

ANS – THD Division

Program Committee Virtual Meeting

November 6th, 2022

Attendees (31): Dillon Shaver (ANL, Chair), Izabella Gutowski (Oregon State, Assistant Chair), Igor Bolotnov (NCSU), Bao-Wen Yang (Delta), Wade Marcum (Oregon), Jun Liao (Westinghouse), Robert Martin (BWXT), Annalisa Manera (UM/ETH), Caleb Brooks (UIUC), Elia Merzari (PSU), Fan-Bill Cheung (PSU), Ferry Roelofs (NRG), Guanyi Wang (ANL), Guillaume Mignot (Oregon State), Ling Zou (INL), Maria Avramova (NCSU), Nadish Saini (ANL), Shanbin Shi (RPI), Steve Bajorek (NRC), Sujong Yoon (INL), Victor Petrov (ETH), Xiaodong Sun (UM), Xu Wu (NCSU), Yang Liu (VT), Yassin Hassan (TAMU), Marilyn Delgado (BWXT), Subash Sharma (Purdue), Lane Carasik (VCU), Donna Guillen (INL), Donald Todd (PNNL), Minghui Chen (UNM)

1. Opening

Opening by Dr. Shaver. This is the first meeting with Dr. Shaver as chair. Dr. Gutowska is serving as an assistant chair. Dr. Shaver welcomed Dr. Gutowska.

2. Approval of Meeting Agenda

The Draft Meeting agenda has been provided

MOTION to approve: Wade Marcum

SECOND by: Xiaodong Sun

NO DISCUSSION

APPROVED UNANIMOUSLY

3. Approval of Minutes from 2022 Annual Meeting

Draft minutes from 2022 Annual meeting were discussed. Minutes were posted late on the website. If errors are found, they can be communicated per email. Attendees list is still missing – to be updated soon. Dr. Mignot.

MOTION to approve the amended minutes with updated attendees / minor typos: Wade Marcum

SECOND by: Bao-Wen Yang

NO DISCUSSION

APPROVED UNANIMOUSLY

4. Update on THD session for ANS 2022 Winter Meeting

Dr. Shaver provided an update on the ANS 2022 Winter Meeting.

17 sessions, 3 panels. 2 sessions are co-hosted.

64 submissions (with 6 rejections). There are 58 accepted submissions. Trend on submissions is downward. Lane Carasik and Summing Qin are notable reviewers (18 each). 2.9 reviews per summary, 24% of the review pool were participating.

The list of technical sessions chairs was provided during the meeting. One vacancy for Wednesday 8am session. Dr. Delgado volunteered. Otherwise, all sessions have 2 co-chairs.

Dr. Martin: did you get confirmation from Dr. Guillen? I think she is might have funding issues. Dr. Shaver: I will follow-up with Donna.

NO DISCUSSION

5. Update on THD Program for the upcoming 2023 Annual Meeting

Dr. Shaver presented the program for the upcoming meeting: 7 sessions are planned (standard line up), + 1 panel. Submissions are due on February 6, 2023. Final summaries are due on March 13th, 2023.

DISCUSSION:

Dr. Hassan – would like to add more folks to TH Facilities / Capabilities session.

Dr. Brooks: what meant by current activities? Dr. Hassan: discusses some experimental national lab capabilities.

Dr. Shaver: Reviews will be due February 20th, 2023.

Dr. Merzari: downward trend is concerning. Are we doing enough to stimulate summaries as a committee? Dr. Shaver: good question, we are doing the same as before.

Dr. Merzari: Session organizers should stimulate summaries. Dr. Hassan: The meeting will be unique... NURETH may have take away some papers. Dr. Roelofs: there are many other meetings as well which pull the effort away from ANS national meetings. Dr. Merzari: we must think about if those are structural or temporary changes. Dr. Hassan: this is observed across other divisions as well. Dr. Merzari: THD is more international than other divisions – so we need to keep a close eye on the attendance and trends.

Dr. Bao-Wen Yang – I concur with Dr. Merzari. International membership of the division went down over the last year. Hybrid participation option (or lack of thereof) results in diminished international / national laboratory participation due to COVID restrictions which still exist in some areas. Exploring new areas in THD might be important. ANS should help us promote the membership. E.g. two-year free membership instead of one with meeting participation. Dr. Jun Liao: I agree – international participation is important. Another thing – engage more engineers (rather than researchers). This would expand the attendance. Make the meeting valuable for them. Dr. Hassan: in 1980 we don't have a lot of people from university – all were from the industry. It is a big issue – they must see the benefit and they will come. Making hybrid – you might be able to get more money. How to attract those industry folks – this is important question.

Dr. Bajorek: one of the things we forget about it – back in the day many industrial corporations had large research budgets. Westinghouse had 5000 people in the R&D center. Not the case now. Large number of conference opportunities: NURETH / NUTHOS / ATH. Attract more internationals compared to ANS National meetings. May be for Winter/Annual we focus on US industry participation. We are more likely to get those folks. Focus more on sessions which are more on topical interest. Dr. Bao-Wen Yang – excellent idea. We will propose to introduce industrial liaison / speaker in each meeting. Will be discussed next week at EC. This will attract more participation. Dr. Bao-Wen Yang – there will be an

international liaison to be invited in the meeting. Region based. Will help promote our meetings. This will help with membership and other outreach activities. Negotiate better discounts of membership with ANS for grow the division. Dr. Roelofs – I can confirm I can act as a liaison for Europe. Dr. Hassan – would like to be liaison for Malaysia and the rest of the world. Dr. Merzari – I like the suggestion of Steve and we need to organize the session which is of value. Dr. Bajorek: we need more specific topics.

Dr. Bolotnov: Please suggest relevant sessions which are of interested to the industry. Dr. Liao: industry is moving towards development / design. That's where all the companies open up to work on the designs. Dr. Merzari: think about different format, e.g. tutorial type sessions. Workshop type setup. Or, more panels, on very concrete specific topics. Challenge with the industry – everyone is very busy. There is not time to write an abstract... need to convince them, or make more panels. Dr. Liao: I agree. Dr. Marcum: suggestion here: the mode in which industry engaged has changed since 70/80/90ies. But they are still very engaged. They are engaged through DOE / NEAMS etc programs and program meetings. We may need to engage through the DOE funded programs. Dr. Roelofs: in Europe the industry concerned about the workforce. Make the meeting so the industry can find new employees. Dr. Sharma: if possible, virtual option is important for busy folks in the industry. Dr. Gutowska: is possible to create an industry advisory body to create relevant sessions.

6. Planning for the future 2023 Winter Meeting

The conference is planned for November 2023 in Washington, DC.

Proposed sessions:

- Advances in material science and TH for lead cooled reactors - Jun Liao / MSTD
- TH for advanced reactors – Subash Sharma / Merzari
- TH activities and opportunities in the US Nuclear Industry [P] – Hassan
- Fuel fragmentation – Mignot / Yoon
- ATF – Bajorek / Bao-Wen Yang
- Highlights from NURETH-20 [P] – Martin / Bajorek
- In memoriam session: Dr. Fauske, Dr. Griffith [P] – Bao-Wen Yang / Jun Liao
- Two-phase fundamentals – Sun / Mignot
- Experimental thermal-hydraulics – Carasik / Shi
- Computational TH – Saini / Guillen
- General TH – Zou / Liu (VT)
- Young Professional Research Competition – Wu/Zimmer

8. NUTHOS-13 Closeout report

Dr. Bao-Wen Yang gave an update on the conference. Fully virtual meeting. 228 papers from 19 countries.

17 countries paper presentations. Quite successful virtual meeting. Low number of US participants.

Dr. Xiaodong Sun: 12 participants from the US, 3 paper. Just to clarify.

Dr. Hassan – they should be more than 3 US papers. Additional discussion followed on the challenges of switching between in-person / hybrid / fully virtual.

9. NURETH 20 Update

Dr. Bajorek gave an update on the NURETH-20 organization. The conference is planned for Aug 20 – 25, 2023, Washington DC.

Extended the abstract deadline to October 28th. Over 700 abstracts resolved. Acceptance letters will go out tomorrow. The big question is about hybrid opportunities. We depend on China on 20% of participation. We are going to provide a virtual opportunity. Historically we have to have at least 800-900 abstracts. We will give another extension.

Full papers are due January 13th, will not move that date. You'll be able to submit as soon as December 15th.

Given all restrictions, 700 is a fairly good number. Social program is being developed. Tour of Savannah nuclear ship in Baltimore. Evening at French embassy. Tour of GW, Georgetown. Wednesday dinner. Likely aerospace museum tour. NRC emergency operations center. Got a lot of interest and help.

Dr. Marcum: do you remember estimated number of papers from proposal. Dr. Merzari: 500 was estimated. Dr. Bajorek – we are on a low side now.

DISCUSSION.

Dr. Carasik: what's the plan on reaching out to promote more abstracts. Dr. Bajorek: we have a number of reciprocal organizations (e.g. Japan Nuclear Society etc). We reached out late to them. We will re-iterate on them. A couple of special sessions. Anyone here wants to submit a paper?

10. ATH'24 Update

Dr. Shaver gave an update about the conference. He presented the leadership. Embedded with ANS Winter in Orlando.

Publication plan is submitted to ANS. December 2023 – call for papers will be posted.

August 8th, 2024 – final paper deadline. Will accept both transactions and full papers.

NO DISCUSSION

11. Old business

Nothing brought up.

12. New business:

PC Nominations.

List of 12 potential members will be discussed by the nominating committee.

Juliana Duarte - VT

Xu Wu - NCSU

Yeu Jin - MIT

Vivek Rao - ORNL

Trevor Howard - OSU

Drew Ryan - Purdue

Sunming Qin - INL
Katrien Van Tichelen – SCK CEN
Emre Tatli - WEC

Jon McWhirter - TerraPower
Prashant Jain - ORNL
Jun Fang – ANL

No other new business.

Dr. Shaver: motion to adjourn?

Moved: Dr. Bao-Wen Yang; Seconded by Dr. Guillen.

Meeting was adjourned.

APPENDIX A
PROPOSED AGENDA

American Nuclear Society – Thermal Hydraulics Division
Program Committee Virtual Meeting
2022 ANS Winter Meeting
10:00 AM US Central Standard Time (CST), Sunday, November 6th, 2022
Zoom: <https://ncsu.zoom.us/j/95991125141>
Password: 100014

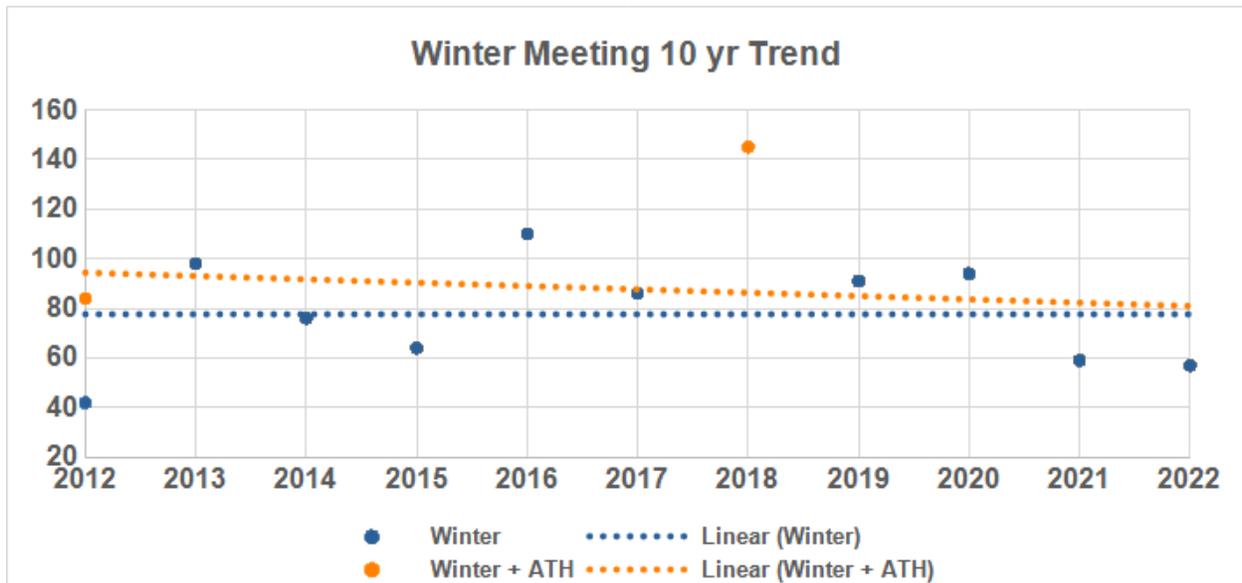
1. **Opening** (Shaver/Gutowska)
2. **Approval of Meeting Agenda** (All)
3. **Approval of Minutes** from 2022 Annual Meeting (All)
4. **Update on THD Sessions for the ANS 2022 Winter Meeting** (Shaver/Gutowska)
 - a. General Meeting: Submission Statistics, Reviews, and Session Assignments
5. **Update on THD Program for the Upcoming 2023 Annual Meeting** in Indianapolis, IN (Shaver/Gutowska)
 - a. General meeting: Announced Sessions, Deadlines/Submittal Status
6. **Planning for the Future 2023 Winter Meeting** in Washington, DC (Shaver/Gutowska)
7. **NUTHOS-13 Closeout Report** (Sun/Yang)
8. **NURETH-20 Update** (Bajorek)
9. **ATH'24 Update** (All)
 - a. Embedded with the 2024 ANS Winter Meeting in Orlando
 - b. Publication plan submitted to ANS 11/04/2022
10. **Old Business** (All)
11. **New Business** (All)

APPENDIX B

2022 ANS Winter Meeting PC report

D. Shaver and I. Gutowska

A total of 57 submissions are included in the sessions sponsored and organized by the Thermal Hydraulics Division at the ANS 2022 Winter Meeting. The number was a bit below expectations for a winter meeting and we note the beginning of a downward trend. We will host a total of 19 sessions, including: 3 THD panels, a cosponsored panel with RPD, 13 THD sessions and 2 cosponsored sessions with RPD. Note that the standard presentations are 15 minutes + 5 minutes Q&A. The graph below shows the 10-year trends for the ANS Winter meetings.



Reconciled review recommendations for the submissions are as follows:

	58	Accept
	6	Reject
Total	64	

After our rigorous review process, 3 submissions out of 60 received were rejected. We note that the trend for rejection rates (R/R+R) is usually at roughly 20% and this year it is a bit lower, at 9%. This is consistent with 12% from the ATH meeting. As a note, we encourage the authors to respect the process and time the reviewers dedicate to evaluate the summaries and thus to strictly follow the ANS template and submit summaries with all the required sections.

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:

There were 185 review recommendations that were coordinated from 44 reviewers for an average of 4.2 reviews per reviewer. The average number of reviews per paper was ~2.9, which is about average. We had about 24% of the reviewers participating in the process, which is fairly consistent with past trends. The reviewers' support is much appreciated! We need to continue to stimulate more participation to even out the effort between the program committee members.

Reviewer participation over the last decade is as follows:

Year	Location	Number of Reviews	Number of reviewers
2022	Phoenix	185	44
2022	Anaheim (inc. ATH)	217	54
2021	D.C.(Hybrid)	164	38
2021	Providence, R.I. (Online)	136	37
2020	Chicago (Online)	278	43
2020	Phoenix (Online)	85	21
2019	D.C.	258	40
2019	Minneapolis	127	24
2018	Orlando	No general sessions (ATH only)	
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

The review process was made possible by valuable contributions from:

Carasik, Lane	18	Yuan, Haomin	4	Revankar, Shripad	2
Qin, Sunming	18	Bolotnov, Igor	3	Shaver, Dillon	2
Ryan, Drew	15	Feng, Jinyong	3	Yoo, Junsoo	2
Quan, Zhengting	13	Iskhakov, Arsen	3	Zhang, Sheng	2
Liao, Jun	9	Kong, Ran	3	Zou, Ling	2
Rao, Vivek	7	Mao, Jiaxin	3	Addad, Yacine	1
Yoon, Su-Jong	7	Marcum, Wade	3	Cambareri, Joseph	1
Trevor, Howard	6	Martin, Robert	3	Cheung, Fan-Bill	1
Wang, Guanyi	6	Petrov, Victor	3	Delgado, Marilyn	1
Shi, Shanbin	5	Wu, Xu	3	Gutowska, Izabela	1
Shirvan, Koroush	5	Chen, Minghui	2	Holler, David	1
Riznic, Jovica	4	El-Genk, Mohamed	2	Liu, Yang	1
Sharma, Subash	4	Jin, Yue	2	Wiser, Ralph	1
Thanh, Hua	4	Kirkland, Karen	2	Zimmer, Matthew	1
Wang, Jun	4	Lu, Chiang	2		

The technical session schedule, including panels is as follows:

Session	Chairs	# of papers	Time Slot (MST)
Multiphase Thermal-Hydraulics: Challenges in Computation and Experiment	E. Frederix, J. Fang	panel	Monday 1:00pm
Machine Learning Applications in Thermal Hydraulics	X. Wu, J. Duarte	4	
Reactor Demonstration Updates in the Advanced Reactor Demonstration Program (ARDP) - RPD	A. Finan, A. Abou-Jaoude	panel	
Thermal Hydraulics Issues in Licensing of Advanced Reactors	E. Merzari, S. Bajorek	panel	Monday 3:15pm
NRIC Virtual Test Bed (VTB): I - RPD	A. Abou-Jaoude, M. Fratoni	5	Tuesday 10:00am
Experimental Facilities and Capabilities for Thermal Hydraulic Testing	D. Guillen, P. Sabharwall, B. Woods	panel	
Experimental Thermal Hydraulics: I	B. Yang, L. Carasik	4	
Computational Thermal Hydraulics	I. Bolotnov, K. Stevens	5	Tuesday 1:00pm
NRIC Virtual Test Bed (VTB): II - RPD	A. Abou-Jaoude, M. Fratoni	5	
CFD for Advanced Reactors	D. Shaver, I. Gutowska	5	
Experimental Thermal Hydraulics: II	T. Howard, M. Delgado	3	Tuesday 3:15pm
General Thermal Hydraulics	J. Liao, M. Delgado	4	Wednesday 8:00am
Experimental Two-Phase Flow	Z. Ooi, V. Kumar	5	
Computational Two-Phase Flow	S. Shi, S. Sharma	5	Wednesday 10:00am
Advanced Reactor Thermal Hydraulics: I	S. Yoon, L. Zou	5	
Advanced Reactor Thermal Hydraulics: II	H. Yuan, J. Kim	4	Wednesday 1:00pm
Computational Fluid Dynamics: I	G. Wang, L. Carasik	5	
Thermal Hydraulics for Heat Pipes and Microreactors	D. Guillen, S. Qin	5	Wednesday 3:15pm
Computational Fluid Dynamics: II	J. Fang, D. Pointer	3	

Additional Notes:

- All paper presentations are **20 minutes each** (15-minute talk + 5-minute Q&A and transition to the next speaker). Session chairs are responsible for keeping speakers on time.
- If you are chairing a session, coordinate with your co-chair prior to the start on which speakers each will introduce and collect a brief bio for each speaker for their introduction.
- In the event of a no-show, do NOT skip to the next presenter. Try to keep attendees engaged with discussion or offer a 20 minute break in order to keep with the program schedule.