ANS THERMAL HYDRAULICS DIVISION NEWSLETTER

Fall 2006

Message from the Chair

I am pleased to report that the Thermal Hydraulics Division (THD) continues to thrive as a leading division of the American Nuclear Society. With over 900 members, we are one of the largest divisions within the society! At the upcoming Winter meeting, we are sponsoring five technical sessions. The Division, by the sponsored sessions, attracts large numbers of papers in the annual and winter meetings. Please plan to attend as many of these sessions as possible to learn about and provide your comments on research being conducted by our members.

As indicated in this newsletter, we have several honors being bestowed to members of our society. In particular, I'd like to acknowledge Professor Fan-Bill Cheung, who is receiving the THD Technical Achievement Award and Dr. Cetin Unal, who has been selected as an ANS Fellow. Both of these individuals are being honored for their technical achievements. However, I'd like to also acknowledge their contributions to the THD over the years, including their service as previous THD chairs. I'd also like to encourage you to attend the THD Awards Ceremony, which will be held on Tuesday, November 14, at 4:00 pm at the upcoming ANS winter meeting.

Finally, I'd like to encourage you to prepare your abstracts for NURETH-12, which will be held in Pittsburgh, PA on September 30 through October 4, 2007. The NURETH series of meetings is the premier international thermal-hydraulics technical conference. As indicated in this newsletter, the organizing committee is working hard to make this conference the most successful NURETH.

The vitality of the THD depends on your participation and efforts. On behalf of the THD Executive Committee, I would like to thank you for your participation and encourage you to continue to offer us suggestions on how we can better serve you.

Joy Rempe, joy.rempe@inl.gov
2006-2007 Chair
ANS Thermal Hydraulics Division

Thermal Hydraulics Division Awards to be Presented at the ANS 2006 Winter Meeting

This year, the Thermal Hydraulics Division (THD) Honors & Awards Committee is pleased to announce recipients for the following 2006 THD awards.

2006 ANS THD Technical Achievement Award
Professor Fan-Bill Cheung
Department of Mechanical and Nuclear Engineering
The Pennsylvania State University

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, we are pleased to announce that the TAA will be presented to Professor Fan-Bill Cheung for his outstanding contributions to the fundamental understanding of critical heat flux for downward facing boiling, degraded core heat transfer, turbulent convection in a volumetrically heated layer, and thermal hydraulic phenomena of importance to nuclear reactor safety, and for his significant impact on the thermal hydraulics community as a researcher, educator, and leader

promoting technical excellence and international scientific exchanges.

Recipients for the THD awards will be honored at the THD Awards ceremony, which will held after the Tuesday afternoon session, "Severe Accident Phenomena and Engineered Features," at the upcoming 2006 ANS Winter Meeting on November 14, 4-7 pm. During this event, Professor Cheung will honor us with the TAA Lecture, "Enhancement of Critical Heat Flux for Downward Facing Boiling".

2006 ANS THD Best Paper Award
"The 2005 CHF Look-up Table", D. C. Groeneveld, J. Q. Shan, A. Z. Vasic, L. K. H. Leung, A. Durmayaz, J. Yang, S. C. Cheng, A. Tanase.

Published in the Proceedings of the 11th International Topical Meeting on Nuclear Reactor Thermal-Hydraulics (NURETH-11), Popes Palace Conference Center, Avignon, France, October 2-6, 2005.

The Best Paper Award is given annually for the best full paper presented at one of the previous Division-sponsored thermal hydraulics sessions or topical meetings. The award is made on the basis of originality, creativity, impact and scientific integrity. Recommendations for the Best Paper Award come from chairs of technical meeting sessions and from members at-large (through the Program Committee Chair). This year's best paper award is from the NURETH11 conference and is being presented to D. C. Groeneveld, J. Q. Shan, A. Z. Vasic, L. K. H. Leung, A. Durmayaz, J. Yang, S. C. Cheng, A. Tanase.

THD procedures for THD Best Paper selection (see http://thd.ans.org/Bylaws/Procedures.htm#THP9.4) require that at least one of the authors be a member of ANS. Several papers were eliminated from the competition in recent years because none of the authors were ANS members.

2006 ANS THD Young Professional Thermal Hydraulics Research Competition
Jeffrey Kobelak, Westinghouse
"Thermal Hydraulics Differences in Application of ASTRUM to 2-, 3-, and 4- Loop Plants," for presentation at the ANS Annual Meeting in Reno, NV, June 2006.

A plaque will be awarded in recognition of the most outstanding technical presentation by a Young Member of the Thermal Hydraulics Division in the 2006 ANS THD Young Professional Thermal Hydraulics Research Competition. This professional development competition, which was held at the ANS Annual meeting last June, was designed to enhance the technical writing and presentation skills of young members working in the area of thermal hydraulics through preparation and presentation of an abstract related to the thermal hydraulics profession. The abstract and presentation of each participant were critiqued by a panel of judges that provided constructive feedback on ways participants could improve their written and verbal communications skills in a technical forum.

Mr. Kobelak was unanimously selected to receive recognition in the 2006 competition. However, the judges and observers noted that all six participants made outstanding presentations and deserve recognition for their efforts. The other five participants were S. Y. Antoine, Elvis Dominguez-Ontiveros, Sridhar Hari, Joe Lapinskas, and Phil Smagacz.

This competition will be held again at the ANS Winter Meeting in Washington, DC, November 2007. Anyone interested is encouraged to submit an abstract to this meeting and contact Don Todd for more information (*donald.todd@areva.com*).

New ANS THD Fellow
Dr. Cetin Unal
Los Alamos National Laboratory

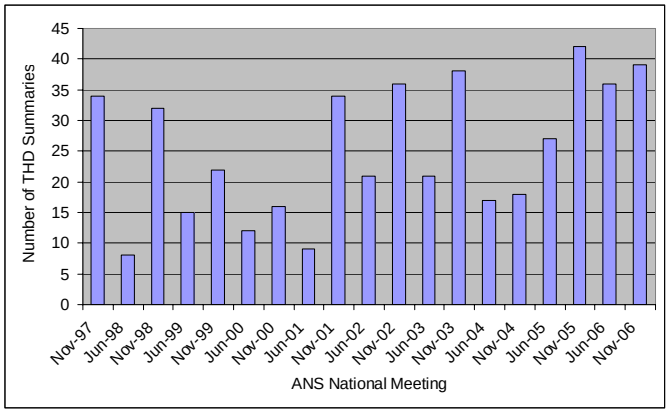
Finally, we are pleased to announce that one of our long-time contributors to the THD, Dr. Cetin Unal, has been selected as an ANS Fellow for his distinguished career in nuclear thermal hydraulics safety research, development of reactor thermal hydraulics and safety codes, waste management research, development of unique measurement techniques for nuclear waste, safety analysis of nuclear facilities and defense nuclear reactors, fundamental modeling of saturated nucleate boiling and critical heat flux and weapon certification methodologies including the quantification of margins and uncertainties in weapon performances.

Please join us in congratulating all of our recipients and at our THD Awards ceremony on Tuesday, Nov.14.

Jong Kim, jkim@epriww.com
2006-2007 Chair
THD Honors & Awards Committee

Program Committee Report

The Division's strong support at the national meetings continues. The Thermal Hydraulics Division is organizing 5 contributed paper sessions and one panel discussion at the Winter Meeting in Albuquerque. We have received 40 contributed summaries for the meeting. The graph shows the recent increase in overall THD participation at national meetings. For the last two years, we have averaged approximately 30 summaries for the annual and 40 summaries for the winter meetings.



This meeting received the second highest number of THD summaries in recent years, thanks to diligent work of the session organizers in announcing and promoting the meeting. Based on the content of received summaries, good discussions are anticipated in every session:

- General Thermal-Hydraulics [Organizers: Y. Hassan (Texas A&M), Fan-Bill Cheung (Pennsylvania State University), Undine Shoop (NRC)]
  Session–I (Tue. a.m.) 7 papers
  Session–II (Wed. a.m.) 7 papers
- Severe Accident Phenomena and Engineered Systems [Organizers: Joy Rempe (INL), Karen Vierow (Texas A&M University), Kune Suh (Seoul National University)] (Tuesday PM) 6 papers
- Thermal Hydraulics of Advanced Systems [Organizers: R. Martin (AREVA), M. El-Genk (University of New Mexico), T. Larson (INL)] (Wednesday PM) 5 papers
- Computational Thermal-Hydraulics [Organizers: Yassin Hassan (Texas A&M), Hisashi Ninokata (Tokyo Institute of Technology), Donald Todd (AREVA)] (Thursday PM) 7 papers

The panel session on thermal hydraulics of Generation-IV reactors will be held on Monday, PM. The panel discussion will provide good coverage of currently proposed Generation-IV reactors and their unique thermal hydraulic challenges. The organizers are Larry Hochreiter (Penn State), Chang Oh (INL), and Kune Suh (Seoul Natl Univ); the panelists are as follows:

- Tom Wei (ANL) - Gas-Cooled Fast Reactors
- Per Peterson (Univ of California, Berkeley) - Molten Salt Reactors
- Richard Schultz (INL) - Very-High-Temperature-Cooled Reactors
- James Wolf (INL) - Supercritical-Water-Cooled Reactors
- Jim Cahalan (ANL) - Sodium-Cooled Fast Reactors
- James Sienicki (ANL) - Lead-Cooled Fast Reactors

For the 2007 Annual Meeting in Boston, the THD is sponsoring sessions with the following topics:

- Computational Thermal Hydraulics
- General Thermal Hydraulics
- Uncertainty Treatment in Nuclear Science and Engineering
- Thermal Hydraulics of Steam Generators
- Thermal Hydraulics of Generation IV Systems

Additionally, we are co-sponsoring several sessions (organizing division in parentheses):

- New Regulatory Approaches for Pressurized Thermal Shock Analysis and Licensing (NISD)
- Validation of Safety-Related Phenomenological Models (NISD)
- Generic Safety Issue 191 - Update and Developments on Containment Sump Performance (OPD)
- Numerical Approaches to Multiphysics Coupling in Nuclear Science and Engineering (MCD)

For more information, please visit the ANS website: http://www.ans.org/meetings/index.cgi?c=n. To receive more information on THD meeting activities, to propose a session, or to help with paper reviews, please contact the Division's Program Committee chair.

Kurshad Muftuoglu, muftuoak@westinghouse.com
2006-2007 Chair
THD Program Committee

Treasurer's Report

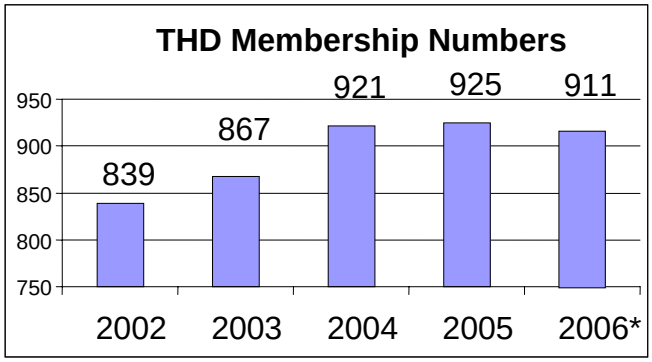
For FY 2006, the Division's income of $21,265 comes from the 2005 carry forward and our member allocation. THD expenses are from student support for a RELAP5 workshop held at Rensselaer Polytechnic Institute, student travel support to the ANS Annual Meeting (June 2006) and the ANS Winter Meeting (November 2006), NEED scholarships and $500 established in the THD restricted fund to endow an ANS National Award (see article below). Details of the fund balance are provided below.

Revenue		
Type	**Item**	
Member Allocation	$1/THD Member	925
Carry Forward from 2005		20,340
TOTAL REVENUE		**21,265**
Expenses		
Type	**Item**	
Student Conference Support	Workshop at RPI	2,000
Student Travel Support	June 06 Meeting	250
Student Travel Support	Nov 06 Meeting	250
Scholarship/NEED	Scholarship/NEED and THD award support	1,000
TOTAL EXPENSES		**3,500**
Balance as of 8/31/06		**17,765**

Chang Oh, chang.oh@inl.gov
2006-2007 Treasurer
ANS Thermal Hydraulics Division

Membership Committee Report

Membership in both the ANS and the THD has been showing some signs of leveling off in recent years. Currently, our membership stands at 911, based on an unofficial mid-year 2006 count. Because the fall season is ANS's membership renewal period, these numbers go up slightly by the end of the year. The chart below presents our current growth trends.



*current paid members as of 09/06

While the trend for the past couple of years shows a leveling off, we are optimistic that our growth trends will continue to mirror the society as a whole.

The THD cordially invites you to become a member of the Division and participate in the Division's activities. Current activities of the Division include paper review, paper presentation, organizing and chairing technical sessions, sponsoring topical meetings, serving on the various subcommittees, including the very active program and honors and awards committees, and supporting student conferences. If you are interested in becoming a member, you can contact ANS membership directly. If you are currently a member and interested in any of the above activities, please contact any of the THD Officers.

Robert Martin, robertp.martin@areva.com
2006-2007 Chair
THD Membership Committee

THD Technical Achievement Award to be Recognized as a National Award

Per suggestion of a THD member, the THD Executive Committee has elected to proceed with the process required to have the THD Technical Achievement Award (TAA) included by the ANS Honors and Awards Committee as a National Award.

Background:
The Technical Achievement Award was established by the THD in 1984. As indicated in the guidance and the procedures for selecting the recipient of this award (see the THD website: http://thd.ans.org/Awards/Awards.html), the Technical Achievement Award is the highest award given by the THD. It is normally 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.

TAA Description:
The Technical Achievement Award is an annual award consisting of an engraved plaque with an appropriate citation and a monetary award of $1000. The Technical Achievement Award is presented at the ANS Winter Meeting or a Topical Meeting supported by the Division.

TAA Selection Method and Procedures:
Nominations for this award are made directly by the Division membership or others in the technical community. Nominations accompanied by at least three supporting letters must be submitted in writing to the THD Honors and Awards Chair by July 1. The selection committee is the THD Honors and Awards Committee. Nominations are valid for three years from the date of submittal, but are only re-entered by the nominator sending an addendum, updating the original nomination or sending a letter requesting that their candidate be reentered on the next ballot.

The THD Executive Committee is proceeding with the steps required by national ANS to allow recipients of this award to receive the additional recognition associated with "ANS National Awards." Although the THD will continue to administer the selection process and provide the monetary compensation for this award, the THD is requesting that the ANS H&A committee includes the TAA in their notices soliciting nominations, their recipient announcements, and in the awards announced at the ANS Honors & Awards Luncheon. The THD will also continue to recognize the recipient in a special session where the recipient gives a technical presentation reflecting insights on a topic associated with their research. In addition to submitting the necessary request form to the ANS Honors & Awards Committee, the ANS THD has established an account that we hope will eventually allow the TAA to become a fully endowed award. We are pleased to announce that this fund has already received $2500 in donations and contributions (we would like to thank the Thermal Hydraulics Division of Atomic Energy Society of Japan for providing a major portion of these funds!). If you or your organization would like to contribute to this fund, please contact our Treasurer, Dr. Chang Oh (Chang.Oh@inl.gov) for details.

This fall, the ANS Honors & Awards Committee will consider the application submitted by the THD to make the TAA a national award. If they recommend that the THD TAA becomes a national award (and if the ANS Board of Directors concurs), it is possible that the 2007 TAA recipient will receive recognition at the THD awards ceremony and the ANS Awards Luncheon.

NURETH-12 Announcement

The 12th International Meeting on Reactor Nuclear Thermal Hydraulics (NURETH-12) will be held from September 30 to October 4, 2007, at the Sheraton Station Square in Pittsburgh, Pennsylvania. The website for more information and abstract submission is at www.nureth12.org. We have a strong Technical Program Committee with experts in all areas of the conference topics. The key dates are as follows:

Electronic Submission of Abstracts	December 31, 2006
Author Acceptance Notification	January 15, 2007
Submission of Full Papers	March 1, 2007
Comments to the Authors	May 15, 2007
Final Paper Deadline	July 1, 2007
Author Registration Deadline	August 15, 2007
Early Registration/Hotel Reservation	August 31, 2007
Conference:	**September 30-October 4, 2007**

Please see the meeting flyer in this issue of the THD newsletter.

Kurshad Muftuoglu, muftuoak@westinghouse.com
NURETH-12 Assistant General Chair

Research Activities at the Thermal Hydraulics Laboratory, Ohio State University

Xiaodong Sun, sun.200@osu.edu
Xia Wang, Richard N. Christensen, and Don W. Miller, Ohio State University

The Thermal Hydraulics Laboratory in Ohio State University's Nuclear Engineering Program is carrying out several experimental and theoretical studies on research related to gas-liquid two-phase flows, instrumentation, and compact high-temperature heat exchangers. These activities are summarized below.

Implementation of Interfacial Area Transport Equation into a CFD Code

An accurate prediction of two-phase flow behavior in light water reactors during normal operation and accident conditions is essential to the reactor operation and safety, in particular for the advanced passive light water reactor designs. The two-fluid model is considered as the most detailed model due to its explicit treatment of the two phases. Past experiences, however, indicated that the accuracy of code predictions relies heavily on the constitutive relations in the two-fluid model, such as the interfacial area concentration, interfacial drag, etc. The interfacial area concentration is one of the geometric parameters that characterize the capability of the interfacial transfer of mass, momentum, and energy between the two phases.

In the past decade, a dynamic approach, namely, interfacial area transport equation (IATE) has been under the development to take into account the bubble coalescence and disintegration, bubble nucleation, evaporation, and condensation. In the current study, an attempt is being made to implement a one-group IATE, which is developed for bubbly flow, into a computational fluid dynamics (CFD) code. At the present, FLUENT was chosen due to its availability to the laboratory.

In the current FLUENT code, the bubble size is not dynamically modeled and the interfacial area concentration is not explicitly used. In this study, the interfacial area concentration is introduced as a user defined scalar and the IATE is implemented to solve the scalar. The interfacial area concentration is then linked with the source terms of the two-fluid model conservation equations. Preliminary results indicate that FLUENT simulates the radial distribution of the void fraction more accurately compared to that without the IATE. Figure 1 shows a comparison, in which air and water are introduced from the bottom into a vertical pipe of 50.8 mm inner diameter and a length of 3.6 m with superficial gas and liquid velocities of 0.13 and 0.49 m/s, respectively. The wall peak of the void fraction measured in the experiment is qualitatively captured by the current approach with the IATE while the original FLUENT code showed an opposite trend in the region close to the pipe wall.

Correlation Velocimetry using Fiber Optic Temperature Sensors

This program is supported by the Department of Energy INIE Program to develop a velocity measurement technique based on correlation of random fluctuations in the flow fluid using fiber optic temperature sensors. Recently developed fiber optic sensors are advantageous for temperature measurements in reactors because of their high resistance to electromagnetic interference, high sensitivity, large bandwidth, and capability of measuring high temperatures under strong radiation environments. The velocity measurement is based on correlation of random fluctuations naturally existing in the turbulent flow field, such as temperature. The measurement technique is being first developed and validated in a thermal-hydraulic experimental facility. Then, the instruments will be tested in the Ohio State University Research Reactor Laboratory and the environmental conditions expected in nuclear power plants will be simulated using the reactor to the maximum degree possible. The technique has potential applications in high temperature gas-cooled reactors, in which an accurate coolant flow rate measurement is essential.

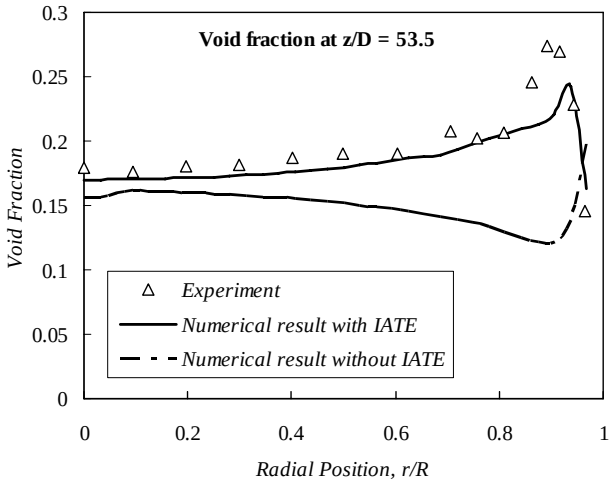


Figure 1. Radial void fraction distribution at $z/D = 53.5$

Compact High-temperature Heat Exchangers

The Very-High Temperature Reactor (VHTR) requires high-efficiency high-temperature heat exchangers in the primary coolant circuit as recuperators or as an intermediate heat exchanger for hydrogen production. A highly compact heat exchanger can also help provide enhanced safety by removing decay heat during off-normal conditions. Due to their high integrity and compactness, printed-circuit heat exchangers (PCHEs) developed by Heatric™ appear the most promising of all the compact, high-efficiency heat exchanger designs.

PCHEs are matrices formed by diffusion bonding plates into which fluid flow passages have been formed by photochemical machining. Diffusion bonding is a "solid-state joining" process creating a bond of parent metal strength and ductility. With headers and nozzles attached to the PCHE plate stacks, which are the bonded plates, the complete heat exchangers are highly compact, typically comprising about one-fifth the size and weight of conventional heat exchangers for the same thermal duty and pressure drop. However, there has never been a PCHE manufactured from materials that can withstand the high temperatures typical of VHTRs. Furthermore, there is essentially no experimental data available in the literature for the performance of a PCHE when the operating conditions deviate from the "nominal" design condition.

Due to the lack of reliable published experimental data on PCHEs for Generation IV reactor conditions, there is no theoretical model available for optimization of PCHE designs. Therefore, this program is to investigate the design, fabrication, testing, modeling, and optimization of the PCHEs for applications in VHTRs. Since other Generation IV designs may use He or supercritical CO_2 as a secondary coolant, the results of this research will also be applicable to those systems. Currently, two PCHEs will be fabricated using high-temperature Alloy 617 for different fluid applications, such as He or supercritical CO_2 on one side with He, supercritical CO_2, or water on the other side. The testing of the PCHEs will result in an extensive database that will be used to develop heat transfer and pressure drop models and to benchmark a FLUENT PCHE model. The validated FLUENT model will be utilized for future PCHE design optimization for VHTRs and other cycles that use the same or similar fluids.

New Bylaws

Ever wonder about the rules that govern the actions of your THD Executive Committee (EC)? Currently, there are four governing documents for our division (Bylaws, Manual, Rules, and Procedures), which can be found on our website (see http://thd.ans.org).

The THD Bylaws discuss the structure of the THD, membership in the THD, the THD executive committee and its officers, divisional dues, assessment for sponsorship, financial contribution/disbursement, meetings and their conduct, and dissolution of the THD. Items in this document were written to comply with governance provided by ANS. The existing Rules identify the responsibilities of each THD officer and of THD standing committees and their officers. The Manual for the THD, which was last updated in 1988, provides historical information about the THD, its mission, it organization, and it honors and awards. The Procedures, which were last updated in 1988, provides more detailed information about the process that must be followed by THD officers with respect to financial transactions and records, meeting reporting requirements, the selection and administration of THD awards, and the coordination of THD topical meetings.

To address problems within outdated division governing documents, the national ANS Bylaws & Rules Committee has formulated a new, "Standard Bylaws for Divisions or Technical Groups". These new bylaws (see http://www.ans.org/about/committees/pdc) will be formally adopted by ANS at the upcoming Winter meeting. Once they are adopted, the ANS Bylaws & Rules Committee has notified us that each division must implement minor changes, such as the name of their division, and adopt these bylaws. This requirement and whether any issues arise due to the new requirement will be discussed during the THD EC meeting at the upcoming ANS Winter Meeting. If you have any concerns or comments, please notify one (or all) of the THD members prior to our November Executive Committee meeting. Once the new Bylaws are adopted, they will be posted on the THD website. Then, EC members will start updating other governing documents so that they are current. As you might imagine, some of the information in the Manual and Procedures is outdated because these documents haven't been updated since 1988. Again, if you have any concerns or comments about this process (or would like to help us with this process), please contact us.

Executive Committee
ANS Thermal Hydraulics Division

Nominating Committee Report

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.

The THD Nominating Committee announces their slate for the 2007 Division elections as below.

Division Chair: Dr. Shripad Revankar
School of Nuclear Engineering, Purdue University
shripad@ecn.purdue.edu

Vice Chair/Chair Elect: Dr. Chang Oh
Idaho National Laboratory
chang.oh@inl.gov

Secretary: Dr. Kune Y. Suh
Dept. of Nuclear Engineering, Seoul National University
kysuh@snu.ac.kr

Treasurer: Dr. Karen Vierow
Dept. of Nuclear Engineering, Texas A&M University
vierow@ne.tamu.edu

Executive Committee (3 year term)
Dr. Kurshad Muftuoglu
Westinghouse Co.
muftuoak@westinghouse.com

Dr. Xiaodong Sun
Nuclear Engineering Program, Ohio State University
sun.200@osu.edu

Current Year THD Officers:

Division Chair: Joy Rempe, *joy.rempe@inl.gov*
Vice Chair: Shripad Revankar, *shripad@ecn.purdue.edu*
Treasurer: Chang Oh, *chang.oh@inl.gov*
Secretary: Karen Vierow, *vierow@ne.tamu.edu*

Executive Committee Members

Chang Oh (2007)	*chang.oh@inl.gov*
Karen Vierow (2007)	*vierow@ne.tamu.edu*
Jong Kim (2008)	*jkim@epriww.com*
Fan-Bill Cheung (2009)	*fxc4@psu.edu*
Whee Choe (2009)	*whee.choe@txu.com*
Yassin Hassan (2009)	*y-hassan@tamu.edu*
Hisashi Ninokata (2009)	*hninokat@nr.titech.ac.jp*
Don Todd (2009)	*donald.todd@areva.com*

Bob Martin, robertp.martin@areva.com
2006-2007 Chair
THD Nominating Committee

Newsletter edited by
Karen Vierow, vierow@ne.tamu.edu
2006-2007 Secretary
ANS Thermal Hydraulics Division

Twelfth International Topical Meeting on Nuclear Reactor Thermal Hydraulics

NURETH-12

Sheraton Station Square - Pittsburgh, Pennsylvania, USA
September 30 - October 4, 2007

Key Dates

Electronic Submission of Abstracts
December 31, 2006
Author Acceptance Notification
January 15, 2007
Submission of Full Papers
March 1, 2007
Comments to Authors
May 15, 2007
Final Papers Due
July 1, 2007
Author Registration Deadline
August 15, 2007
Early Registration and Hotel Reservation
by August 31, 2007

Honorary Chair
Novak Zuber (US NRC - Retired)
General Chair
Lawrence E. Hochreiter (Penn State)
General Co-Chair
Neil E. Todreas (MIT)
Assistant General Chair
A. Kurshad Muftuoglu (Westinghouse)
Technical Program Chair
F. Bill Cheung (Penn State)
Technical Program Co-Chair
Farouk Eltawila (US NRC)
Assistant Technical Program Chair
Karen Vierow (Texas A&M)
Steering Committee Chair
Jong Kim (EPRI/KAIST)

Conference Topics

Two-Phase Flow and Heat Transfer Fundamentals * Boiling and Condensation
Core Thermal Hydraulics * Fluids, Structures and Materials Interactions
Computational Methods and Code Development * Experimental Methods and Instrumentation
Rod Bundle Thermal Hydraulics * Thermal Hydraulics of Severe Accidents
Operating Water Reactor Thermal Hydraulics and Safety * Thermal-Hydraulics of Advanced Reactors
Generation-IV Reactor Thermal Hydraulics * Thermal Hydraulics in Waste Management
Thermal Hydraulics in Other Applications * Miscellaneous Subjects

Special Session

OECD/NRC Benchmark based on NUPEC BWR Full-Size Fine-Mesh Bundle Tests (BFBT)

For more information, visit the conference website at http://nureth12.org/ or contact:

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Prof. Karen Vierow
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Selected papers from the conference will be published in refereed archival journals as special NURETH-12 issues