



THERMAL HYDRAULICS DIVISION NEWSLETTER

Fall 2010

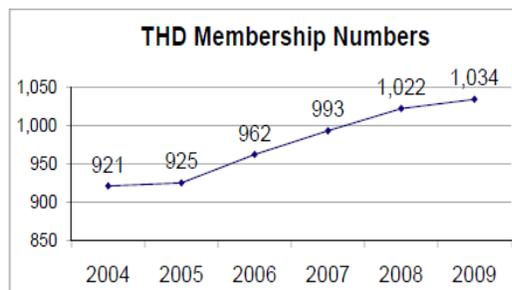
Message from the Chair



Dear Colleagues,

It is my great pleasure to send you greetings from Tokyo in this foreword to the Newsletter. I am most glad to do so as I am now acting as Chair of the Thermal Hydraulics Division.

ANS has introduced a green-yellow-red metrics system several years ago where division's vitality can be seen at a glance. Our Division has achieved very high marks for its standing thanks to the efforts by the past Division Chairs. They have shown the healthy green state of the Division on the metrics and I hope I would be able to do the same. However, the metrics are not intended to clearly show how attractive the Division is to the members. Therefore our efforts are directed toward making not only the metrics all green, but also our Division truly attractive for the members.



One of the key indicators of the division vitality is the membership trend as shown in the figure above. The number of members is 1,034 as of July 2009, which represents approximately 9.3% of the total ANS membership. The figure above shows an increase in the membership in the past 5 years, but the trend line looks as if it is hitting a ceiling. In view of the recent so-called nuclear renaissance, we may need further efforts to recruit more professionals, domestic and international, to take part in our Division activities.

Of importance is an extent to which the Division has attained its internationalization. Our Division has been a main sponsor of the major international Topical Meetings, including NURETH and NUTHOS. I am well aware that, were it not for the Division's support and direct commitment, the conference organizers would have had difficult times in making the conference really international. It is no exaggeration to say that the recent success reported in the Topical Meetings all relied on the Division's international credibility. To that extent, the Division has become and is international. Since I have joined the Division governance about a decade ago, I have witnessed the THD history made by the past Chairs and all the members of Program and Executive Committees. As the immediate past Chair, Karen Vierow wrote in her inauguration message exactly one year ago, the Division has strived to become more international and we have made our own efforts to remove borders within the nuclear technical community. As a consequence, the Division has become real international and borderless. Its mode of operation is globally-oriented. As one of the international members, I am proud of having been a constituent of this steady stream of the Executive Committee members and Officers of the Division from abroad who were elected to their posts by the Division members.

Other important indicators should include the number of sessions organized in the ANS Annual and Winter Meetings and the number of participants. For instance, please take a look at the Preliminary Program for the 2010 ANS Winter Meeting and join us in Las Vegas this November for our twelve technical sessions. This outnumbers the other division sponsored sessions. Kurshad Muftuoglu lists the sessions later in this newsletter under the Program Committee report. Some highlights are in the following:

Special Sessions on Interfacial Area Transport are organized by Seungjin Kim and Steve Bajorek and will be held Tuesday to Wednesday, contributed by well-known researchers from all over the world.

Two sessions of the Young Professional Thermal Hydraulics Research Competition are going to be held in cooperation with the Young Members Group (YMG). Thanks go to Brian Collins, our liaison to YMG and Elia Merzari, one of the youngest Division members, for their organizing efforts.

Our future depends totally on student and young members. Therefore, the Division must be attractive to them. At the same time, without young members' positive participation, we cannot make the Division attractive nor draw Division's bright future. We encourage them to become involved in the Division. In this respect, the Division puts a high priority on providing financial support for national student conferences, meeting travel and scholarships. We are working with the YMG, serving as their Technical Division sponsor so that they may host such technical sessions as Research Competition at the national meetings.

It will be everlasting efforts to make the Division useful and attractive to the members. The primary mission of the Thermal Hydraulics Division is to establish, stimulate, and maintain quality technical and professional approaches in all areas of Nuclear Thermal Hydraulics (Please visit our homepage at <http://thd.ans.org/>). The Division should always be informative and active, trying to keep the members abreast of new, innovative and sound information from research and development programs all over the world. Our current efforts, in addition to those I have mentioned above, include:

- Collaboration with other Divisions
This effort includes co-sponsoring technical sessions.
- Professional Development Programs
The Division is considering offering tutorial sessions at national meetings on specific topics.
- Position Statement
Although it is not officially required by ANS, the Division is considering submitting the position statement.
- International Conferences
The Division co-sponsors NURETH-14 in Toronto, September 25-29, 2011: <http://cns-snc.ca/events/nureth-14/>. Also we plan to co-sponsor NUTHOS-9 in 2012 and NURETH-15 in 2013.

In many attempts to be made, you will be kept up-to-date with how we meet not only the Society's key measures, but also your requests for our endeavors.

The EC/PC members and officers consist of volunteers. Here I want to express my sincere thanks to all of them. In particular, my special thanks go to our Division's webmaster DuWayne Schubring, Assistant Professor at University of Florida and THD member, for maintaining the website.

Finally, the new officers, Professor Brian Woods (Vice chair/chair-elect), Professor Xiaodong Sun (Secretary) and Dr. David Aumiller (Treasurer), and I are endeavoring to lead the Division through another productive year 2010/2011. We welcome communication from anyone who would like to volunteer his/her time and efforts.

Thank you for your continued support to the ANS Thermal Hydraulic Division. Please feel welcome to contact me and let me know how we can improve Division services. Looking forward to seeing you soon in Las Vegas!

Hisashi

Hisashi Ninokata, Professor, Tokyo Institute of Technology
2010-2011 Division Chair
ANS Thermal Hydraulics Division
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Honors and Awards Committee Report

2010 Thermal Hydraulics Division Technical Achievement Award



The Technical Achievement Award is the highest award given by the THD. It is presented annually to a member of the THD in recognition of outstanding past or current technical achievement. It is based on a major contribution to the state of the art, an important publication, a major technical achievement, or a sustained record of accomplishment and technical excellence in the art or science of thermal hydraulics. This year, the THD is pleased to recognize Professor Per F. Peterson from the University of California-Berkeley as the 2010 Technical Achievement Award winner. As an ANS National Award, Prof. Peterson will be formally recognized at the ANS National Honors and Awards Banquet on Tuesday, November 9, 2010. As indicated by the citation that will appear on his award plaque, he was selected "In recognition of his exceptional contributions to the understanding of thermal hydraulics phenomena of significance to advanced nuclear reactors and for his impact on the thermal hydraulics community as a researcher, educator, and leader."

Prof. Peterson is Professor and Chair of the Department of Nuclear Engineering at the University of California, Berkeley. He has worked on problems in energy and environmental systems, including advanced light water reactors, high-temperature reactors, high-level nuclear waste processing, and nuclear materials management. His research interests include topics in heat and mass transfer, reactor thermal hydraulics, probabilistic risk assessment, safety, and licensing. His broader interests in energy and environment focus on nuclear technologies and nuclear materials management, and methods to enhance affordability, sustainability, proliferation resistance and physical security in the nuclear fuel cycle. In February

2010, he was appointed to the Blue Ribbon Commission on America's Nuclear Future.

2010 Best Paper Award

The 2010 THD Best Paper Award recognizes the following technical paper:

"Proper Orthogonal Decomposition of the Flow in a Rod-Bundle" by Elia Merzari and Hisashi Ninokata.

This paper was published in the proceedings of the 13th International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH-13) that was held in October 2009 in Kanazawa, Japan.

Congratulations to all our 2010 honorees!

Joy L. Rempe, Idaho National Laboratory
2010-2011 Honors and Award Committee Chair
ANS Thermal Hydraulics Division

Treasurer's Report

(a). 2010 Division Budget (\$5,300)

For 2010, the Executive Committee approved the following expenses at the November 2009 meeting:

- \$1,800 for awards and plaques (same as in 2009)
- \$2,000 for ANS Student Conference support (\$500 less than that in 2009)
- \$500 targeted to student support with details to be identified at the June 2010 EC meeting (additional item, not in the 2009 budget)
- \$500 total for student travel support to the 2010 ANS Annual Meeting and Winter Meeting (same as in 2009)
- \$500 for Scholarship/NEED program (same as in 2009)

(b). 2010 Division Financial Report (by May 31, 2010)

2010 Income

For 2010, the Division's income of \$21,069 included the 2009 carry forward (\$19,001) and our 2010 member allocation (\$2,068). Please note there was a typo in the THD 2010 Spring Newsletter: the Division's 2010 income was shown as \$21,039, instead of the correct number \$21,069.

2010 Expenses (by October 8, 2010)

The Division's expenses by October 8, 2010 include the following:

- \$2,000, donation to the ANS student conference at the University of Michigan in April 2010

- \$500, donation to the ANS for student travel support to the 2010 ANS Annual Meeting and Winter Meeting
- \$500, donation to the ANS for Scholarship/NEED program
- \$64 (estimate), plaque for outgoing division chair

Awards-related expenses for the year 2010

- THD Technical Achievement Award for 2010 at \$1,000
- THD Technical Achievement Award plaques at \$41.15
- Best Paper Award at \$500
- Best Paper Award plaque at \$41

The balance of the THD general funding account as of October 8, 2010 is estimated as **\$16,487**.

David Aumiller, Bettis Laboratory
2010-2011 Treasurer
ANS Thermal Hydraulics Division
David.Aumiller@unnpp.gov

Program Committee Report

The strong THD presence at the national meetings continues. The interest and participation to the sessions organized by our division reached a new high: we have received the record number of summaries and a record number of sessions put together. In fact, we are running parallel sessions all four days of the conference at the 2010 Winter Meeting in Las Vegas, Nevada. Thanks to the support of the session organizers, reviewers, and other contributing members, the program committee has put together another strong arrangement of sessions for the meeting.

At the 2010 Winter Meeting in Las Vegas, NV, THD is organizing total of 12 sessions: 9 contributed paper and 3 invited paper sessions. This meeting also marks the highest number of summaries for THD sessions, to date. We have received a total of 75 summaries. Again, let me take the opportunity to thank for all the efforts of the session organizers and the reviewers. The sessions, in chronological order, are:

- General Thermal Hydraulics—I, [Mon. p.m.]
- Experimental and CFD Analysis of Gen-IV Reactors—I, [Mon. p.m.]
- Interfacial Area Transport—I, [Tues. a.m.]
- Computational Thermal Hydraulics—I, [Tues. a.m.]
- Interfacial Area Transport—II, [Tues. p.m.]
- Interfacial Area Transport—III, [Wed. a.m.]

- Young Professional Thermal Hydraulics Research Competition—I, [Wed. a.m.]
- General Thermal Hydraulics—II, [Wed. p.m.]
- Young Professional Thermal Hydraulics Research Competition—II, [Wed. p.m.]
- Computational Thermal Hydraulics—II, [Thurs. a.m.]
- Experimental and CFD Analysis of Gen-IV Reactors—II, [Thurs. p.m.]
- Severe Accident Management, [Thurs. p.m.]

The all-invited session series on interfacial area transport is organized by Prof. Seungjin Kim (Penn State) and Dr. Steve Bajorek (U.S. NRC). The special session attracted 15 speakers from 7 different countries, a total of 18 summaries:

Australia	1
France	1
Germany	2
Japan	2
Korea	4
United Kingdom	1
United States	7

The sessions are grouped by the organizers into 3 distinct topics of interfacial area transport: the first session (Tues. am) is on theory and modeling, the second session (Tues. pm) on experiments, and the third one is one code and CFD applications. There will be an open forum for discussions in each session following the presentations.

The Young Professional Thermal Hydraulics Research Competition session, organized by Brian Collins and Prof. Karen Vierow (Texas A&M), attracted 14 summaries. These will be presented in two successive sessions on Wednesday. Thanks to the hard work of our young member representatives, the session turned out to be a strong program with good participation.

For the 2011 Annual Meeting at Hollywood, Florida, the division is planning to organize six sessions. The sessions planned for the Annual Meeting are as follows:

- Hydraulics of Small Modular Reactors
- Experimental and Computational Two-Phase Flow
- Computational Thermal Hydraulics
- General Thermal Hydraulics
- Next Generation Safety Analysis Code [Invited]
- Licensing Applications of Best Estimate Codes

At the last Executive Committee meeting, June 2010 San Diego, CA, THD has approved preparing an embedded topical meeting which will be held during the 2012 Winter Meeting. This will be a peer-reviewed full-length paper topical meeting. The calendar placement with the National Program Committee

(NPC) is completed. The actual preparations for the meeting will begin next year. Based on the recent year numbers, the meeting is expected to attract significant participation. This will also serve our membership and research community as a venue for full-length papers. More details will be announced as they become available by email list and the newsletter.

The THD Program Committee meeting will be held on Sunday November 7, starting at 2:30 p.m. in “Capri 116” room, following the NURETH-14 Technical Program Coordination meeting. The meetings are open to everyone interested. We are continuously looking for members to partake in our division activities. This meeting is a good opportunity to learn and observe the PC activities. To find out more on how to get involved, please contact the Division’s Program Committee chair.

Finally, I would like to recognize and thank Prof. Xiaodong Sun (Ohio State University) for taking the leadership and for all of his dedicated efforts in preparation of the Las Vegas meeting, as he has personally attended NPC meeting at Chicago in July.

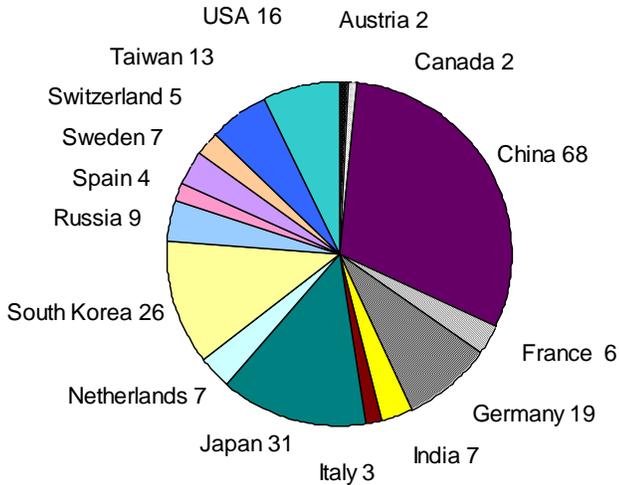
Kurshad Muftuoglu, GE-Hitachi Nuclear Energy
 2010-2011 Program Committee Chair
 ANS Thermal Hydraulics Division
 PCchair@thd-ans.org

NUTHOS-8 Report

The NUTHOS-8 conference was organized by the Chinese Nuclear Society and hosted by Shanghai Jiao Tong University (SJTU). It was held at Eton Hotel in Shanghai, China, October 10-14, 2010. In attendance were 211 participants from 26 countries and regions, with 240 papers contributed. The following table shows the distribution of participants.

Austria	2	Italy	2
Belgium	3	Japan	35
Brazil	2	South Korea	17
Canada	2	Lithuania	2
China	64	Malaysia	1
Czech	1	Netherlands	2
Finland	1	Norway	2
France	7	Russia	2
Germany	20	Spain	3
Hungary	5	Sweden	5
India	2	Switzerland	4
Indonesia	1	Taiwan	10
Iran	1	USA	15

Paper contribution by countries and regions is shown in the following figure:



The NUTHOS-8 conference was completed successfully with the help of many domestic and international colleagues. I would like to express my thanks to all those who contributed to the conference in technical issues, organization matters as well as in financial aspects. My special thanks go to the faculty members and students of the School of Nuclear Science and Engineering (SNSE) of SJTU for their enormous efforts in the organization of the conference.

To the high technical quality of the NUTHOS-8 conference the paper review process made a significant contribution. Two reviewers were required for each paper and only two months were reserved for the paper review period prior to the submission of final papers. This was a tough task for all the reviewers who volunteered to help because there were more than 250 papers to review. This high quality review process was completed thanks to the self-sacrificing dedication of about 100 reviewers.

The 240 technical papers, 11 keynote lectures and 4 plenary lectures were presented in 50 technical sessions, 1 plenary session and 1 specific keynote session. All sessions were well attended. The 11 keynote lectures cover various topics and were conducted by world leading experts in their subjects. The 4 plenary lectures gave overview of nuclear programs of 4 countries, i.e., China (presented by the president of SNPTC, Mr. B.H. Wang), Korea (Prof. S.H. Chang, KAIST), Japan (Dr. K. Matsui, IAE) and US (Dr. P.J. Finck, INEL). Two panel sessions were held on “Nuclear Energy Technology Challenges and Status” and “Challenges in Nuclear Safety Research” and achieved large success. Many thanks go to all the panelists and in particular to Dr. H.C. Oh for his excellent organizing work for the first panel session.

Two technical tours were organized on Thursday, October 14. About 60 participants joined the tour to Sanmen NPP construction site with AP 1000, whereas about 40 participants visited the test facilities at SNSE of Shanghai Jiao Tong University.

The conference was financially supported by State Nuclear Power Technology Corporation, Nuclear Power Institute of China, China Guangdong Nuclear Power Corporation and Shanghai Jiao Tong University.

Above all, I hoped and am sure by now that the attendees enjoyed not only the conference, but also EXPO 2010 in Shanghai.

Xu Cheng, Professor, Shanghai Jiao Tong University
 Technical Program Chair, NUTHOS-8
 chengxu@sjtu.edu.cn

Young Professionals Report

The 2010 Winter Meeting in Las Vegas will host the Young Professional Thermal Hydraulics Research Competition. There were 14 papers submitted and the session takes up two time slots during the Wednesday morning and Wednesday afternoon sessions. The 14 submissions will be judged to determine the best paper/oral presentation for the two sessions. The best paper will receive an award provided by the THD. We have a few judges who have volunteered, but we are still in need of more judges, and if anyone is available for both sessions on Wednesday, please contact Brian Collins at Brian.Collins@pnl.gov.

Brian Collins, Pacific Northwest National Laboratory
 Liaison to Young Members Group
 ANS Thermal Hydraulics Division
 Brian.Collins@pnl.gov

Web Page Report

The official website of the ANS Thermal Hydraulics Division is located at <http://thd.ans.org>. The THD committee membership and minutes, conference announcements, newsletters, and awards are all updated as they change throughout each year. THD also maintains a directory of past and present active members at <http://thd.ans.org/people.html>. This directory was recently updated with contact information from THD governance documents and internet searches. Please check your contact information on this page. If you are not included and believe that you should be (i.e., you are active in THD activities), please provide me with your contact information for inclusion. I welcome any other feedback on the website you would have, either via e-mail or at ANS meetings.

DuWayne Schubring, University of Florida
 2010-2011 Webmaster
 ANS Thermal Hydraulics Division

dlschubring@ufl.edu

Nominating Committee Report

Based on the election earlier this year the current Division Officers and Executive Committee members are listed below.

Current Year THD Officers (June 2010 – June 2011):

Division Chair: Hisashi Ninokata, *hninokat@nr.titech.ac.jp*
Vice Chair/Chair-Elect: Brian Woods, *woods@ne.orst.edu*
Secretary: Xiaodong Sun, *sun.200@osu.edu*
Treasurer: David Aumiller, *david.aumiller@unnpp.gov*

Executive Committee Members

Hisashi Ninokata (2011)	<i>hninokat@nr.titech.ac.jp</i>
Brian Woods (2011)	<i>woods@ne.orst.edu</i>
Hee Cheon No (2011)	<i>hcno@kaist.ac.kr</i>
David Aumiller (2011)	<i>david.aumiller@unnpp.gov</i>
Randall O. Gauntt (2012)	<i>rogaunt@sandia.gov</i>
John Luxat (2012)	<i>luxatj@mcmaster.ca</i>
Stephen Bajorek (2012)	<i>Stephen.Bajorek@nrc.gov</i>
Cesare Frepoli (2012)	<i>FrepolC@westinghouse.com</i>
Steven A. Arndt (2013)	<i>steven.arndt@nrc.gov</i>
Si Young Lee (2013)	<i>si.lee@srnl.doe.gov</i>
Xiaodong Sun (secretary)	<i>sun.200@osu.edu</i>
Karen Vierow (ex-officio)	<i>vierow@ne.tamu.edu</i>
Mikey Brady-Raap*	<i>Michaele.BradyRaap@pnl.gov</i>

* Chair of the ANS Professional Divisions Committee, ex-officio member without vote

Committee Chairs:

Program Committee – Kurshad Muftuoglu
Honors and Awards Committee – Joy Rempe
Nominating Committee – Karen Vierow
Membership Committee – Karen Vierow

The Nominating Committee is responsible for the nomination of THD members to leadership positions on both the Program and Executive Committees. The THD would like to encourage members interested in becoming more involved to contact one of the officers listed above. In particular, the division is usually in need of volunteers for technical meeting session organizers and paper reviewers.

Karen Vierow, Texas A&M University
2010-2011 Nominating Committee Chair
ANS Thermal Hydraulics Division
vierow@ne.tamu.edu