



Your THD Leadership Team

We all thank you for joining THD and look forward to working with you to advance our field. Please do not hesitate to reach out to anyone on the leadership team with suggestions or if you'd like to get involved.

Officers

Chair

Bao-Wen Yang
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Vice Chair/Chair-Elect

Annalisa Manera
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Secretary

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Treasurer

Steve Bajorek
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Immediate Past Chair

Elia Merzari
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Executive Committee

Terms Expiring June 2023

Yang Liu
John Luxat
Hisashi Ninokata
Piyush Sabharwall
Caleb Brooks

Terms Expiring June 2024

Xiaodong Sun
Dillon Shaver
W. David Pointer
Hyoung Cho
Musa Moussaoui

Terms Expiring June 2025

Yassin Hassan
Maria Avramova
Jun Liao
Bob Martin
Marilyn Delgado

Standing Committees

Technical Program Chair
Dillon Shaver

Honors & Awards Chair
Xiaodong Sun

Nomination Chair
Elia Merzari

Webmaster
Trevor Kent Howard

Membership Chair
Matthew D. Zimmer

Screening Committee Chair
Fan-Bill Cheung

YMG Liaison
Mathew D. Zimmer

A Message from the Chair

Dear Colleagues and Friends,

As we approach the end of the 2022-2023 term, I would like to reflect on what a great privilege it has been serving as the Chair of the ANS Thermal-Hydraulics Division. This was an enlightening experience, and I am truly fortunate for having such a dedicated team during this trying time when we are recovering from the pandemic. We continued our monthly leadership meetings, which I found quite effective for promoting communications and working on planning and strategizing for overall THD activities.

NUTHOS-13, originally scheduled to be in Vancouver in August 2020, was forced to be cancelled due to the pandemic. Two years later, we held a successful NUTHOS-13 in Taiwan, August 2022. As a continuous effort to expand worldwide engagement, NUTHOS is, once again, progressing outside of the conventional East Asia Region, with NUTHOS-14 scheduled to be held in Vancouver, August 2024. The planning for NUTHOS-14 is already underway with three organizing meetings to prepare and shape the organizing structure and technical contents.

The planning for ATH (Advanced Thermal Hydraulics) has also commenced, and is being planned to take place in Orlando, FL, November 2024. Additionally, thanks to the great leadership of Prof. Fan Bill Cheung and the rigorous and thoughtful evaluations from our Conference Screening Committee (CSC), the Executive Committee has approved the recommendation from CSC that NURETH-21 be hosted in Busan, Korea, from August 31st - September 5th, 2025.

As shown in the attached THD Membership plot from 2014 to 2023, with about 10% increase from last year (from 957 to 1,049 members), our membership, while still below the peak reached in 2016, is on a continuous rise, and is steadily recovering from the big dips in 2017 (10%) and 2019 (24%). Currently, our international membership consists of 47 members from Asia and 46 from Europe, accounting for about 10% of



total memberships, or slightly over 50% of previous international memberships (about 20% overall).

This year is a very important and exciting one for THD as NURETH-20, occurring August 20th - 25th in Washington DC, will be the 40th anniversary of our flagship conference, which will be commended through the celebration of this Division's 40 plus years of history.

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Message from the Chair, cont.

After receiving over 700 abstracts, we have a count of more than 540 full papers submitted, each having been reviewed by a minimum of 2-3 reviewers. Additionally, there will be 15 Keynote lectures, 3 of which are award winning keynote lectures from Technical Achievement Award (TAA) and Bal-Raj Sehgal award recipients. The organization of NURETH-20 is in its final stages of preparation; as such, in recent months, organizational meetings have been taking place every Friday. I would like to take this time to give special thanks to the organizing committee members who have done an amazing job planning and putting together the extraordinary events that will be taking place during this conference. I have had the honor of being entrusted to lead these organizational efforts for the 40-year celebration activities, and to include a celebration event in recognition of the pioneers who had the vision and dedication to create and develop not only the NURETH conferences, but also our beloved Thermal-Hydraulics Division as a whole.

During the plenary session of NURETH-20, there will be a special panel featuring the founders—Dr. Richard Lahey, Dr. Neil Todreas, and possibly Dr. Donald Rowe (TBD). They will each be delivering enlightening speeches to share their thoughts and personal experiences in creating and advancing our very Division (from when it was first the Thermal-Hydraulics Group) as well as our flagship conference, NURETH. There will also be a collaborated effort to recount the trend of technical evolution in thermal hydraulics as reflected by the growth of NURETH conferences. This panel will allow us to revisit the history of THD, the NURETH series, and the evolution of nuclear technology, specifically in thermal hydraulics, throughout the last 40 years. In addition, as a part of the special celebration events, a special keynote speech will be given by our longtime contributor Dr. Michael Podowski who has attended every single NURETH in the past 40 years. Afterwards, another celebration will take place at the French Embassy, where our founders and longtime contributors will receive plaques of recognition, and, according to the current plan, NURETH Fellows will receive their commemorative pins, and others in attendance will receive celebratory pins in light of the celebration of NURETH's 40th anniversary. In organizing this celebratory event, through the help of Prof. Neil Todreas and Ms. Aubrey Whittington from ANS, we have traced the record of founding chairs for the Thermal Hydraulics Group (the preceding organization of THD) and the Thermal-Hydraulic Division (THD), as well as other former chairs from 1978 to 1984 (from R.T. Lahey Jr., (1978-1980), N.E. Todreas (1980-1981), D.S. Rowe (1981-1982), V. Schrock (1982-1983), to S. Banerjee (1983-1984)). I would also like to give my sincere gratitude to our Webmaster, Dr. Trevor Kent Howard, for his tireless and consistent support in maintaining and updating our platform (ANS THD website: <https://thd.ans.org/committees/executive-committee/>, where you'll be able to find the updated past chair list) and maximizing our division's exposure to the outside world.

Additionally, I'd like to express my greatest appreciation to all THD officers and leaders of all standing committees for their valuable time and active participation in the monthly leadership meetings to communicate, discuss, and plan various exciting THD activities, which include the Industrial Liaison, the International Liaison, and the upcoming ANS THD Town Hall to welcome all new THD members and open the floor for discussion among all members. This Town Hall Meeting will take place on Sunday, June 11th, 2023, from 2:00p.m. to 4:00pm, immediately before the EC meeting.

Fortunately, we are regaining a sense of normalcy, and after over two years of online meetings, the first post-pandemic, in-person Executive Committee meeting successfully took place in Phoenix, AZ during our 2022 Winter Meeting, which was preceded by the in-person PC follow-up meeting to discuss topics raised during the virtual PC meeting concerning activities to promote industrial engagement. In addition to our routine business, we discussed propositions concerning international and industrial liaison positions. Since the ANS Winter meeting in November, we have formally assigned industrial and international liaisons to help promote the wellness of ANS THD and enhance communications between THD and the industry, both domestically and internationally. International liaisons are responsible for organizing international interorganizational activities. Chul-Hwa Song, Ferry Roelofs, and Katrien Van Tichelen have each kindly volunteered and been assigned as international liaisons. The first meeting will take place on May 19th, 2023 with current goals of promoting local meetings and interorganizational activities via international conferences, enhanced communications, promotions of inter-organizational activities, and increases in both international participations and international memberships.

With Jun Liao as our industrial liaison, three meetings have taken place since December 2022, one which tackled the creation and development of a task force or subcommittee that would function as an industrial advisory board (IAB). This board would seek out industrial leaders to help plan and advise on carrying out critical activities for achieving the various aforementioned goals. The other meetings focused on promoting cooperation with the Program Committee to plan activities during the Annual Meetings, Winter Meetings, and other special meetings/events with the goal of inviting industrial leaders to participate in panel discussions and other activities that may help promote and boost industrial engagement, awareness, participation, and membership.

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Message from the Chair, cont.

In addition to the implementation and assignment of our international and industrial liaisons, the proposition to establish a formal subcommittee, the Webinar subcommittee (based on the initial meeting in June 2022), was accepted by the Executive Committee, and Marilyn Delgado has been assigned as the first term chair. She has taken on the responsibility of recruiting more Webinar Committee members, which will also include student members, and presenting proposals as well as other webinar plans at the next EC meeting for review and approval. Furthermore, thanks to the volunteer effort from Dr. Xu Wu, we are also reaching out to YMG and working in cooperation with the membership committee and industrial liaison to promote THD and attract young professionals through sponsoring targeted YPC activities. Currently, I am working with other officers with a planning meeting scheduled for May 19th to revisit the strategic plan of our division regarding incorporating the above actions and developing other ideas and plans for THD. Any revision will be posted on the division website.

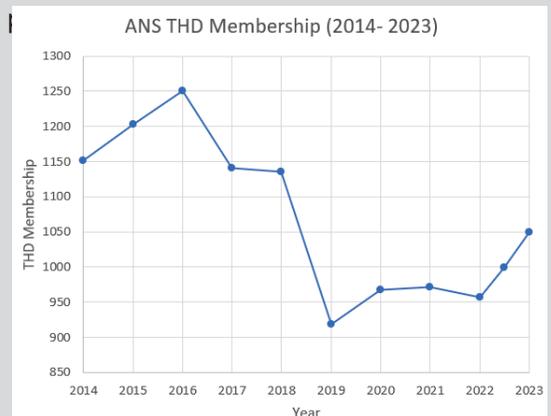
Under the leadership of Prof. Xiaodong Sun, the Honors and Award Committee (H&AC) has continued their dedicated work to select the best candidates for this year's Best Paper Award (BPA) and the Excellence in Review Award. Currently, they are working hard to select new NURETH Fellow(s). Nomination solicitation letters have been sent out to existing NURETH Fellows seeking their nomination of potential candidates. The recipient(s) will be recognized during the upcoming NURETH-20 meeting. Once again, I would like to take this opportunity to sincerely thank the members of H&AC for their continuous efforts and dedication.

At the 2022 ANS Winter Meeting, THD was well represented in 19 different technical sessions. I would like to give a special thanks to Dr. Dillon Shaver and Dr. Izabel Gutowska for leading the PC efforts and to all who managed to attend. Registration for the 2023 ANS Annual Meeting taking place June 11th - 14th in Indianapolis, IN is currently open, and we are encouraging our members to attend and enjoy this meeting.

It has been an honor to serve as Chair of our Division, and I look forward to I would also like to be the first to welcome my successor and Chair of THD for the 2023-2024 term, Dr. Annalisa Manera. I look forward to all she has planned for the future of our Division.

I hope to see all of you at the ANS Annual Meeting (June 2023 in Indianapolis, IN) as well as NURETH-20 (August 2023 in Washington DC) for our special celebration.

Bao-Wen Yang
ANS THD Chair 2022-2023



THD CSC Report

F.-B. Cheung

The Conference Screening Committee (CSC) of the ANS Thermal Hydraulics Division has carefully reviewed and evaluated proposals submitted for the 21st International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH-21) according to the NURETH Criteria for Proposal Evaluation in the Call for Proposals issued last year by the Division. Based on the results of the CSC evaluation, the proposal submitted by the Korean Nuclear Society (KNS) has been selected to host NURETH-21 in the city of Busan, Korea, in August 31-September 5, 2025. The key organizers for NURETH-21 who have been officially notified by the Chair of the THD on January 13, 2023, have accepted the responsibility on January 17, 2023 to host NURETH-21. Preparation of the conference is currently underway.

Technical Program Committee Report

The THD program committee is pleased to welcome everyone to Indianapolis, IN for the 2023 Annual Meeting. The technical program for THD will include a total of 32 summary presentations in 8 technical sessions. Also included is a THD panel session on the ARDP projects, which is a follow-up to the previous panel at ATH in Anaheim. All technical sessions (including panels) sponsored or cosponsored by THD are listed in the table on the right. We are still looking for volunteers to serve as session chairs or co-chairs, so if you are planning to attend and wish to volunteer, please contact us!

A total of 34 summaries were submitted to THD with 112 reviews completed by 34 reviewers. We had an average of 3.3 reviews per submission with reviewers contributing on average 3.3 reviews each of those who participated. Notably, three reviewers contributed 10 or more reviews and we would like to take this opportunity to thank the session organizers and reviewers for their efforts.

The call for papers for the upcoming Winter meeting in Washington, DC is now open. We expect to have an exciting program with summaries on the following topics:

- General TH
- Experimental TH
- Computational TH
- Fundamentals of Two-Phase Flow
- Advanced Reactor TH
- Young Professional TH Research Competition
- Advances in Material Science and TH for Lead-Cooled Fast Reactors
- Fuel Fragmentation, Relocation and Dispersal
- TH for Accident Tolerant Fuels
- Highlights from NURETH-20

Annual Meeting 2023 Technical Sessions

June, 12-14 2023

Session	# of papers	Time Slot (EDT)
Thermal Hydraulics Needs, Challenges and Opportunities in the Advanced Reactor Demonstration Program	panel	Monday 1:00pm
Computational Fluid Dynamics	5	Monday 3:15pm
General Thermal Hydraulics	4	Tuesday 10:00am
Experimental Thermal Hydraulics	4	Tuesday 1:00pm
Experimental Two Phase Flow	5	Tuesday 3:15pm
Advanced Reactor Thermal Hydraulics	5	Wednesday 8:00am
Thermal Hydraulics of Sodium Fast Reactors	4	Wednesday 10:00am
Computational Thermal Hydraulics	5	Wednesday 1:00pm

- TH Activities and Opportunities in Industry
- In Memoriam: Dr. Hans Fauske

The full call for papers can be found [here](#). The meeting will be held November 12th - 15th and summaries are due June 26th.

At the 2022 ANS Winter Meeting, the THD Program Committee meeting will be held online on Sunday June 4th from 10am – 12pm (CDT). It can be accessed [here](#) via Zoom. The Password is **THDPC2023**

As always, we would like to encourage our members to actively participate by attending our meetings, submitting paper summaries, volunteering to organize sessions, and supporting the peer-review of the papers.

Thank You,

Dillon Shaver
Argonne National Laboratory
THD PC Chair

Izabela Gutowska
Oregon State University
THD Assistant PC Chair

Honors and Awards Committee Report

The Thermal Hydraulics Division held an award ceremony on November 14, 2022, Monday, at the ANS 2022 Winter Meeting in Phoenix, AZ. At this ceremony, THD's 2021 Best Paper Award and 2022 Technical Achievement Award (TAA) were announced and presented. In addition, the 2023 Bal-Raj Sehgal Memorial Award was announced.

THD's **2021 Best Paper Award** was presented to Julio Pacio, Shih-Kuei Chen, Yu-Min Chen, and Neil E. Todreas for their paper "Identification of Open Issues in the UCTD Model and Proposed Improvements for Uses in Licensing." The paper was presented at NURETH-19, March 2022. Dr. Pacio was not able to attend the ANS 2022 Annual Meeting, thus the award presentation was delayed to the Winter Meeting.

Two **THD 2022 Technical Achievement Awards** were announced: Dr. Upendra S. Rohatgi (Brookhaven National Laboratory) and Dr. Bao-Wen Yang (DEQD Institute for Advanced Research in Multiphase Flow and Energy). The award was presented to Dr. Yang while Dr. Rohatgi was not able to travel to the Winter Meeting. As a tradition, Dr. Rohatgi and Dr. Yang are invited to each deliver a TAA lecture at the 20th International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH-20) to be held from August 20 to 25, 2023, at the Washington Hilton in Washington, DC.

In addition, the recipient of the **2023 Bal-Raj Sehgal Memorial Award** was announced: Dr. Annalisa Manera, Professor of ETH-Zurich and University of Michigan. Professor Manera will be officially recognized for the award at the upcoming NURETH-20, with a keynote lecture to be delivered at the same conference. Please refer to the THD 2022 Fall Newsletter for details about the TAA and Sehgal Memorial Award selections.

2022 THD Best Paper Award

The Honors and Awards Committee received candidate papers from the ATH'22 and NUTHOS-13 Technical Program Committees for the 2022 THD Best Paper Award. After careful evaluation and deliberations, the Committee selected the following paper as the 2022 THD Best Paper:

"Measurement of velocity induced by steam condensation into a water pool by tracking the motion of bubbles," by Yun Feng, Xicheng Wang, Dmitry Grishchenko, and Pavel Kudinov, Royal Institute of Technology, KTH, presented at NUTHOS-13 in September 2022.

Congratulations to the authors!

2023 NURETH Fellows

The recognition of NURETH Fellow was established in 2013 by the ANS THD with the assistance of the NURETH-15 organizers to recognize scholars who have made outstanding contributions to the NURETH conference series and for their widely-recognized technical accomplishments by the international thermal hydraulics community. The THD H&AC solicited nominations from the current NURETH Fellows (except for those Fellows who are serving on the THD H&AC) and is in the process of evaluating the nominations received. The selection of the 2023 NURETH Fellows is expected to complete by early June 2023. The new Fellows are expected to be recognized at NURETH-20.

2023 THD Excellence in Review Award

The THD Excellence in Review Award recognizes our member's outstanding review services for the THD-sponsored technical sessions at the national meetings and/or topical meetings. Upon nominations by the THD Program Committee, the THD Honors and Awards Committee selected the following awardees for the 2022 THD Excellence in Review Award:

Awardee – Lane Carasik
Honorable mention – Vivek Rao

Please join us to congratulate our recipients and thank them for their excellent services to the Division.

2023 THD Meritorious Service Award

The recently re-established THD Meritorious Service Award recognizes an individual for sustained and exemplary service to the nuclear thermal-hydraulic profession. The nomination submission deadline is March 1. No nominations were however received by the THD HA&C for the award this year. The THD H&AC encourages and welcomes nominations from our THD members to recognize our deserving colleagues. The details about this service award can be found at: <https://thd.ans.org/awards/meritorius-service-award/>

The recipients of the Best Paper Award and Excellence in Review Award will be recognized at the upcoming THD Award Ceremony, immediately following the "Computational Fluid Dynamics" session in the afternoon of June 12, Monday in Room Marriott 2 at the upcoming ANS 2023 Annual Meeting in Indianapolis, IN.

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The THD Honors and Awards Committee encourages and welcomes nominations for the THD awards. The details about these awards can be found at <https://thd.ans.org/awards/>

Finally, we would like to take this opportunity to thank the THD H&AC members and all the nominators for their dedicated work! Congratulations to all our well-accomplished and deserving colleagues!

Xiaodong Sun
2021-2024 THD Honors and Award Committee Chair
xdsun@umich.edu

W. David Pointer
2022-2023 THD Honors and Award Committee Vice Chair
pointerwd@ornl.gov



THD award ceremony at the ANS 2022 Winter Meeting. From left to right: (Left) Xiaodong Sun and Julio Pacio and (right): Elia Merzari, Xiaodong Sun, Bao-wen Yang, and Hisashi Ninokata.

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Scholarship Committee Report

W. David Pointer

The American Nuclear Society Thermal Hydraulics Division awards two annual graduate student scholarships: the Lawrence E. Hochreiter Graduate Scholarship and the Vincent J. Esposito Graduate Scholarship. Applications for both scholarships are due February 1 each year, and they are awarded for the following academic year. The winner of the 2023 Lawrence E. Hochreiter Graduate Scholarship is Mr. Victor Coppo Leite from the Pennsylvania State University. The 2023 winner of the Vincent J. Esposito Graduate Scholarship is Mr. Fadel Nasr from North Carolina State University.

The **Lawrence E. Hochreiter Graduate Scholarship** was established by the ANS THD in 2019 and first awarded for the 2020-2021 academic year. The scholarship honors Dr. Lawrence E. Hochreiter, pioneer in nuclear thermal hydraulics modeling and nuclear safety analysis at Westinghouse Electric Company and the Pennsylvania State University, who was an active member of the Thermal Hydraulics Division. The scholarship is awarded to a graduate student in nuclear science and engineering who is studying topics related to nuclear thermal hydraulics.

Lawrence E. Hochreiter Graduate Scholarship Recipients

- 2023 Victor Coppo Leite
- 2022 Arturo Cabral
- 2021 Adam Kraus
- 2020 Ishak Johnson

The **Vincent J. Esposito Graduate Scholarship** was established by the ANS THD in 2020, with the generous support of the Esposito family, and will be first awarded for the 2022-2023 academic year.

The scholarship honors the ongoing contributions of Dr. Vincent J. Esposito, who is an Adjunct Professor at the University of Pittsburgh, former Vice President of the Nuclear Fuel Business Unit of Westinghouse Electric Company, and the 2013 American Nuclear Society Glenn T. Seaborg Congressional Fellow. The scholarship is awarded to a first-year graduate student in nuclear science and engineering who is studying topics related to nuclear thermal hydraulics.

Vincent J. Esposito Graduate Scholarship Recipient

- 2023 Fadel Nasr
- 2022 Brandon Aranda

Nominating Committee Report

If you wish to serve on any position for the division we encourage you to reach out to the division leadership. We also recommend to first volunteer to work on the program committee of the division. We typically select EC members and other candidates for senior leadership positions from active members of the Program committee.

Division Officers Nominations:

- Vice Chair/Chair-Elect: Igor Bolotnov (NCSU)
- Secretary: Steve Bajorek (NRC)
- Treasurer: Ferry Roelofs (NRG)

EC Member Nominations:

- Term Expires June 2026: Fan-Bill Cheung (PSU), Chul-Hwa Song (KAERI), Izabela Gutowska (OSU), Donna Guillen (INL), Ling Zou (ANL)

Conference Screening Committee Nominations:

- Term Expires June 2027: John Luxat (McMaster), Elia Merzari (PSU)

Scholarship Committee Nominations:

- Term Expires June 2026: Don Todd (PNNL), Piyush Sabharwall (INL)

Webmaster Report

Over the past six months, the division website has continued to be updated for improved visuals, as well as provided updates to upcoming conferences, deadlines, and events as they relate to the division. New to the website was the addition of analytics to help improve the website and find the areas of highest engagement. Apart from the home page, the newsletters committee pages, and meetings were the top viewed pages as both the PC and EC meeting occurred in the last six months.



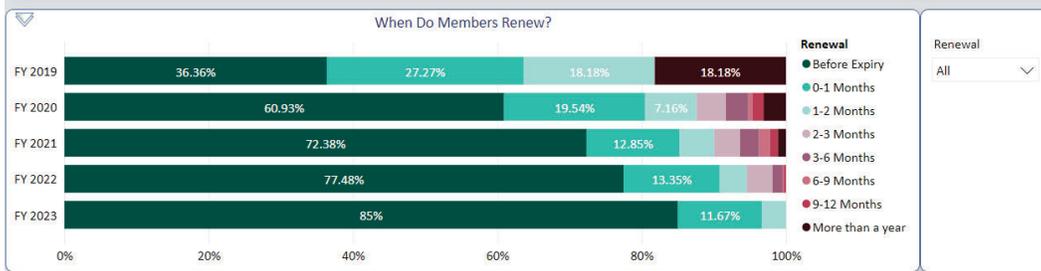
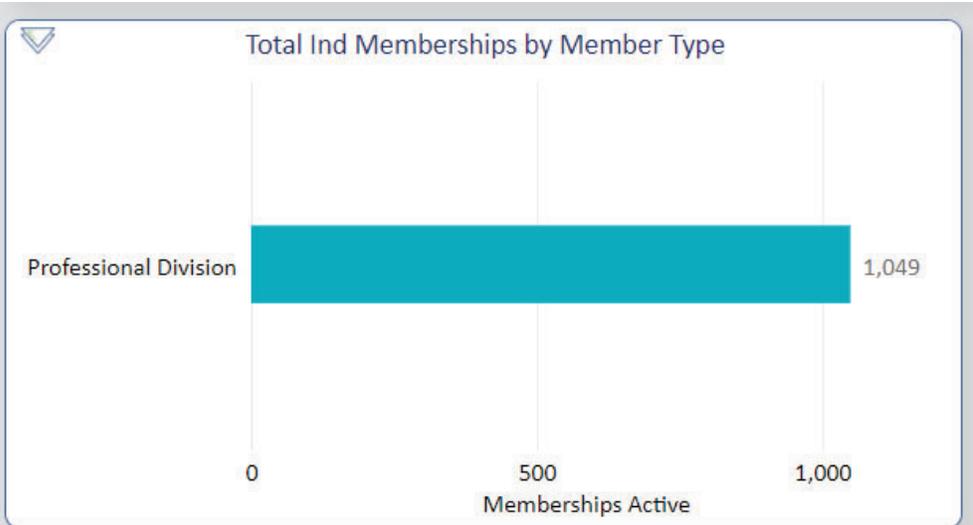
As more content is being added and the role of the website has shifted to the strategic vision of engaging the broader thermal hydraulic community, the website needs to (1) continue to provide content for actively engaged members, (2) provide information relevant to upcoming division events and structure and (3) facilitate the engagement of existing and recruitment of new members. Updates and usage statistics contribute to what goes on the webpage and how it is organized. Within the next 6 months, a series of areas have been identified to focus on: (1) Resolving the page content so it's self-consistent, (2) adding content to limited pages, (3) removing and restructuring existing pages to better aid website navigation. I look forward to what the next six months has to bring!

Trevor Kent Howard
ANS THD Webmaster

Membership Report

THD membership currently resides at 1049, representing a recent increase. Maintaining growth is key to the continued success of the division, and the data shows the division has done a good job at retaining members. Of the total members, the majority come from the United States. However, we encourage outreach to professionals residing in other countries, and have initiated an international liason program to do so. Young members also remain key to the division success. Encouraging these young up-and-coming members is a priority of the division. ALL THD members are encouraged to attend division meetings at conferences and engage with the committee members regarding any ideas/suggestions they have for the division. Active members are also encouraged to support and engage with young members expressing interest in the division.

Matt Zimmer
THD Membership Committee Chair



Financial Report

The budget for 2023 has been proposed and approved by the THD EC in mid-year 2022. It was a difficult financial year for all accounts due to investment losses. Table 1 summarizes the budget and shows how it has changed during 2022. Table 2 shows for the four award funds. Of note are the following:

1. The TAA+Service award accounts ended the year at a funding level of \$62,401, which is a decrease from 2021 due to a loss from investment loss (\$10,438) Two TAA awards of \$2,000 were awarded in 2022 and 2 proposed TAA awards of \$2000 each in 2023 leave the account in good shape.
2. With an investment loss of \$16,908, the Lawrence Hochreiter scholarship account has a new balance of \$71,935. This accounts for \$3000 scholarship award in 2022.
3. The recently established Esposito and Bal-Raj Sehgal Memorial Award were originally been funded at \$75,000 and \$23,000 respectively. Investment losses in 2022 in each have decreased their values to \$67,369 and \$19,314 respectively. These awards will be given every other year.

Stephen M. Bajorek
THD Treasurer (2022-2023)

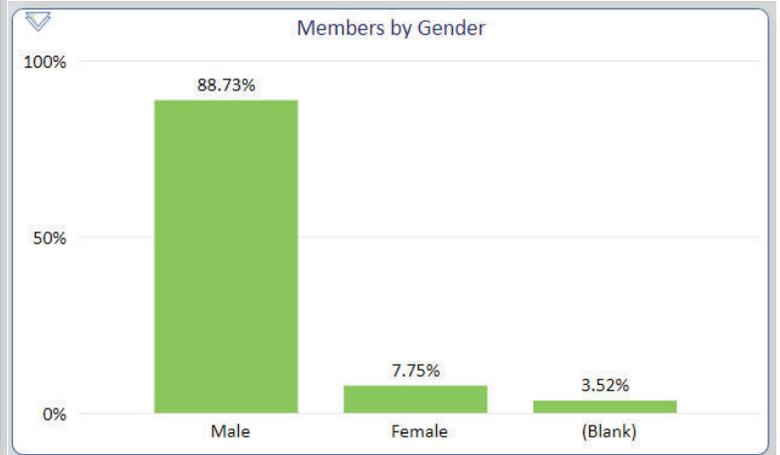
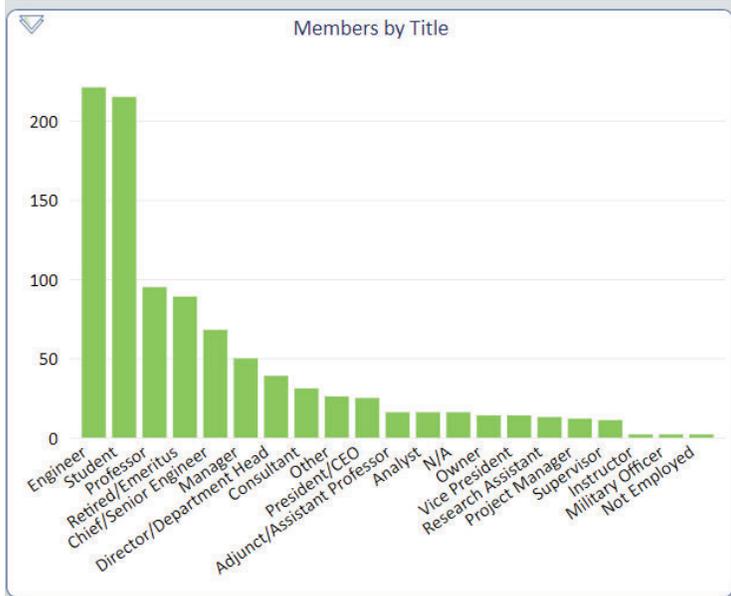
Table 1

	2022 Proposed Budget	2022 Actual through 8/31/2022	2023 Proposed
Balance Forward from Previous Year	\$43,653	\$43,653	\$60,502
Budget Funds			
Member Dues Allocation (\$2/ full dues member; \$1 / reduced dues member)	\$1,604	\$1545	\$1,536
Division Income – Division Meetings		\$2620	\$24,746
		\$15,503	
Total Income	\$1,604	\$19,668	\$26,282
Budget Expenses			
Newsletters, Website			
Awards & Plaques	\$1,250	\$1304	\$1,250
National Meeting Costs			
Topical Meeting Costs			
Division Officer Expenses			
Student Support	\$2,500	\$1,000	\$3000
Future Activity			
Scholarship/NEED Funding	\$500	\$500	\$500
YMG Support			
Other Expenses		\$16	
Total Expenses	\$4,250	\$2820	\$4,750
Net	(\$2,646)	\$16,848	\$26,282
Total Year End Funds	\$41,007	\$60,502	\$86,784

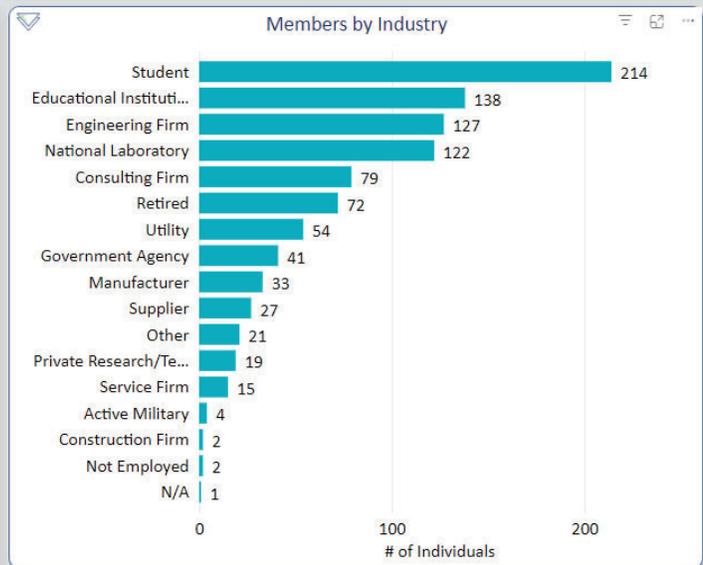
Table 2 ANS THD Awards Funds

	Hochreiter:	TAA/Service:	Esposito:	Sehgal:
Balance Forward from 12/31/2020	\$ 91,843	\$ 80,826	\$ 86,238	\$ 23,761
Investment gain (up to 12/31/2021)	\$ (16,908)	\$ (14,881)	\$ (15,878)	\$ (4,374)
Division Designated (2021)		2,000	\$	
Total Income:	\$ 74,935	\$ (12,881)	\$ (15,878)	\$ (4,374)
Budget Expenses:				
Awards	\$ (3,000)	\$ (4,000)	\$ (3,000)	\$
Plaques	\$ -	\$ (465)	\$ -	\$ (73)
Other expenses:				
Net:	\$ (19,908)	\$ (4,465)	\$ (18,878)	\$ (4,441)
Spending Limit (9.08%)				
Total Year End funds (Projected, 12/31/2022)	\$ 71,935	\$ 62,401	\$ 67,369	\$ 19,314

Membership Report (continued)



Country	# of Individuals
United States	851
Korea (Republic of)	21
Japan	16
Canada	15
Italy	12
Germany	9
United Kingdom	9
	8
Sweden	6
Belgium	5
China	5
France	5
Taiwan	5
Total	967



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ANS Thermal Hydraulics
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Annalisa Manera, Editor
THD Vice Chair (2022-2023)
<http://thd.ans.org>



American Nuclear Society
Thermal Hydraulics Division