First Announcement and Call for Abstracts

SWINTH-2024

Co-organized by:

OECD/NEA CSNI/WGAMA

Organisation for Economic Co-operation and Development / Nuclear Energy Agency – Committee for the Safety of Nuclear Installations / Working Group on the Analysis and Management of Accidents

SILENCE Network

Significant Light & Heavy Water Reactor Thermal-Hydraulic Experiments Network for the Consistent Exploitation of the Data

Local hosting and organization by: Helmholtz-Zentrum Dresden-Rossendorf (HZDR)

Important dates

Abstracts due	31st May 2023
Notification of abstract acceptance	31st July 2023
Draft full-length paper due	30th October 2023
Notification of paper acceptance	15th January 2024
Final paper due	29th February 2024
Early registration	1st March 2024
Workshop	17th-20th June 2024

Background, Scope and Objectives of the Workshop

SWINTH-2024 is meant to create an opportunity for scientists and technologists to discuss recent achievements and future needs in the development and application of advanced measurement instrumentation and techniques for thermal-hydraulics (TH) and severe accident (SA) research, and for accident management (AM) to provide data related to progression of an accident including long-term management of an accident. The scope of the workshop includes the following topics and aspects:

- experimental studies and instrumentation for water-cooled nuclear reactor accident phenomena: defense-in-depth level one through four;
- specific instrumentation for reactor circuit and containment used for normal operation, accidental sequences and SA management;
- experimental studies with instrumentation for advanced and innovative reactors (SMR, GEN-IV) including those beyond water-cooled reactor designs;
- scale and complexity of experiments and phenomena: from basic through separate and integral effect tests to investigate any phenomena of postulated accidents;
- purpose of the experiments: understanding of phenomena and processes for an accident and its analysis; support to model development, code validation, safety assessment and safety demonstration;
- innovations in the measurement of local and/or space-averaged instantaneous and/or time averaged quantities of single-phase and/or multi-phase/multi-component flows with sufficiently fine resolution and uncertainty quantification;
- use of simulant fluids with well-established scaling laws;
- applicability of experiments and instrumentation to validation and development of different types of computer code (i.e., system TH, sub-channel analysis, CFD, containment TH, and SA);
- gaps between current model/code validation needs and existing technology; definition of requirements for new experiments and instrumentation in terms of “quality” of data;
- measurement uncertainty evaluation depending on type of instruments and measurement method with possible influences of TH and/or SA phenomena to simulate;
- use of machine learning (ML) and artificial intelligence (AI) methods for data analyses;
- issues related to the utilization, handling and preservation of experimental data;
- specifically concerning instruments for SA-related experiments: major challenges and solutions, improvements and advancements, being proposed, under development and/or already in use, including those in the light of lessons-learned from Fukushima-Daiichi accident and it's recovery/decommissioning.

This workshop follows up earlier Specialists Workshops (WSs) on Advanced Instrumentation and Measurement Techniques for Nuclear Reactor Thermal Hydraulics (SWINTH), held in Livorno, Italy, in June 2016, organized by SILENCE Network, the follow-up SWINTH-2019 with broader scope than 2016 by including severe accidents, held in Livorno, Italy, in October 2019, jointly organized by SILENCE Network and WGAMA, and more recently the OECD/NEA Specialist WS SAMMI-2020 on Advanced Measurement Method and Instrumentation for enhancing Severe Accident Management in an NPP addressing Emergency, Stabilization and Long-term Recovery Phases, held online from Tokai, Japan, in December 2020. SWINTH-2024 combines the respective experiences and roles of OECD/NEA-CSNI/WGAMA and SILENCE Network in a joint organizational effort on a common goal.

Expected Outcomes

The workshop is aimed at enhancing scientific and technological exchanges through keynote lectures, technically sound presentations, fostering of discussions during technical sessions and foreseen panels and, no less important, attendees networking. More specifically, the workshop will:

- provide input to the improvement of instrumentation and measurement techniques;
- support the establishment of a shared knowledge and expertise basis;
- produce reference material for a NEA summary report, as a result of open discussions and synthesis of technical sessions by organizers and chairpersons;
- allow selection of papers to be recommended for publication on relevant journals.

Keynote Speakers

Internationally recognized experts will be invited to give keynote lectures, opening one or two of the daily technical sessions. The names of the invited speakers will be announced at a later stage.

Organizing Committee

- Klaus Umminger, Germany, SILENCE
- Uwe Hampel, HZDR, Germany, SILENCE
- Sanjeev Gupta, Becker Technologies, Germany, SILENCE/WGAMA
- Dominique Bestion, France, SILENCE
- Hideo Nakamura, JAEA, Japan, WGAMA
- Martina Adorni, OECD/NEA, France, WGAMA
- Thorsten Hollands, GRS, Germany, WGAMA

Scientific Committee

- Martina Adorni, OECD/NEA, France
- Nusret Aksan, Consultant, Switzerland
- Sevostian Bechta, KTH, Sweden
- Ahmed Bentaib, IRSN, France
- Dominique Bestion, SILENCE, France
- Ki-Yong Choi, KAERI, Korea
- Francesco D'Auria, University of Pisa, Italy
- Sanjeev Gupta, Becker Technologies, Germany
- Uwe Hampel, HZDR, Germany
- Yassin Hassan, Texas A&M University, USA
- Thorsten Hollands, GRS, Germany
- Didier Jacquemain, OECD/NEA, France
- Tomoaki Kunugi, Kyoto University, Japan
- Jean-Marie Le Corre, Westinghouse, Sweden
- Annalisa Manera, ETH Zürich, Switzerland
- Fabio Moretti, Newcleo, Italy
- Hideo Nakamura, JAEA, Japan
- Thambiayah Nitheanandan, CNSC, Canada
- Domenico Paladino, PSI, Switzerland
- Lionel Rossi, CEA, France
- Simon Schollenberger, Framatome, Germany
- Chul-Hwa Song, KAERI, Korea
- Klaus Umminger, SILENCE, Germany

Chairs

- Uwe Hampel, Helmholtz-Zentrum Dresden-Rossendorf, Germany (General Chair)
- Klaus Umminger, SILENCE (Deputy Chair, TH-related part of the workshop)
- Sanjeev Gupta, Becker Technologies, Germany (Deputy Chair, SA-related part of the workshop)
- Francesco D'Auria, University of Pisa, Italy (Honorary Chair)

Further Information and Contacts

Technical and organizational information on the workshop as well as paper templates will follow soon. Meanwhile, requests for information may be sent to:

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