### Opening Plenary

**Co-Chairs:** Jean-Paul Chabard (EDF; France), Yassin Hassan (Texas A&M, USA), Seungjin Kim (Purdue Univ.; USA)

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>08:30</td>
<td>Welcome</td>
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<tr>
<td></td>
<td>Jean-Paul Chabard (EDF R&amp;D; France)</td>
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<tr>
<td>08:40</td>
<td>Welcome message from American Nuclear Society/Thermal Hydraulics Division</td>
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<td>Wade Marcum (Oregon State Univ.; USA)</td>
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<td>08:50</td>
<td>Introduction to ATH’2020 and to the first afternoon</td>
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<td>Jean-Paul Chabard (EDF; France), Yassin Hassan (Texas A&amp;M; USA), Seungjin Kim (Purdue Univ.; USA)</td>
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<tr>
<td>09:00</td>
<td>Introductory Lecture - The challenges of the ITER Project: Global view on ITER Cooling Water System</td>
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<td>Bernard Bigot (ITER Organization, France)</td>
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### Coffee Break

- Special Panel: Machine Learning and Thermal Hydraulics

**Panel Chair:** Christophe Calvin (CEA; France)

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<thead>
<tr>
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<tbody>
<tr>
<td>10:30</td>
<td>Introduction - Exascale, BigData, AI, OpenData ... from the application point of view</td>
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<td>Christophe Calvin (CEA; France)</td>
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<tr>
<td>10:40</td>
<td>A Review of Recent Studies on Data-Driven Approach to Reactor Thermal Hydraulics</td>
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<td>Nam Dinh &amp; Igor Bolotnov (North Carolina State Univ.; USA)</td>
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<tr>
<td>10:55</td>
<td>Advantages of machine learning to speed up CFD analyses for design and safety studies</td>
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<td>Nicolas Guesaud (Pramacalins, France)</td>
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<td>11:00</td>
<td>ML-based optimization of real time plume dispersion simulations based on lattice Boltzmann method</td>
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<td>Naoyuki Onodera (JAEA; Japan)</td>
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<td>11:05</td>
<td>Towards modeling the Reynolds stress tensor using machine learning for RANS simulations</td>
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<td>Pierre-Emmanuel Angeli &amp; Jean-Marc Martinez (CEA; France)</td>
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<td>11:30</td>
<td>Discussion &amp; Closing</td>
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### WELCOME COCKTAIL
<table>
<thead>
<tr>
<th>Time</th>
<th>Session Name</th>
<th>Details</th>
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<tbody>
<tr>
<td>08:30</td>
<td><strong>Keynote 1</strong></td>
<td>Multi-Level CFD Modeling and Applications for Subchannel Thermal Hydraulics, Experimental Designs, and Safety Analysis</td>
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<tr>
<td>09:00</td>
<td><strong>Neutronics and Thermal Hydraulics Coupling</strong></td>
<td>Co-Chairs: Dominique Bestion (CEA; France), Olivier Hurisse (CEA; France)</td>
</tr>
<tr>
<td>09:30</td>
<td><strong>Advances in Heat Transfer Modeling</strong></td>
<td>Co-Chairs: Yao Guo (Uncat. U. of Tokyo, Japan), Zhenzhong Wang (East China Normal U., China)</td>
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<tr>
<td>10:00</td>
<td><strong>Multi-scale and Multi-dimensional Simulation and Validation in Thermal Hydraulics</strong></td>
<td>Co-Chairs: Antoaneta Coz (CEA; France), Arnaud Boudot (CEA; France)</td>
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<tr>
<td>10:30</td>
<td><strong>Technical Break</strong></td>
<td><strong>LUNCH</strong></td>
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<tr>
<td>13:00</td>
<td><strong>Keynote 2</strong></td>
<td>High-fidelity Simulations in Support to Assess and Improve RANS for Modeling Turbulent Heat Transfer in Liquid Metals: the case of Forced Convective Heat Transfer</td>
</tr>
</tbody>
</table>
Keynote II - Towards a Better Understanding of Surface Effects on Boiling Heat Transfer and the Boiling Crisis,
Akhlesh Lal (UC Irvine, USA)
(Northwestern University, Evanston, IL, USA)

Keynote IV - Towards more Efficient Implementations of Multiscale Thermal-Hydraulics,
Matteo Bucci (The Netherlands), Martin Fassnacht (EA, France)

REGISTRATION

Amphitheater 1
Amphitheater 2

• Technical sessions •

COFFEE BREAK

• Technical sessions •

CONFERENCE RECEPTION & STUDENT PRIZE • MAISON DE L’AMÉRIQUE LATINE (PARIS, 7è)

REGISTRATION

Amphitheater 1
Amphitheater 2

• Technical sessions •

COFFEE BREAK

• Technical sessions •

CONFERENCE RECEPTION & STUDENT PRIZE • MAISON DE L’AMÉRIQUE LATINE (PARIS, 7è)

"The future of thermal hydraulics in nuclear energy is being shaped by new approaches to modeling and simulation. Our keynote speakers, Matteo Bucci and Martin Fassnacht, will discuss the latest developments in this field. They will explore how to efficiently implement these models and the potential impacts on nuclear power plants."

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FRIDAY

08:00  REGISTRATION

08:30  Keynote V • Experimental Research and Code Development on Reactor Severe Accident in XJTU-NuTHI,
       Francesco Chudra (Univ. of Pisa, Italy)
       Co-Chairs:  Wenxi Tian (XJTU; Rep. China), Juan Uribe (EDF Energy, UK)

09:00  Technical sessions

  Computational Fluid Dynamics in the Reactor Vessel
  Co-Chairs: Wenxi Tian (XJTU; Rep. China), Juan Uribe (EDF Energy, UK)

  Thermal Hydraulics for Generation IV Reactors
  Co-Chairs: Donna Guillen (INL; USA), Antoine Gerschenfeld (CEA; France)

  Thermal Hydraulics for Nuclear Safety II
  Co-Chairs: Francesco D’Auria (Univ. of Pisa; Italy), Franck David (EDF; France)

09:30  Amphitheater 1  Amphitheater 2  Auditorium

10:00  COFFEE BREAK

10:30  Amphitheater 1  Amphitheater 2  Auditorium

10:55  10:55
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      13:45

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15:00  ~ LUNCH TIME ~ CLOSING

~ Technical sessions ~

Computational Fluid Dynamics in the Reactor Vessel
Co-Chairs: Wenxi Tian (XJTU; Rep. China), Juan Uribe (EDF Energy, UK)

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