety.

The workshop is aimed at providing an international forum for engineers and researchers from various countries and organizations who are active in the CFD and nuclear reactor safety to discuss and exchange ideas for the solutions of technical problems, to be invited to participate in Benchmark exercises, while promoting collaborative work. The CFD4NRS series has been successful in keeping the meeting participants abreast of the most updated status of their fields and alerted to future challenges and opportunities by examining the present and likely future directions of the areas of endeavor.

The workshop is held in Mito from 10 to 12 December 2025 (https://www.cfd4nrs-10.org/).

International Workshop on Thermal-Hydraulic Scaling for SMR Safety Demonstration

Organized by ENEA in collaboration with EDF and UNIROMA1 as part of the European EASI-SMR project, the workshop aims to foster the international exchange of methodologies and best practices related to thermal-hydraulic scaling in the context of Small Modular Reactor (SMR) safety demonstration. The workshop brings together experts from the EASI-SMR project and internationally recognized specialists to address key challenges in applying scaling methodologies to experimental thermal-hydraulic research for SMRs. Discussions will focus on the identification of relevant physical phenomena, the critical analysis of scaling methodologies, and the role of both integral and separate-effect tests in supporting safety demonstration. The outcomes will contribute to the characterization of new experimental facilities developed within the EASI-SMR project and provide a comprehensive overview of the current state-of-the-art in thermal-hydraulic scaling for SMRs.

The training is held in Bologna from 16 to 18 December 2025 (https://www.easi-smr.eu/international-workshop-on-thermal-hydraulic-scaling-for-smr-safety-demonstration).

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