Fourth Announcement and Call for Extended Abstracts

SWINTH-2019

Specialists Workshop on Advanced Instrumentation and Measurement Techniques for Experiments Related to Nuclear Reactor Thermal Hydraulics and Severe Accidents

22-25 October 2019, Grand Hotel Palazzo, Livorno, Italy

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 Accidents

SILENCE Network

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

Local hosting and organization by:

University of Pisa   NINE – Nuclear and Industrial Engineering

Dates and Deadlines

Extended abstracts due	~~30 September 2018~~	31 October 2018
Notification of abstract acceptance	~~15 October 2018~~	30 November 2018
Draft full-length paper due	31 January 2019	
Notification of paper acceptance + comments	15 March 2019	
Final paper due	15 May 2019	
Early registration	30 June 2019	
Late registration	21 October 2019	
Last-minute registration at the Workshop	22-25 October 2019	

Background, Scope and Objectives of the Workshop

SWINTH-2019 is meant to create an opportunity for scientists and technologists involved in the development and application of advanced instrumentation and measurement techniques, and active either in thermal-hydraulics (TH) and/or severe accident (SA) research, to meet, identify and share their own progresses and ideas, discuss on open technological issues including further needs for TH and/or SA experiments, model development and code validation, and to identify the edges of the state-of-the-art and the prospects for future advancements.

The scope of the workshop includes the following topics and aspects:

- Water cooled nuclear reactor accident phenomena: defence-in-depth level one through four.
- 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 and code validation; safety demonstration (licensing).
- Types of measurement technique: local and/or space-averaged instantaneous and/or time averaged quantities of single-phase and/or multi-phase/multi-component flows, fields and structures/materials, with sufficiently fine resolution and uncertainty quantification; e.g. visualization techniques and optical, radiographic and tomographic methods to measure temperature, pressure, velocity, void, chemical and phase composition, detection of radiation/FPs and fissile materials; fission product speciation.
- Innovation in measurement techniques/methods and/or their application.
- Possible use of simulant fluids with well-established scaling laws.
- Correspondence between experimental technique, resulting measurement and applicability to different code types (i.e., system TH, sub-channel analysis, CFD, containment TH, and SA.
- Fluid-structure interaction, molten-core-coolant interaction and molten-core-structure interaction.
- Gaps between current model/code validation needs and existing technology; definition of requirements for new experiments and instrumentation, also in terms of "quality" of data.
- Measurement uncertainty evaluation depending on type of instruments and measurement method with possible influence of TH and/or SA phenomena to simulate.
- Issues related to the 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.

This workshop follows up the earlier *Specialists Workshop on Advanced Instrumentation and Measurement Techniques for Nuclear Reactor Thermal Hydraulics* (SWINTH), held in Livorno, Italy, on 15-17 June 2016, organized by the SILENCE Network. Looking further back, the OECD/NEA/CSNI *Specialists Meeting on Advanced Instrumentation and Measurement Techniques*, held on 17-20 March 1997, in Santa Barbara, California, USA, was the last international workshop fully dedicated to the same topic.

SWINTH-2019 combines the respective experiences and roles of OECD/NEA CSNI/WGAMA and SILENCE Network in a joint organizational effort on a common goal.

A new feature, moreover, is represented by the extension of the scope of the workshop to SA-related experimentation: both a challenge and an opportunity, for the SA and TH communities, to meet and engage in a fruitful technical interaction.

Expected Outcomes

The workshop is aimed at enhancing scientific and technological exchanges through key-note 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;

- assess, through discussions among the participants, the necessity of possible initiation of writing a hand- or text-book on advancements in instrumentation and measurement techniques, and identify related needs;
- possibly 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

- Nusret Aksan, Consultant, Switzerland *(Chairman of the Committee)*
- Dominique Bestion, CEA, France
- Luis E. Herranz, CIEMAT, Spain
- Didier Jacquemain, IRSN, France
- Fabio Moretti, NINE & Univ. of Pisa, Italy *(in charge of local organization)*
- Hideo Nakamura, JAEA, Japan
- Nils Sandberg, OECD/NEA, France

Scientific Committee

(Provisional list)

- Nusret Aksan, Consultant, Switzerland
- Sevostian Bechta, KTH, Sweden
- Dominique Bestion, CEA, France
- Ki-Yong Choi, KAERI, Korea
- Francesco D'Auria, Univ. of Pisa, Italy
- Sanjeev Gupta, Becker-Technologies, Germany
- Uwe Hampel, HZDR, Germany
- Yassin Hassan, Texas A&M Univ., USA
- Luis E. Herranz, CIEMAT, Spain
- Didier Jacquemain, IRSN, France
- Tomoaki Kunugi, Kyoto Univ., Japan
- Fabio Moretti, NINE & Univ. of Pisa, Italy
- Hideo Nakamura, JAEA, Japan
- Thambiayah Nitheanandan, CNL, Canada
- Domenico Paladino, PSI, Switzerland
- Horst-Michael Prasser, ETHZ, Switzerland
- Heikki Purhonen, LUT, Finland
- Nils Sandberg, OECD/NEA, France
- Chul-Hwa Song, KAERI, Korea
- Klaus Umminger, Framatome GmbH, Germany
- Yanhua Yang, SPICRI, China

Chairs

- General Chair of the workshop: Dominique Bestion, CEA, France
- Deputy Chair in charge of SA-related part of the workshop: Hideo Nakamura, JAEA, Japan
- Deputy Chair in charge of TH-related part of the workshop: Fabio Moretti, NINE, Italy

Further Information and Contacts

Technical and organizational information on the workshop, as soon as it becomes available, will be posted on SWINTH-2019 website: http://www.nineeng.org/swinth2019. Requests for information may be sent to:

- Fabio Moretti, f.moretti@nineeng.com
- Nils Sandberg, nils.sandberg@oecd.org

Registration Fees

Early registration (paid before 30 June 2019)	600 EUR
Late registration (paid after 30 June 2019, and before WS start)	700 EUR
Last-minute registration (on-the-spot)	800 EUR

(22% VAT included)

Instructions to Authors

The Authors are invited to submit their **extended abstracts** before **30 September 2018**, via e-mail to the WGAMA Secretary Nils Sandberg (nils.sandberg@oecd.org) and to Fabio Moretti (f.moretti@nineeng.com). For editing consistency reasons, it is recommended that the abstract is written by Microsoft Word following the format described below.

The Authors are also encouraged to emphasize the innovation content of the paper, to address or discuss the measurement uncertainty quantification issue, and to point out how the presented work possibly relates to code validation requirements and intends to cover the existing gaps between validation needs and available technology.

TITLE OF THE PAPER (Left aligned; Calibri; Upper case; 14 points; Bold)

(one line space)

First A. Author[1], Second B. Author[1,2] and Third C. Author[2] (Left aligned; Calibri; Lower case; 11 points; Bold)

(one line space)

[1] Authors' Department, Institute, COUNTRY.
(E-mail: firstauthor@aaaa.bbb, secondauthor@aaaa.bbb)
[2] Author's Department, Institute, COUNTRY.
(E-mail: thirdauthor@aaaa.bbb)

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EXTENDED ABSTRACT (Left aligned; Calibri; Upper case; 11 points; Bold)

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The text of the extended abstract (Left and Right justified, Calibri, 11 points, single spaced) should provide a synthetic and clear description of the work to be presented, including essential information such as: background, aim and scope of the work; adopted methods and techniques; elements of novelty; main achievements and conclusions. Information on measurement uncertainty is highly recommended.

The number of words should preferably be in the range **600 to 800**. Figures are allowed, but should be limited to one or two. No equations and no tables should be included, unless absolutely necessary.

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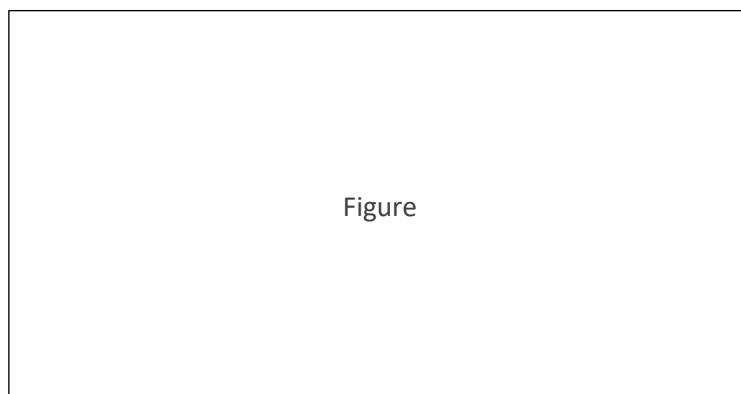
Figure

Figure 1. (Calibri; Lower case; 10 points; Bold; Italic) Figure caption (Calibri; Lower case; 10 points; Italic)

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KEYWORDS: (Calibri; Upper case; 11 points; Bold) Up to 6 keywords arranged in alphabetical order (Left and Right justified; Calibri; Upper case; 11 points; Bold)

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ACKNOWLEDGEMENTS: (Calibri; Upper case; 11 points; Bold) Authors' expressions of appreciation for… (Left and Right justified; Calibri; Lower case; 11 points)