

PROGRAM COMMITTEE MEETING MINUTES

American Nuclear Society – Thermal Hydraulics Division
Program Committee Meeting
Hyatt Regency Minneapolis, Minneapolis, MN
2:30 – 4:30 PM, Sunday, June 9, 2019
Location: Lake Bemidji

Attendees:

Elia Merzari (Chair), Igor Bolotnov (Vice Chair), Guillaume Mignot, Ding Chao, Jun Wang, Marilyn Delgado, Steven Arndt (PC Member), Musafa Alper Yildiz, Dillon Shaver (PC Member), DuWayne Schubring (PC Member), Matt Zimmer, Subash L. Sharma, Rui Hu (PC Member), Guojun Hu, Hitesh Bindra, Caleb Brooks (PC Member), Brian Woods (PC Member), Bao-Wen Yang (PC Member), Fan-Bill Cheung (PC Member), Seungjin Kim (PC Member), Yassin Hassan (PC Member), Chul-Hwa Song (PC Member), David Pointer (PC Member), Xiaodong Sun (PC Member), Kurshad Muftuoglu (PC Member), Lane Carasik (PC Member), Wade Marcum (Secretary).

A scanned copy of the list of attendees is provided in Appendix A

1. **Opening** (Merzari)

Meeting called to order at 2:30 pm by Elia Merzari at 2:30

2. **Approval of Meeting Agenda** (All)

MOTION: to approve agenda (Kurshad Muftuoglu)

SECOND: (Xiaodong Sun)

VOTE: No opposed

MOTION APPROVED

A scanned copy of the meeting agenda is provided in Appendix B

3. **Approval of Minutes** from 2018 Winter Meeting (All)

MOTION: to approve agenda (Dillon Shaver)

SECOND: (Bao-Wen Yang)

VOTE: No opposed

MOTION APPROVED

4. **Update on THD Sessions for the ANS 2019 Annual Meeting** (Merzari/ Bolotnov)
 - a. General Meeting: Submittal Statistics, Reviews, and Session Assignments

Elia Merzari reported on the THD sessions. Dr. Merzari provided a summary of the statistics for the 2019 annual meeting (found in APPENDIX C) which show a drop in number of papers, but nothing significant given that it is aligned with the year of NURETH hosted in the U.S.

A total of 51 summaries were submitted; 39 accepted with revision, 9 rejected unless revised, and 3 rejected outright. There were 127 reviews completed on the 51 summaries in total, having 24 unique reviewers supporting this effort.

Dr. Merzari acknowledged Dr. Jun Wang's contributions in particular given his 27 individual summary reviews.

The conference had 12 unique sessions slotted from Monday through Thursday with most sessions containing 4 papers each, but ranging from 3 to 5 in the outset.

5. **Update on THD Program for the Upcoming 2019 Winter Meeting** in Washington, DC (Merzari/Bolotnov)
 - a. General meeting: Announced Sessions, Deadlines/Submittal Status

Refer to APPENDIX C for the detail of the sessions and session organizers for the 2019 Winter Meeting in Washington DC.

Dr. Merzari stated to the attendees that session organizer responsibilities are to solicit reviewers and work to ensure papers are sufficient in quantity and quality for the respective sessions.

During the winter conference, 2 panels are noted along with 8 technical sessions. 31 papers had been submitted, however, the submission deadline was still open at the time of the PC Meeting.

Additionally, Dr. Matt Zimmer and Dr. Ling Zou are organizing the young professional thermal-hydraulics research competition; the printed copy is incorrect and is noted to be revised.

6. **Planning for the Future 2020 Annual Meeting** in Phoenix, AZ (Merzari/Bolotnov)

Dr. Merzari Solicited suggestions for session topics associated with the upcoming 2020 Annual Meeting taking place in Phoenix Arizona. The outcome of the conversation resulted in the following proposed sessions and session organizers:

- Thermal Hydraulics for the Versatile Test Reactor (Xiaodong Sun, Dillon Shaver, Yassin Hassan).
- Thermal Hydraulics on Micro Reactors (Subash Sharma, Caleb Brooks)
- Thermal Hydraulic Challenges for Molten Salt Reactors (Rui Hu, Jun Wang)
- Two-Phase Thermal Hydraulic Fundamentals (Bao-Wen Yang, Seungjin Kim)
- General Thermal Hydraulics (Wade Marcum, Igor Bolotnov)
- Experimental Thermal Hydraulics (Guillaume Mignot, Marilyn Delgado)
- Computational Thermal Hydraulics (DuWayne Schubring, Elia Merzari)
- Panel – Licensing of Nuclear Reactors (Steven Arndt)
- Panel – Thermal Hydraulic Challenges and Opportunities for Gas Reactors (Brian Woods, Dave Pointer)
- Panel – Thermal Hydraulics of Hybrid Systems (Piyush Sabharwall, Scott Greenwood)

MOTION: to approve agenda (Dillon Shaver)

SECOND: (DuWayne Schubring)

VOTE: No opposed

MOTION APPROVED

7. Journal Special issues

a. NURETH-17 (Yang)

Dr. Bao-Wen Yang stated that NURETH-17 special issues are in the following state:

- Nuclear Science & Engineering (14 papers) all complete
- Nuclear Technology (29 papers) all complete
- Nuclear Engineering & Design (62 papers) all, but two papers complete.

b. ATH'18 (Merzari)

Dr. Merzari acknowledged that an ATH'18 special issue in the following state:

- Nuclear Technology (20 papers) have been submitted and are being resolved.

8. NURETH-18 Update (Muftuoglu/Marcum)

Brian Woods delivered an update on the present organizational and technical state of the NURETH-18 meeting. The summary (noted in APPENDIX D) includes 604 papers submitted, 54 papers accepted, 441 accepted with revisions, 96 rejected unless revised, and 13 rejected outright. He acknowledged that the meeting received final approval from the National Program Committee and the preliminary program was completed and is published. There are technical tours to OSU and NuScale along with workshops for V&V, Turbulence, and GOTHIC.

9. **ICAPP'20 Update** (Sun/Bolotnov)

Prof. Xiaodong Sun provided a brief update on ICAPP'20. The conference organization is moving on schedule and will be held in the UAE from March 15-19, 2019.

10. **ATH'20 Update** (Bolotnov)

Prof. Igor Bolotnov provided an update on the status of ATH'20. Held in Paris France from March 31-April 03, 2020. SFANS is the organizer of this conference. September 27, 2019 is the full paper submission date for this conference. Final paper due January 10, 2019. Dr. Elia Merzari reminded everyone to contact Prof. Bolotnov if anyone is interested in volunteering or suggesting sessions.

11. **NUTHOS-13 Update** (Luxat/Sun)

Prof. Xiaodong Sun provided an update on the status of NUTHOS-13. Vancouver BC will be the host of NUTHOS-13 from August 23-27, 2020. November 1, 2019 is when papers are due.

Dr. Dave pointer made a comment that NUTHOS has a different experience than NURETH. Because of this it was wondered whether the NUTHOS conference will maintain its current tone and experience when it moves to North America as this is the first time it's focused there. General agreement was given across all participants in the conversation that attention should be made to make sure that NUTHOS is maintained with its intent even after a change in location.

12. **NURETH-19 Update** (Luxat/Merzari)

Dr. Elia Merzari provided an update. A single proposal was made. The committee concurred that it was an acceptable proposal. A motion is made to the EC from the conference screening committee to endorse NURETH-19 based on the proposal selection. Also it was announced that preliminary approval was given to NURETH-19 from the National Program Committee to be held in Brussels in 2021.

13. **Old Business** (All)

a. PC membership nominations (Merzari)

Dr. Elia Merzari confirmed that the nomination committee must make recommendations to the EC for new PC meeting members. Dr. Merzari acknowledged that if any individuals are interested in becoming a program committee member, please contact the new program committee chair (Prof. Igor Bolotnov).

14. New Business (All)

a. New revenue distribution policy and impact (Merzari)

Dr. Elia Merzari updated the attendees that the revenue sharing between divisions and HQ has changed. A suggestions was made to move NURETH from an 8 year rotation to a 6 year rotation (US, Europe, Asia [repeat]) based on the weaker financial motives for THD to host the technical meeting in the US.

MOTION: for the Executive Committee to allow the conference screening committee to consider bids for NURETH-20 from multiple regions. (Fan-Bill Cheung)

SECOND: (Kurshad Muftuoglu)

VOTE: No opposed

MOTION APPROVED

b. 40 years of NURETH (Merzari)

Dr. Elia Merzari suggested that the THD possibly do something special at the next ANS winter meeting (taking place in Chicago) given that it's the 40th anniversary of NURETH. Several possible suggestions were made including a special dinner or special panel.

MOTION: for the Executive Committee put together a special committee to celebrate NURETH's 40th anniversary at the ANS winter meeting in 2020. (Xiaodong Sun)

SECOND: (Yassin Hassan)

VOTE: No opposed

MOTION APPROVED

Dr. Elia Merzari acknowledged his last meeting as the PC chair over the last number of years. A plaque was provided to Dr. Merzari for his service.

Prof. Sun and Dr. Merzari presented the reviewer service award to Prof. Fan-Bill Cheung.

15. Adjourn (Merzari)

Dr. Elia Merzari closes the meeting at 3:58 pm.

APPENDIX A
Program Committee Meeting List of Attendees

LIST OF ATTENDEES

American Nuclear Society – Thermal Hydraulics Division
Program Committee Meeting
Hyatt Regency Minneapolis
2:30 – 4:30 PM, Sunday June 9, 2019

Name	Organization	Email
ELIA MERZARI	ANL	emerzari@anl.gov
Igor Bolotnov	NCSU	ibolotn@ncsu.edu
Guillaume Mignot	Oregon State University	guillaume.mignot@oregonstate.edu
Ding Chao	Tsinghua Univ.	dingcls@mails.tsinghua.edu.cn
Jun Wang	UW-Madison	jwang564@wisc.edu
Marilyn Delgado	Texas A+M University	mdelgad17@tamu.edu
STEVEN ARNDT	U.S. NRC	steven.arndt@nrc.gov
Mustafa Alper Yelky	Texas A&M University	may@tamu.edu
Dillon Shaver	ANL	dshaver@anl.gov
DWayne Schubring	UF	dlschubring@ufl.edu
Matt Zimmer	NCSU	mdzimmer@ncsu.edu
SUBASH L. SHARMA	PURDUE UNIV.	sharma55@purdue.edu
Rui Hu	ANL	rhu@anl.gov
Guojun Hu	ANL	ghu@anl.gov
Hitesh Bindra	Kansas State Univ.	hbindra@ksu.edu
Saleb Brooks	UIUC	csbrooks@illinois.edu
BRIAN WOODS	Oregon State University	brian.woods@oregonstate.edu
BAO-WEN YANG	DE&D - Delta Energy, XJTU	bwy@deltaenergygroup.com
FAN-BILL CHEONG	PSU	fxchf@psu.edu
SEUNGJIN KIM	PURDUE	seungjin@purdue.edu

LIST OF ATTENDEES

American Nuclear Society – Thermal Hydraulics Division
 Program Committee Meeting
 Hyatt Regency Minneapolis
 2:30 – 4:30 PM, Sunday June 9, 2019

Name	Organization	Email
Yassin Hassan	Texas A&M Univ.	y-hassan@tamu.edu
Chul-Hwa SONG	KAERI	chsong@kaeri.re.kr
WDA	ORNL	pirtwd@ornl.gov
Xiaodong SUN	Univ. of Michigan	xdsun@umich.edu
Kurshad Muftuoglu	Global Nuclear Fuel	kurshad.muftuoglu@ge.com
LONE CARASIK	USNC / VCU	Lone.Carasik@gmail.com
Wade Marcum	Oregon State University	wade.marcum@oregonstate.edu

APPENDIX B
Draft PC Meeting Agenda (Proposed)

PROPOSED AGENDA

American Nuclear Society – Thermal Hydraulics Division
Program Committee Meeting
Hyatt Regency Minneapolis, Minneapolis, MN
2:30 – 4:30 PM, Sunday, June 9, 2019
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2. **Approval of Meeting Agenda** (All)
3. **Approval of Minutes** from 2018 Winter Meeting (All)
4. **Update on THD Sessions for the ANS 2019 Annual Meeting** (Merzari/ Bolotnov)
 - a. General Meeting: Submittal Statistics, Reviews, and Session Assignments
5. **Update on THD Program for the Upcoming 2019 Winter Meeting** in Washington, DC (Merzari/Bolotnov)
 - a. General meeting: Announced Sessions, Deadlines/Submittal Status
6. **Planning for the Future 2020 Annual Meeting** in Phoenix, AZ (Merzari/Bolotnov)
7. **Journal Special issues**
 - a. NURETH-17 (Yang)
 - b. ATH-18 (Merzari)
8. **NURETH-18 Update** (Muftuoglu/Marcum)
9. **ICAPP'20 Update** (Sun/Bolotnov)
10. **ATH'20 Update** (Bolotnov)
11. **NUTHOS-13 Update** (Luxat/Sun)
12. **NURETH-19 Update** (Luxat/Merzari)
13. **Old Business** (All)
 - a. PC membership nominations (Merzari)
14. **New Business** (All)
 - a. New revenue distribution policy and impact (Merzari)
 - b. 40 years of NURETH (Merzari)

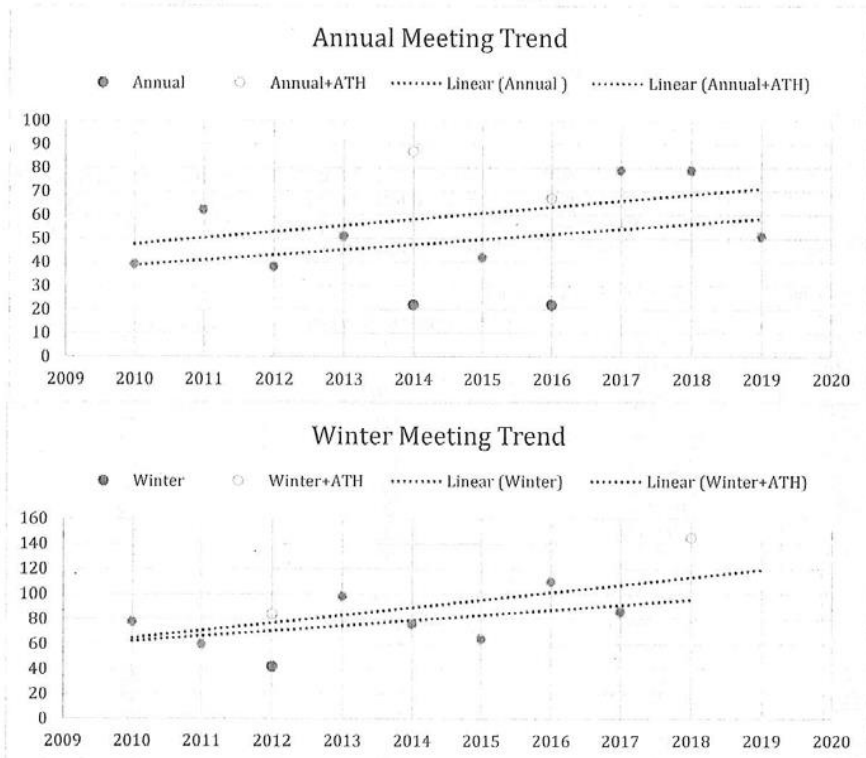
APPENDIX C PC Chair Notes

2019 ANS Annual Meeting, Minneapolis, MN

E. Merzari and I.A. Bolotnov

A total of 51 summaries were submitted to the proposed sessions sponsored by the Thermal Hydraulics Division at the ANS 2019 Annual Meeting. The number was somewhat smaller than recent meetings, but the trends remain positive. Typically, we see lower paper numbers during domestic NURETH years (see 2015). Our division submitted the session slate in time, meeting the deadline. We will host a total of 12 sessions (including 1 panel). THD is also co-sponsoring 6 sessions with other divisions (VTR, computational methods, MSR), one of the largest numbers of co-sponsored sessions in recent times.

Below are two graphs showing submission trends for the ANS meetings. We note that the 2012 and 2018 Winter Meetings as well as 2014 and 2016 Annual Meetings do not include the papers submitted to the embedded topical, ATH.



Reconciled review recommendations for the summaries are as follows:

	0	Accept
	39	Accept with Revision (A/R)
	9	Reject Unless Revised (R/R)
	3	Reject
Total	51	

We note that rejection rates (R/R+R) are steady in recent years at roughly 20%. After another round of rigorous review process for the revised R/R summaries, a total of 58 summaries are included in the twelve THD summary sessions at this conference. There will be no poster session sponsored by THD at this meeting.

Overall, the review participation was sufficient. All the papers received adequate review on a timely basis. Many thanks to our dedicated reviewers! The distribution is as follows:

	Summaries	# of reviews
	32	2
	13	3
	6	4
Total	51	127

There were 127 review recommendations that needed to be coordinated from 24 reviewers. The average number of reviews per paper was ~2.49, adequate for the standards of THD. We had a low number of reviewers who helped with the peer review process. The reviewers' support is much appreciated, but we need to stimulate more participation.

Recent reviewer participations were as follows:

Year	Location	Number of Reviews	Number of reviewers
2019	Minneapolis	127	24
2018	Orlando	No general sessions	
2018	Philadelphia	188	32
2017	D.C.	222	28
2017	San Francisco	264	39
2016	Las Vegas	337	45
2016	New Orleans	87	20
2015	San Antonio	135	28
2015	Anaheim	212	33
2014	Reno	80	17
2014	D.C.	284	29
2013	Atlanta	137	23
2013	San Diego	129	22
2012	Chicago	116	17
2012	D.C.	179	22
2011	Hollywood	148	14
2011	Las Vegas	148	20
2010	San Deigo	102	21
2010	D.C.	135	22
2009	Atlanta	191	25
2009	Reno	73	11
2008	Anaheim	89	19

The review process was made possible by valuable contributions from:

- Jun Wang [27]
- Lane Carasik [10]
- Ferry Roelofs [10]
- Igor Bolotnov [8]
- Su-Jong Yoon [7]
- Robert Martin [6]
- Caleb Brooks [6]
- Rodolfo Vaghetto [6]
- Stephen Lomperski [5]
- Dillon Shaver [5]
- Daniel LaBrier [5]
- Guillaume Mignot [4]
- Mengnan Li [4]
- Fan-Bill Cheung [3]
- Jinyong Feng [3]
- Yang Liu [3]
- Wade Marcum [3]
- Donna Guillen [2]
- Rui Hu [2]
- Nadish Saini [2]
- Subash Sharma [2]
- Junsoo Yoo [2]
- Steve Arndt [1]
- Matthew Zimmer [1]

THD has a total of twelve (12) sessions including 1 panel.

The THD-only 12 sessions are:

Monday (June 10) 1:00 pm - 3:35 pm

- Experimental Thermal Hydraulics—I

Monday (June 10) 3:50 pm – 6:30 pm

- Computational Thermal Hydraulics-I

Tuesday (June 11) 10:15 am – Noon

- Thermal Hydraulics of Accident-Tolerant Fuels

Tuesday (June 11) 1:30 pm – 3:40pm

- Scaling Methodologies for SET and IET – Panel

Tuesday (June 11) 3:55 pm – 6:00pm

- Multiphase CFD and Large Eddy/Direct Numerical Simulations

Wednesday (June 12) 10:15 am - Noon

- Experimental Thermal Hydraulics—II

Wednesday (June 12) 1:30 pm – 3:40 pm

- Experiments on Two-Phase Flow and Heat Transfer Fundamentals
- Severe Accident Thermal Hydraulics – I

Wednesday (June 12) 3:55 pm – 6:05 pm

- General Thermal Hydraulics
- Severe Accident Thermal Hydraulics – II

Thursday (June 13) 08:00 am – 10:00 am

- Computational Thermal Hydraulics – II

Thursday (June 13) 10:25 am – 12:35 pm

- Computational Thermal Hydraulics - III

Session	# of papers	Time Slot	Location	Chairs
Experimental Thermal Hydraulics—I	4	Mon 1pm	Greenway D	Woods / Brooks
Computational Thermal Hydraulics-I	5	Mon 3:50pm	Greenway D	Bolotnov / Shaver
Thermal Hydraulics of Accident- Tolerant Fuels	4	Tue 10:15am	Greenway D	Wang / Yeom
Scaling Methodologies for SET and IET – Panel	3 panelists	Tue 1:30pm	Greenway D	Carasik
Multiphase CFD and Large Eddy/Direct Numerical Simulations	3	Tue 3:55pm	Greenway D	Zimmer / Komen
Experimental Thermal Hydraulics—II	4	Wed 10:15am	Greenway D	Hassan / Kong
Experiments on Two-Phase Flow and Heat Transfer Fundamentals	4	Wed 1:30pm	Greenway D	Kong / Cheung
Severe Accident Thermal Hydraulics – I	4	Wed 1:30pm	Greenway E	Luxat / Zou
General Thermal Hydraulics	4	Wed 4pm	Greenway D	Arndt / Yang
Severe Accident Thermal Hydraulics – II	4	Wed 4pm	Greenway E	Mignot / Luxat
Computational Thermal Hydraulics – II	5	Thu 8am	Greenway D	Muftuoglu / Wang
Computational Thermal Hydraulics – III	4	Thu 10:25am	Greenway D	Merzari / Lee
Total	45			

Additional Notes:

- All paper presentations are 25 minutes each.

2019 ANS Winter Meeting and Nuclear Technology Expo

E. Merzari and I. Bolotnov

General Information and Stats:

"Nuclear Technology for the U.S. and the World"

Washington, DC, Marriott Wardman Park

November 17-21, 2019

Submit papers at: <http://epsr.ans.org/meeting/?m=264>

Current Deadline: June 24

Submitted THD summaries (as of 6/4): 31

THD Sessions and organizers:

- Panel: Thermal Hydraulic challenges on Micro-reactors
 - (Annalisa Manera / Donna Guillen)
- Thermal Hydraulics on HEU to LEU conversion of research reactors
 - (Prashant Jain / Hitesh Bindra)
- Panel: Education Nuclear Thermal Hydraulics Issues and Challenges
 - (Lane Carasik / Elia Merzari)
- Flow Visualization in single and two-phase flows: Recent Progress
 - (Wade Marcum / Marilyn Delgado)
- Computational Thermal Hydraulics
 - (Maria Avramova / Matthew Zimmer)
- Two Phase Thermal hydraulics
 - (Dillon Shaver/ Yang Liu)
- General Thermal hydraulics
 - (Junsoo Yoo/ Jiyong Feng)
- Experimental Thermal Hydraulics
 - (Mark Kimber / Shanbin Shi)
- Multiscale and Multi-physics Thermal Hydraulics
 - (Dave Pointer / Ferry Roelofs)
- Young Professional thermal-hydraulics Research Competition
 - (Dillon Shaver/Ling Zou)



NURETH-18 Technical Program Status

Brian Woods
Oregon State University
brian.woods@oregonstate.edu
541-737-6335

NURETH-18 Status

- **Paper Reviews.**
 - Initial reviews complete.
 - 604 papers submitted.
 - 54 Accepted.
 - 441 Accepted with Revisions.
 - 96 Rejected unless Revised.
 - 13 Rejected.
 - Includes 17 Technical Keynotes.
 - Final full papers due June 14.
 - Final review deadline June 21.
- **NURETH-18 Program.**
 - Preview program available.
 - Technical Tours: Nuscale & OSU.
 - Workshops: V&V, Turbulence & GOTHIC.

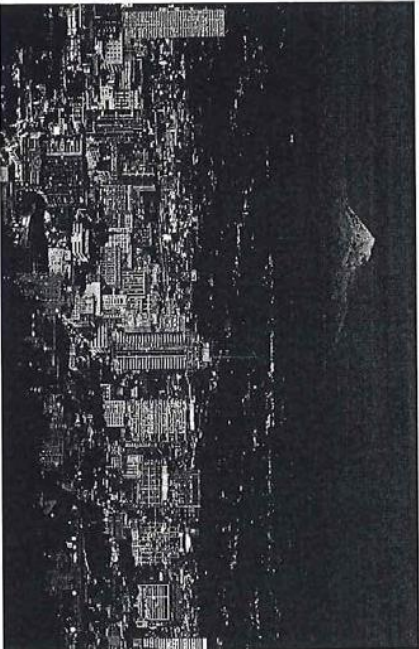
NURETH-18 Preview Program



18th International Topical Meeting on
Nuclear Reactor Thermal Hydraulics (NURETH-18)

Preview Program

August 18-23, 2019
Portland, OR
Marriott Portland Downtown Waterfront



Daily Schedule

Sunday, August 18

3:00-7:00 pm Registration
6:00-7:30 pm Welcome Reception (best Diner)

Monday, August 19

7:30-8:00 am Continental Breakfast
9:00-10:30 am Opening Ceremony and Plenary—1
10:30-11:00 am Coffee Break
11:00 am-12:00 pm Opening Plenary—11
Lunch (hosted lunch in Expo)
12:00-1:30 pm Parallel Technical Session 1
1:30-3:00 pm

- Continental Breakfast
- Opening Ceremony and Plenary—1
- Coffee Break
- Opening Plenary—11
- Lunch (hosted lunch in Expo)
- Parallel Technical Session 1
- Computational Multi-Fluid Dynamics—1
- Benchmark Study of the Accident at the Fukushima Plant 2—1
- Computational Fluid Dynamics—1
- Experimental Thermal Hydraulics: Health and George Vellinga—Panel
- Fundamental Thermal Hydraulics: Experiments—1
- Thermal Hydraulics in Advanced Reactors: General—1
- Thermal Hydraulics in Lead-Cooled and Lead-Bismuth-Cooled Fast Reactors—1
- BFBM and Convection in LWRs—1
- BFBM and Convection in LWRs—1
- Operation and Safety of Existing Reactors: General—1
- Verification and Validation: General—1
- CHF and Post-CHF Heat Transfer, Flowing and CCHF—1
- Coffee Break
- Parallel Technical Session 2
- Benchmark Study of the Accident at the Fukushima Plant 2—1
- Computational Fluid Dynamics—11
- Computational Thermal Hydraulics: General—1
- Experimental Thermal Hydraulics: Experiments—1
- Thermal Hydraulics in Lead-Cooled and Lead-Bismuth-Cooled Fast Reactors—1
- Building and Condensation Fundamentals—11
- Instabilities and Nonlinear Dynamics
- Operational and Safety of Existing Reactors: General—1
- Verification and Validation: General—11
- CHF and Post-CHF Heat Transfer, Flowing and CCHF—11
- Ribonast Dinner (for purchase)

NURETH-18 Preview Program

Daily Schedule

Daily Schedule

Thursday, August 22

7:30a-10 am
7:30-9:00 am
8:20-10:00 am

- Keynote Session—XV,XV
- Continental Breakfast
- Technical Sessions 9
 - Multiphase Multiphysics Applications in Thermal Hydraulics—I
 - Two-Phase Flow and Heat Transfer Fundamentals—I
 - Core Thermal Hydraulics and Subcooled Nucleate Boiling—I
 - Core Thermal Hydraulics and Subcooled Nucleate Boiling—II
 - Fundamental Thermal Hydraulics: General—II
 - Fundamental Thermal Hydraulics: General—III
 - Thermal Hydraulics in Small Modular Reactors: Reactant Analysis—II
 - Thermal Hydraulics in Small Modular Reactors: Reactant Analysis—III
 - Natural Convection and Mixing Phenomena: Modeling and Experiments—I
 - Modeling and Experiments of Severe Accidents—V
 - Fluid System Code Validation—II
 - Fluid System Code Validation—III
- Coffee Break
- Technical Sessions 10
 - Multiphase Multiphysics Applications in Thermal Hydraulics—II
 - Two-Phase Flow and Heat Transfer Fundamentals—II
 - Core Thermal Hydraulics and Subcooled Nucleate Boiling—IV
 - Accuracy and Uncertainty Analysis—III
 - Fundamental Thermal Hydraulics: General—III
 - Fundamental Thermal Hydraulics: General—IV
 - Thermal Hydraulics in Small Modular Reactors—I
 - Thermal Hydraulics in Small Modular Reactors—II
 - Experimental Measurement Techniques and Flow Visualization—VI
 - Natural Convection and Mixing Phenomena: Modeling and Experiments—II
 - Plant System Code Validation—V
 - Fluid-Structure Interactions—III
- Lunch (on-site)
- Keynote Session—XVI,XVII
- Technical Sessions 11
 - Multiphase Multiphysics Applications in Thermal Hydraulics—IV
 - Two-Phase Flow and Heat Transfer Fundamentals—III
 - Continuum Analysis—II
 - Accuracy and Uncertainty Analysis—IV
 - Multiphase Multiphysics Applications in Thermal Hydraulics—V
 - Thermal Hydraulics in Small Modular Reactors—IV
 - Experimental Measurement Techniques and Flow Visualization—VII
 - Advanced Design Features for Severe Accidents Mitigation—I
 - Boiling and Condensation Heat Transfer—I
 - Thermal Hydraulics of Fluoride Salt-Cooled High-Temperature Reactors—I

12:00-1:20 pm
1:20-2:10 am
2:20-4:00 pm

- Technical Sessions 12
 - Reduced Order Modeling—II
 - Multiphase Multiphysics Applications in Thermal Hydraulics—V
 - Two-Phase Flow and Heat Transfer Fundamentals—IV
 - Continuum Analysis—III
 - Plant System Code Validation—III
 - Thermal Hydraulics in Small Modular Reactors—V
 - Thermal Hydraulics in Small Modular Reactors—VI
 - Advanced Design Features for Severe Accidents Mitigation—II
 - Boiling and Condensation Heat Transfer—II
 - Thermal Hydraulics of Fluoride Salt-Cooled High-Temperature Reactors—II

4:00-4:30 pm
4:20-6:00 pm

- Continental Breakfast
- Keynote Session—XVIII

Friday, August 23

8:00 am-5:00 pm
8:00 am-5:00 pm
8:00 am-5:00 pm

- Technical Tour
- Technical Workshops
- VW in Scientific Computing Workshop (Day 1)
- Saturday, August 24
 - 8:00 am-5:00 pm
 - VW in Scientific Computing Workshop (Day 2)



#ANSMeeting