



THERMAL HYDRAULICS DIVISION NEWSLETTER

Spring 2012

Message from the Chair

Dear Colleagues,



On behalf of the Thermal Hydraulic Division Executive Committee I would like to thank all of our Division members for another great year. Our Division and its members continue to positively impact the American Nuclear Society and the nuclear community as a whole. Our Division remains strong and this is a direct reflection on each and every one of us.

Last fall, the Thermal Hydraulic Division presented our “State of the Division” to the ANS Board of Directors. By all accounts our presentation was well received. Particularly, we received praise for our outstanding membership growth. As I mentioned in the fall newsletter, our growth has indeed been very robust. As of 2011, there were 1129 members of the Thermal Hydraulic Division. This is a 9.2% relative to 2010. This also represents 9.8% of the total ANS membership up from about 7.5% of the total ANS membership about a decade ago. Our membership is well distributed among a variety of organizations--educational institutions, consulting companies, utilities, government agencies, national labs, and architect/construction companies being the largest contributors. In addition to the comments on our membership growth we also received high marks for our continued strong support of the ANS National Meetings.

This year, we continued our efforts to impact the recruitment and development of our youngest members through a number of programs. Specifically, we offered student travel support for the 2011 ANS Winter Meeting, which we have continued for the 2012 ANS Annual Meeting. This support is for student members of the Division making Thermal Hydraulics related presentations at the ANS Annual Meeting or at the International Congress on Advances in Nuclear Power plants (ICAPP). The Division also provided financial support for the 2012 ANS Student Conference at the University of Nevada, Las Vegas this past spring. At this student conference there were three Thermal Hydraulics Sections with twelve presentations scheduled. Finally, I can report that our “Young Professional Thermal Hydraulics Research Competition” held during the ANS Winter Meeting in DC was very successful.

There were two sessions with fifteen presentations. A special thanks goes out to Brian Collins, our liaison to YMG and Elia Merzari for their organizing efforts.

During the ANS Board of Directors presentation, our active membership participation in technical meetings and society activities was highlighted. The Division remains very active in its efforts to bring about the highest quality technical meetings. There are a number of upcoming meetings of interest to our membership, specifically NUTHOS-9 to be held in Kaohsiung, Taiwan in September 2012, the 2012 Advances in Thermal Hydraulics Topical Meeting to be embedded in the 2012 ANS Winter Meeting and NURETH-15 to be held in Pisa, Italy in 2013. Note that this is the first Advances in Thermal Hydraulics embedded topical to be held and we look forward to your participation in and support of that meeting in San Diego in November.

Coming upon us very quickly is the ANS Annual Meeting, which starts on June 24 in Chicago. I encourage you to look at the Preliminary Program for the Meeting and join us in Chicago for our seven technical sessions and 35 scheduled presentations, including sessions on Next Generation Nuclear Analysis Code and the Thermal Hydraulics of Severe Accidents. Kurshad Muftuoglu lists the sessions later in this newsletter under the Program Committee report.

Following the Annual Meeting, I will be turning over the Division Chair to Professor Xiaodong Sun. He will be joined by David Aumiller, Si Young Lee, and DuWayne Schubring as the Executive Committee officers. I hope you will join me in wishing them and the entire Executive Committee the best of luck next year in their efforts moving the Thermal Hydraulic Division forward into the future. It has been a privilege to serve as the Division Chair over the past year.

Thank you for your continued loyalty to the ANS Thermal Hydraulic Division. I realize that we are all volunteers and we provide our time and efforts because the mission of our Division and Society is important to us. Feel free to contact Xiaodong or me with ideas to help improve our Division.

Signing off from Corvallis,
Brian

Brian Woods, Oregon State University
2011-2012 Chair - ANS Thermal Hydraulics Division
brian.woods@oregonstate.edu

Program Committee Report

I am writing as my term as the Program Committee Chair winds down. With that, I would like to not only report on this year's activities but also give some statistics during this tenure.

This year too, the strong participation to the THD sessions at the ANS meetings continues. With the support of the session organizers, reviewers, and contributing authors, the Program Committee has put together seven sessions for the 2012 Annual Meeting at Chicago, IL. These are:

- General Two-Phase Flow, Mon. p.m.
- Computational Thermal Hydraulics—I, Tues. a.m.
- Computational Thermal Hydraulics—II, Wed. a.m.
- Next Generation Safety Analysis Code, Tues. p.m.
- Thermal Hydraulics in Severe Accidents, Tues. p.m.
- General Thermal Hydraulics—I, Wed. a.m.
- General Thermal Hydraulics—II, Wed. p.m.

Six of these sessions are all contributed sessions. We have received total of 37 summaries for these sessions and only one paper was rejected by the reviewer recommendations and another one withdrawn after the comments.

The 2012 Winter Meeting will be held in San Diego, CA. The embedded topical meeting Advances in Thermal Hydraulics 2012 (ATH '12) will be held in conjunction of the conference. Full-length papers are encouraged for the ATH '12 submission. More information on ATH '12 is found later in the newsletter.

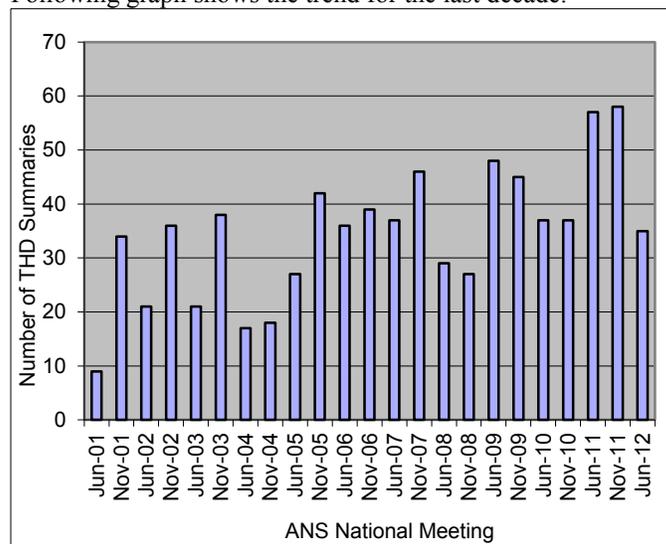
In addition to ATH '12 there will be two summary sessions at the 2012 Winter meeting. As a result of the success of the previous young professional session competition, it will be again be held. Other summaries will be considered for the "Thermal Hydraulic General" session. All summaries should be one to four pages in length.

In Chicago, the THD Program Committee meeting will be held on Sunday June 24, starting at 2:30 p.m. in "Atlanta" conference room (Gold Level, West Tower). Anyone interested in the program committee activities are invited to participate.

Finally, I would like to give a summary of THD PC activities for the period I have tracked the data. For the last 7.5 years I have served as the program committee chair. I am honored and privileged to work with the THD leadership and many other dedicated colleagues. As I always try to emphasize, the program committee activities can only be accomplished as a team. With all the contributions, THD became one of the divisions with the strongest program activities in ANS. Last 8 years we have approximately doubled the average

participation to both Annual and Winter meetings. In average we receive and *process* 40 summaries each meeting. This *processing* involves peer-reviews of the summaries, consolidation of review comments, and organizing the sessions in a harmonious way. I would like to thank again and again all the colleagues who are helping with the reviews. Without their support we cannot keep the quantity and quality of our sessions this high.

Following graph shows the trend for the last decade.



Many factors affect the variations: meeting location, embedded topicals, timing relative to NURETH and other key conferences.

We have also successfully reestablished the NURETH tradition. From the days it was difficult to find a local host, we are at a point where we receive multiple bids to host the meeting. Thanks to the efforts of meeting organizers, we enjoyed holding the conference every two years now. With alternating between domestic and international locations, NURETH will continue to remain a prominent conference.

In closing, I want to encourage our members to participate; it is your active participation makes all of our activities a success. There are many ways to get involved: attend our meetings, submit papers/summaries, volunteer to organize sessions, review papers, volunteer for anything that needs your help. I am looking forward to many more successful years.

Kurshad Muftoglu
Program Committee Chair
PCchair@thd-ans.org

Treasurer's Report

A. 2011 Division Financial Report

2011 Income (\$22,475)

For 2011, the Division's income of \$22,475 included the 2010 carry forward (\$17,967), our 2011 member allocation (\$2,258) and income from 2011 Annual and Winter Meetings (\$2,250).

2011 Expenses (\$1,628)

- \$500, donation to the ANS for student travel support to the ANS National Meeting
- \$500, donation to the ANS for Scholarship/NEED program
- \$59, plaque for outgoing division chair
- \$500, student travel to 2011 ANS Winter Meeting (THD directed)
- \$69, plaque for 2011 ANS THD Young Professional Best Presentation Award

The balance of the THD general funding account at the close of 2011 was \$20,847.

B. 2012 Division Budget

The Executive Committee approved the following expenses at the 2012 ANS Winter Meeting: (\$4800)

- \$1800 for awards and plaques
- \$2500 for Student Support
 - \$500 to ANS National for support of Student travel
 - \$500 for 2012 ANS Student Conference
 - \$1500 student travel to ANS national meetings and embedded topical for 2012 (THD directed)
- \$500 for Scholarship/NEED

C. 2012 Division Financial Report

2012 Division Income

The 2012 Division income is \$23,071 including the 2011 carry forward (\$20,847) and our 2012 member allocation (\$2,224).

2012 Expenses (by April 30, 2012)

- \$500, student support for 2012 ANS Student Conference

The balance of the THD general funding account as of April 30, 2012 was \$22,571.

Submitted by Si Young Lee
Treasurer, THD 2011-2012

NURETH-15 organization status

The organization of NURETH-15 conference (www.NURETH15.org), Pisa May 12-16, 2013, is in progress. Abstracts are requested by June 30, 2012. The following changes are going to be implemented in the forthcoming conference related to the previous ones:

- 1) Nomination of (Senior) NURETH Fellows.
- 2) Papers will be allotted 30 minutes for presentation.
- 3) Pre-NURETH and Post-NURETH Workshops are planned.
- 4) Poster Sessions are foreseen.
- 5) Different awards will be assigned with proper emphasis to authors of posters and students.

Detailed information is available on the website. I expect to see you all in Pisa, next year!

Francesco D'Auria
NURETH-15 Conference Co-Chair

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.

The division also maintains a directory of past and present active members at <http://thd.ans.org/people.html>. To update your information in this directory, please send changes in mailing address, phone number, affiliation, etc. to me. In addition, if you are active in division activities and not included on that list, please provide me with your contact information for inclusion.

I welcome any feedback on the website you have, either via email or at ANS/THD meetings.

DuWayne Schubring, University of Florida
2010-2011 Webmaster
ANS Thermal Hydraulics Division
dlschubring@ufl.edu

Current Year THD Officers (June 2011 – June 2012):

Division Chair: Brian Woods, woods@ne.orst.edu
Vice Chair/Chair-Elect: Xiaodong Sun, sun.200@osu.edu
Secretary: David Aumiller,
david.aumiller.contractor@unnpp.gov
Treasurer: Si Young Lee, si.lee@srnl.doe.gov

Executive Committee Members

Brian Woods woods@ne.orst.edu
Xiaodong Sun sun.200@osu.edu
David Aumiller,
david.aumiller.contractor@unnpp.gov
Si Young Lee si.lee@srnl.doe.gov
Randall O. Gauntt rogaunt@sandia.gov
John Luxat luxatj@mcmaster.ca
Stephen Bajorek Stephen.Bajorek@nrc.gov
Cesare Frepoli FrepolC@westinghouse.com
Steven A. Arndt steven.arndt@nrc.gov
Fan-Bill Cheung fxc4@psu.edu
Yassin A. Hassan hassan@ne.tamu.edu
Jong H. Kim JKIM@epri.com
DuWayne L. Schubring dlschubring@ufl.edu
Hisashi Ninokata (ex-officio) hninokat@nr.titech.ac.jp
Mikey C. Brady-Raap* Michaele.BradyRaap@pnl.gov

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

Committee Chairs:

Program Committee	Kurshad Muftuoglu
Honors and Awards Committee	Shripad Revankar
Nominating Committee	Hisashi Ninokata
Membership Committee	Hisashi Ninokata

Incoming THD Officers (July 2012 – June 2013):

Division Chair: Xiaodong Sun, sun.200@osu.edu
Vice Chair/Chair-Elect: David Aumiller,
david.aumiller.contractor@unnpp.gov
Secretary: Si Young Lee, si.lee@srnl.doe.gov
Treasurer: DuWayne L. Schubring, dlschubring@ufl.edu

Executive Committee Members

Steven A. Arndt steven.arndt@nrc.gov
David Aumiller
david.aumiller.contractor@unnpp.gov
Xu Cheng xu.cheng@kit.edu
Fan-Bill Cheung fxc4@psu.edu
Francesco D'Auria dauria@ing.unipi.it
Yassin A. Hassan y-hassan@tamu.edu
Takashi Hibiki hibiki@purdue.edu
Jong H. Kim JKIM@epri.com
Seungjin Kim skim@psu.edu
Si Young Lee si.lee@srnl.doe.gov
Kurshad Muftuoglu kurshad.muftuoglu@ge.com
W. David Pointer dpointer@anl.gov
DuWayne L. Schubring dlschubring@ufl.edu
Chul-Hwa Song chsong@kaeri.re.kr
Xiaodong Sun sun.200@osu.edu
Brian Woods (ex-officio) woods@ne.orst.edu
Hans D. Gougar* Hans.Gougar@inl.gov

San Diego awaits you...

ATH '12

Advances in Thermal Hydraulics – 2012
November 11-15, 2012 • San Diego, California
Town & Country Hotel & Resort

ABOUT THE MEETING

This embedded topical meeting is the first one in its series being organized by the Thermal Hydraulics Division and is a peer-reviewed full-length technical paper conference covering recent advances in thermal hydraulics. Authors and presenters are invited to participate in this event to exchange the recent advances made in the thermal hydraulics area.

Honorary Chair: Bal-Raj Sehgal

General Co-Chairs: Yassin A. Hassan
Hisashi Ninokata
Francesco D'Auria

Program Chairs: Kurshad Muftuoglu
S. H. Chang
Henryk Anglart

Revised Deadlines:

Abstract Deadline	June 29, 2012
Author Notification	July 7, 2012
Draft Full-Papers	July 31, 2012
Review Comments	August 15, 2012
Final Papers	September 14, 2012

PLANNED TECHNICAL TRACKS

1. Two-Phase Flow and Heat Transfer Fundamentals
2. Code Developments and Applications
3. Advanced Code Developments
4. Operation and Safety of Existing Reactors
5. Experimental Thermal Hydraulics
6. Advanced Reactors Thermal Hydraulics
7. Waste Management Thermal Hydraulics
8. Thermal Hydraulics of Non-Electricity Generating Nuclear Systems

ELECTRONIC PAPER SUBMISSION AND REVIEW:

<http://epsr.ans.org/meeting/?m=123>

NURETH-15

15th International Topical Meeting on Nuclear Reactor Thermal Hydraulics
May 12-17, 2013, Convention Hall, Pisa, Italy
www.nureth15.org



The International Topical Meeting on Nuclear Reactor Thermal Hydraulics (NURETH) is recognized as the key series of international topical meetings in the field of thermal hydraulics.

NURETH provides international nuclear societies an open forum where high-quality and up-to-date information can be actively discussed and exchanged among world-renowned experts. NURETH-15 is organized by the American Nuclear Society and Nuclear Research Group of San Piero a Grado (GRNSPG) of University of Pisa and will bring together international thermal hydraulic experts with their new information and research. It is our utmost pleasure to welcome you to this significant international conference.

Conference Program Topics

Technical sessions (oral & poster presentations)

- S1: Basic Thermal-hydraulics, Two Phase Flow and Heat Transfer Fundamentals, including Experimental Thermal-Hydraulics and Instrumentation
- S2: Code Development including Numerics (SYS TH and CFD)
- S3: Code V & V, design and operation of SETF including Instrumentation
- S4: Operation & Safety of Existing Reactors including Code Assessment (final step of Validation) and Application: ITF and BEPU, including addressing of the scaling issue
- S5: Severe Accident
- S6: Other, including Gen IV, Waste, Fusion (and corrosion and crud deposition, fluid structure interaction)

Special topics sessions (oral & poster presentations)

- ST1: Analytical activities on the accident progression and in-core status of Fukushima Dai-ichi units
- ST2: OECD/NEA W-GAMA Activities
- ST3: Natural Circulation and Passive Systems and Phenomena
- ST4: "FONESYS a Forum and network on system thermalhydraulic codes"
- ST5: Supercritical Reactors
- ST6: Embarking Countries (New Nuclear Energy Policy based Countries: Poland, Vietnam, Malaysia, Jordan, Algeria, UAE, etc.)
- ST7: Resolving Thermal-Hydraulic Issues: The History of NURETH (the International Topical Meeting on Nuclear Reactor Thermal-Hydraulics)
- ST8: Network of research activities
- ST9: Designing Experimental Matrices as the Basis for Validating Computational Tools Used to Analyze Nuclear Systems
- ST10: Thermal Hydraulics in Small Modular Reactors
- ST11: Gap Flow Instability
- ST12: Full Spectrum LOCA Evaluation Model
- ST13: Advancements in Multiphase CFD and CFD-grade experiments
- ST14: Innovations from the Consortium for Advanced Simulation of LWRs (CASL)
- ST15: Multiscale multiphysics applications in Thermal-hydraulics

Pre- and post- conference workshops

- W1: OECD/CSNI Uncertainty Analysis in Modeling (UAM)
- W2: OECD/CSNI NUPEC PWR Sub-Channel Bundle Tests (PSBT)
- W3: OECD/NEA benchmarks for coupled-code transient and BWR stability validation
- W4: OECD/CSNI Code Validation Matrix of Thermo-Hydraulic Codes for LWR LOCA and Transients
- W5: Combining deterministic and probabilistic methods for comprehensive safety margin assessment
- W6: Overview of IAEA activities on Super-Critical Water-Cooled Reactors (SCWRs)
- W7: Approaches to Safety Analysis for Licensing of NPPs according to IAEA Safety Standards, WANO and EUR
- W8: BEPU (Best Estimate Plus Uncertainty) Challenges in Current Licensing of Nuclear Reactors
- W9: Numerical aspects in modelling reactor thermal-hydraulics: from system codes to CFD and CMFD
- W10: Student E-learning Tutorial (CCFL, TPCF, CHF, NC, SET Ph)
- W11: Teaching Nuclear Thermal-Hydraulics Tomorrow
- W12: Severe Accidents
- W13: GOTHIC Hands-on Training
- W14: Fuel safety issues in LOCA
- W15: BWR Thermal-Hydraulic Stability and Uncertainty Analysis
- W16: CANDU Industry Perspectives and Trends – Enhancing Nuclear Safety and Economics
- W17: Industry's view on TH R&D: past present and future
- W18: CHF evaluations and experiments
- W19: Overview and Outcomes from the OECD/CSNI Projects: Uncertainty Method Study (UMS) and Best Estimate Method Uncertainty and Sensitivity Evaluation (BEMUSE)
- W20: Scaling Analysis
- W21: STARCCM+ Hands-on training
- W22: Visualization of experiments
- W23: NPP Plant Operations

Awards

NURETH Senior Fellows

- Two Senior Fellows will be honored with a prize

Oral Presentation Prize

- At least 6 awards will be assign on Thursday at the Closing of the Conference
- Award 1 to 6: The best paper in each session S1 to S6

Poster Prize

- Award-1: the "best" poster based on the structure of the presentation (visual quality)
- Award-2: the most interesting (scientific quality)
- Award-3: the quality, completeness and clarity of the explanations (capability of answering questions by the author of poster)

Student Prize

- Award-1: the best paper
- Award-2: the quality, completeness and clarity of the explanations (capability of answering questions by the student)

Key Dates

- Abstract deadline: June 30, 2012
- Abstract acceptance: July 31, 2012
- Draft papers: November 30, 2012
- End of Review: January 15, 2013
- Final Paper: March 15, 2013
- 'Camera ready': April 15, 2013

Social events

- May 12, 2013 Reception
- May 13, 2013 Verdi Theater, Theater concert and dinner
- May 14, 2013 Poster award dinner
- May 15, 2013 Corsini Palace Florence, Official dinner
- May 16, 2013 S. Rossore's Park Pisa, Boat tour and dinner

Technical tours

- Visit to Virgo facility
- Visit to Brasimone Research Centre
- Visit to TRIGA Research Reactor

Conference tours

- Visit to the "Cappella Sistina" and Pope audience
- Ferrari Gallery in Maranello
- Guided tour to Lucca
- Tour of Greve in Chianti
- Visit to DUCATI labs and museum in Bologna

Pre-post guided tours

- Cinque Terre
- Venice
- San Gimignano
- Volterra
- Colline Lucchesi
- Rome
- Additional ones will be provided on the website

Organizers

Conference Chairs

F. D'Auria (UNIPI, Italy)
Y. Hassan (Texas A&M, USA), Co-Chair
J. H. Kim (KAIST/EPRI, USA), Co-Chair

Honorary Chairs

M. Cumo (Roma La Sapienza, Italy)
N. E. Todreas (MIT, USA)

Technical Chairs

N. Aksan (PSI-retired, Switzerland),
D. Bestion (CEA, France), Co-Chair
F. B. Cheung (PSU, USA), Co-Chair
K. Muftuoglu (GEH, USA), Co-Chair
C. Oh (INL, USA), Co-Chair

Organizing Committee

A. Petrucci (GRNSPG-UNIPI, Italy)
M. Adorni (GRNSPG-UNIPI, Italy), Co-Chair
B. Bianucci (GRNSPG-UNIPI, Italy), Co-Chair
M. Kovtonyuk (GRNSPG-UNIPI, Italy), Co-Chair
R. Lo Frano (UNIPI, Italy), Co-Chair

Selected papers from the conference will be published in refereed archival journals as special NURETH-15 issues