

# **Minutes of the Program Committee Meeting**

## **Thermal Hydraulics Division 2008 American Nuclear Society Winter Meeting Grand Sierra Resort & Casino, Reno, Nevada 3:00 – 5:00 p.m., Sunday, November 9, 2008 Teton 1**

Attendees: Xiaodong Sun, Dana A. Powers, Joy Rempe, Dave Novog, Chang Oh, Brian G. Woods, Mike Podowski, DuWayne Schubring, Benjamin Holtzman, Jong Kim, Hisashi Ninokata, Yassin Hassan, Karen Vierow, Kurshad Muftuoglu (Chair), Seungjin Kim, Kent Welter, Heng Ban, Merzari Elia (same order as in Attachment A).

### **1. Opening**

Muftuoglu called the THD Program Committee Meeting to order at 3:00 p.m. Immediately after the opening, members of Young Members Group (YMG) expressed their thankfulness to the THD for the support of Young Professional Thermal Hydraulics Research Competition and reported that three contributions were made in the program.

### **2. Approval of Meeting Agenda**

The meeting agenda (Attachment B) was introduced and approved with minor corrections of NUTHOS-7 Update to NUTHOS-7 Wrap-up Report in the item 8.

### **3. Minutes from June 2008 Annual Meeting**

The meeting minutes from the June 2008 meeting in Anaheim, CA (Attachment C) were approved as submitted.

### **4. Action Items from June 2008 Annual Meeting**

#### **a. NURETH-14 Hosting Plans**

Muftuoglu reported that he had received so far two proposals from Canada and Italy for hosting NURETH-14.

Oh proposed that a process be defined for distribution of calls for NURETH host proposals to eliminate confusion on the outreach effort. Members decided to leave the matter until after the current distribution process was understood and the NURETH-14 selection process has been completed.

One of the proposals was submitted on time but appeared incomplete. The other proposal had not even been submitted at the time of the PC meeting, but it has key Division members listed among its conference officials and there was

concern that it may have had a potentially unfair advantage during preparation. Discussion ensued regarding resubmission of the incomplete proposal and the need to solicit new proposals in order to ensure a fair selection process.

The target screening date was previously announced as January 2009. To ensure calendar placement, it was agreed that this date should be maintained.

The screening committee members are Rempe, Cheung, Hassan, Muftuoglu, and Vierow.

*Action item: Rempe will confirm to whom the NURETH 14 solicitation was sent. If it was distributed to ANS sections (domestic as well as international), the screening committee will review only the Canadian and Italian proposals. If distribution was not as expected, new proposals will have to be solicited on a very short time schedule. After the meeting, Rempe checked with ANS headquarters and learned that Revankar had sent the call for NURETH14 to ANS Headquarters, which had then distributed it to local sections in the US and to foreign sections registered with ANS.*

*Action item: The screening committee will review the proposals and make a recommendation to the Executive Committee.*

#### b. Future NURETH Plans

Oh proposed that NURETH-14 be held in USA (or North America including Canada), followed by one outside the US (Europe or Asia), then in USA, every two years. The two proposals already received will be considered for NURETH-14.

Vierow presented an Indian proposal for NURETH-15. The proposers are requesting comments on this pre-proposal. Jong Kim stated that the Indian proposers had distributed NURETH-15 announcements with Division members listed as conference officials but without agreement of the members. Kim refused to allow comment on the proposal.

Oh stated that the Indian party had distributed an announcement that they were organizing NURETH-15 and that they did not follow ANS rules regarding announcement of their selection or conference organizers with consents. The deed was strictly against rules as well as against ethics. Several Division members were not aware of such advertisement. Oh mentioned that he would make a statement against the Indian deed and send a note to them but with some precautions so that the THD might not lose clients from India.

Kim (Jong) proposed that, since the recent NURETH and NUTHOS conferences are held regularly every two years, a constant pace should be maintained in the future having NURETH in odd years and NUTHOS in even years. The ANS

THD should play the same role for the NUTHOS conference as for the NURETH conferences. In doing so, the Division could have one strong THD topical meeting every year. PC members expressed the desire to cooperate, but also concern about the ability to support a conference every year. The differences between NUTHOS and NURETH (location, scope) were noted. No agreement was reached.

Podowski made a point that the NURETH series is and should be distinguished from the others by keeping its high technical quality of the conference. The unique aspects of the NURETH series should be better highlighted to potential participants. PC members were in unanimous agreement.

*Action: Oh will email the India proposers regarding NURETH-15 submittal.*

*Note: Oh sent an email to NUTERTH-15 organizers in India addressing the division's concerns and there was no response from them as of December 4, 2008.*

*Action: Kim (Jong) will pursue establishment of an organization scheme for future NUTHOS conferences.*

#### **5. Session Status of 2008 ANS Winter Meeting in Reno, NV (Muftuoglu)**

Muftuoglu reported on the status of the THD sessions in the 2008 ANS Winter Meeting. There are a total of six sessions, including an Award Session in the memory of Prof. Larry Hochreiter, in the meeting as follows and detailed in Attachment D. He also requested that more EC and PC members participate in the paper review process.

Session	# of Speakers	Time Slot	Chair(s)
Young Professional Thermal Hydraulics Research Competition	3	Monday p.m.	Sun
General Thermal Hydraulics	5	Tuesday a.m.	Muftuoglu
Computational Thermal Hydraulics	5	Tuesday p.m.	Woods, Powers
Award Session in the Memory of Professor L Hochreiter	2	Tuesday p.m..	Hassan
General Two-Phase Flow	6	Wednesday a.m.	Muftuoglu
Thermal Hydraulics of High-Temperature Gas-Cooled Reactor Technology	6	Wednesday p.m.	Oh, Arndt

#### **6. 2009 ANS Annual Meeting Program in Atlanta, GA (Muftuoglu)**

Proposed technical sessions are:

- General Thermal Hydraulics: Hassan, Cheung and Kim (Jong)
- Rod Bundle Thermal Hydraulics : Kim (Seungjin) and Ninokata
- Thermal Hydraulics of Advanced Reactors: Woods, Hassan and Sama-Bilbao
- Computational Thermal Hydraulics: Muftuoglu, Guillen and Luxat
- General Two-Phase Flow: Sun, Kim (Seungjin), and Saha
- Severe Accidents and Fluid-Structure Interaction: Guillen, Rempe, Vierow, and Unal
- Thermal Aspects of Nuclear Material Handling and Environmental Monitoring: Lee and Oh

For further details, see a summary report distributed at the meeting (Attachment D)

## **7. 2009 ANS Winter Meeting Program in Washington DC (Muftuoglu)**

Proposed technical sessions are:

- Special Session on Research Contributions of Prof Larry Hochreiter [All Invited]: Martin and Frepoli
- General Thermal Hydraulics (also includes General Two-Phase Flow & Computational Thermal Hydraulics): Hassan, Vierow, and Woods
- Panel on Status of Next Generation Nuclear Plant: Oh and Sun
- Fundamentals of Multi-Phase Flow: Podowski, and Kim (Seungjin)
- Panel on 10CFR50.46 LOCA Criteria Revision: Muftuoglu and Yueh

## **8. NUTHOS-7 Wrap-up Report (Oh and Jong Kim)**

On behalf of Suh, Oh and Jong Kim reported that 210 papers had been presented at the NUTHOS-7 Conference which had been attended by 260 participants. A more detailed report will be made and sent to the THD shortly. A memorial session for the late Professor Larry Hochreiter was organized during the Conference and the photos taken during the session was put into an album to be sent to Professor Hochreiter's family.

## **9. NURETH-13 Update (Ninokata)**

Ninokata provided an update on meeting preparations. The ANS final approval of the meeting was obtained at the National Program Committee this July. As of November 1<sup>st</sup>, a total of 50 abstracts have been received. This number is supposed to be good for the extended deadline of abstract submission December 31, 2008. However, there is a concern that contributions from industry are few and more efforts should be made to enhance participation from this sector. Since the NURETH conference has a long history of thorough review by three reviewers per paper, NURETH-13 should keep this tradition. The target number of paper contributions is 250 to 300. This means 750 to 900 reviewers in total. In this regard, TPC members will be asked to volunteer to review as many papers as possible.

Most of the EC members are a member of the NURETH-13 International Steering Committee. It was suggested to let the members have access to the TPC data base including the abstracts, TPC member list, etc. that are relevant to session organizing efforts. In the near term, efforts will be initiated to develop the design of plenary and keynote sessions.

**10. Old Business**

None.

**11. New Business**

None.

The meeting was adjourned at 5 p.m.

*Minutes prepared by Hisashi Ninokata*

## Attachment A-Attendee List

**Thermal Hydraulics Division Program Committee**  
**American Nuclear Society 2008 Winter Meeting**  
**Grand Sierra Resort and Casino, Reno NV**  
**3:00 – 5:00 p.m., Sunday, November 9, 2008**  
**Teton 1**

### Attendance Signup Sheet

Name	Affiliation	Email	Phone	Signature
Xiaodong Sun	Ohio State	sun.204@osu.edu	614-247-7646	Xiaodong Sun
DANA A. POWERS	NISD Lansson	dapowers@sandia.gov	505-845-9838	Dana A. Powers
Jay Renpe	INL	Jay.Renpe@inl.gov	208-526-2897	Jay Renpe
DAVE NOVOG	McMastev	novog@mcmastr.cmu.edu	905-525-9190	Dave Novog
Chang Oh	INL	chang.oh@inl.gov	208-526-5716	Chang Oh
Brian Woods	Oregon State	brian.woods@oregonstate.edu	541-737-6535	Brian Woods
MIKE PODOWSKI	RPI	podowisk@rpi.edu	518-276-4000	Mike Podowski
DuWayne Schubring	UW - Madison	dschubring@wisc.edu	608-263-2990	DuWayne Schubring
Benjamin Holtzman	University of Illinois	bholtzman@uiuc.edu	224-619-6634	Benjamin Holtzman
Jong Kim	KAIST/EPRI	jkim@epri.com	850-835-2671	Jong Kim
Hisashi Ninokata	Titech	h.ninokata@nri.titech.ac.jp	+81-3-5734-3056	Hisashi Ninokata
Yassin Hassan	Texas A&M Univ	y-hassan@tamu.edu	979-845-7090	Yassin Hassan
Karen Vierow	Texas A&M Univ.	vierow@ne.tamu.edu	979-458-0600	Karen Vierow
KURSHAD MUFTUOGLU	GE Hitai	kurshad.muftuoglu@ge.com	910-819-4556	Kurshad Muftuoglu
SEUNGJIN KIM	Penn State	sxk86@psu.edu	(814) 867-1783	Seungjin Kim
Kent Welter	NuScale	kwelter@nucscalepower.com	280-418-3298	Kent Welter
Heng Ban	Utah State Univ	heng.ban@usu.edu	435-797-2098	Heng Ban
MERZARI ELIA	Tokyo Institute of Technology	merzari@nri.titech.ac.jp	+814034365581	Merzari Elia

**Proposed Agenda**

**Thermal Hydraulics Division  
2008 American Nuclear Society Winter Meeting  
Grand Sierra Resort & Casion, Reno, Nevada  
3:00 – 5:00 p.m., Sunday, November 9, 2008  
Teton 1**

- 1. Opening (Kurshad)**
- 2. Approval of Meeting Agenda (All)**
- 3. Minutes from June 2008 Annual Meeting (Kune)**
- 4. Action Items from June 2008 Annual Meeting (Kurshad)**
  - a. NURETH-14 Hosting Plans
  - b. Future NURETH Plans
- 5. Session Status of 2008 ANS Winter Meeting in Reno, NV (Kurshad)**
- 6. 2009 ANS Annual Meeting Program in Atlanta, GA (Kurshad)**
- 7. 2009 ANS Winter Meeting Program in Washington DC (Kurshad)**
- 8. NUTHOS 7 Wrap-up Report (Kune)**
- 9. NURETH-13 Update (Hisashi)**
- 10. Old Business (All)**
- 11. New Business (All)**

**Minutes of the Program Committee Meeting**

**Thermal Hydraulics Division  
2008 American Nuclear Society Annual Meeting  
Disneyland Hotel, Anaheim CA  
3:00 – 5:00 p.m., Sunday, June 8, 2008  
Disney Exhibit Hall Room I**

Attendees: K.Y. Suh, C. Unal, S.Y. Lee, S. Kim, K. Muftuoglu, F. Bill Cheung, J.H. Kim, C. Oh, S.T. Revankar, X. Sun, D.A. Powers (NISD Liaison), B.G. Woods, H. Ninokata, P. Saha, L. Leung, Y.A. Hassan, J. Rempe, J. Luxat, D. Guillen, S.B. y Leon (same order as in Attachment A)

**1. Opening**

Muftuoglu called the THD Program Committee Meeting to order at 3:08 p.m.

**2. Approval of Meeting Agenda**

The meeting agenda (Attachment B) was introduced and approved with minor corrections. The Committee also discussed the letter from Dr. Wulff (Attachment C). The Committee members noted that ‘adequate peer review’ for a computer code differed depending on its application. It was thus concluded that it would be difficult to develop ‘rules’ that would be generally agreed upon and accepted by various journals that publish thermal hydraulic papers.

**3. Minutes from November 2007 Winter Meeting**

The meeting minutes from the November 2007 meeting in Washington, DC (Attachment D) were approved as submitted with a minor fix for S. Kim.

**4. Action Items from November 2007 Winter Meeting**

a. NURETH-13 Hosting Plans

Ninokata briefed the committee that the conference would be held in Kanazawa, Japan from September 27 through October 2, 2009. The meeting category is Class IV. The Local Organizing Committee was established and had its first meeting in February 2008 at Nikko Hotel, Kanazawa, 100 km north of Kyoto, Japan. The National Program Committee is to grant preliminary approval in July in Chicago, IL.

b. NURETH-14 Host Planning



Muftuoglu announced that the proposals would be evaluated using the attached criteria (Attachment E). For the conferences organized abroad, there cannot be a financial liability on the part of the society; therefore any revenue sharing is completely at the organizing institution discretion. Since the vitality of the division and the support for future activities depend on the revenue from these meetings, consideration will be given to favorable financial arrangements. Organizations are encouraged to propose alternate ways to provide financial support to THD. Interested parties should send their proposal electronically to the NURETH Proposal Screening Committee members: Rempe (Chair), Cheung, Hassan and Muftuoglu. The screening committee members will forward only the complete applications to the NURETH Selection Committee. The committee will evaluate and rank the proposals; then will make their recommendation to the THD Executive Committee for voting on the final decision. Selection of NURETH-14 (2013) will be completed by June 2009 giving organizers enough time for meeting planning and preparations.

**5. Session Status of 2008 ANS Annual Meeting in Anaheim, CA**

Muftuoglu reported on the status. There are a total of six sessions, including a panel and two half-length sessions, in the meeting as follows (Attachment F).

Session	# of Speakers	Time Slot	Chair(s)
Computational Thermal Hydraulics –I	5	Monday p.m.	Woods
Thermal Hydraulic Aspects of Nuclear Hydrogen Systems (Panel)	6	Tuesday a.m.	Oh, Revankar
Two-Phase Flow Experimentation	8	Tuesday p.m.	Sun, Hassan
General Thermal Hydraulics – In Memory of Gunol Kojasoy	8	Wednesday a.m.	Vierow, Kim
Computational Fluid Dynamics Analysis of Rod Bundles	3	Wednesday p.m.	Ninokata
Computational Thermal Hydraulics – II	5	Wednesday p.m.	Guillen

This item was covered simultaneously with item 6.

**6. Review of Session Assignments and Feedback**

There were a total of 29 summaries, including 2 transfers from other divisions. Five of these summaries were accepted without further comments, 23 were accepted with revisions, and only one was rejected unless revised, which was later accepted to the meeting after the authors implemented the reviewer comments. There were no rejections due to failure of following the format guidelines. Reviews went smoothly.

All the papers received adequate review on a timely basis. Only 8 had the minimum number of reviews, 14 had three reviews, 6 had four or more. There were a total of 86 review recommendations from 19 reviewers.

#### **7. 2008 ANS Winter Meeting Program in Reno, NV**

Proposed technical sessions are:

- General Thermal Hydraulics: Revankar, S. Kim, Vierow, Rempe, Woods, Todd
- Young Professional Thermal-Hydraulics Research Competition: Todd, Marshall
- NUTHOS-7 Highlights: Suh, J.H. Kim, Ninokata
- General Two-Phase Flow: S. Kim, Sun, Cheung, Vierow
- Computational Thermal Hydraulics: Woods, Guillen, Saha, Ninokata, Hassan, Muftuoglu
- Thermal-Hydraulics of High-Temperature Gas-Cooled Reactor Technology: Oh, Sun, Marshall, Hassan

For further details, see a summary report distributed at the meeting (Attachment G).

Action Item: PC members shall solicit summaries.

#### **8. Update on Session Organizer Participation**

Action Item: Muftuoglu will email organizers reminding them of their duties and assignments.

#### **9. 2009 ANS Annual Meeting Program in Atlanta, GA**

Proposed technical sessions are:

- General Thermal Hydraulics (Hassan, Cheung, J.H. Kim)
- Rod Bundle Thermal Hydraulics (S. Kim, Ninokata)
- Thermal Hydraulics of Advanced Reactors (Woods, Hassan, Leon)
- Computational Thermal Hydraulics (Muftuoglu, Guillen, Luxat)
- General Two-Phase Flow (Sun, Kim, Saha)
- Severe Accidents and Fluid-Structure Interaction (Guillen, Rempe, Vierow, Unal)
- Thermal Aspects of Nuclear Material Handling and Environmental Monitoring (Lee, Oh)

The last item had initially been discussed as a session on 'Groundwater Performance Assessment' or 'Spent Fuel Thermal Hydraulics.' The organizers emailed Muftuoglu their proposal after the meeting.

#### **10. NURETH-13 Update**

Ninokata provided an update on this meeting as summarized in Attachment H. The Local Organizing Committee activities are in good shape. Now, efforts are being

made in the Technical Program Committee activities. The ANS final approval of the meeting shall be obtained at the National Program Committee this July. Although it might be a little too late by now, the topical meeting manual indicates that the final approval request may be sent to NPC 8 to 12 months in advance. Also, the guidelines for the Class IV category tend to be loose compared to those for Class I or III. At the moment they are in the process of identifying sessions and chairpersons. They are believed to wrap it up no later than the 2008 ANS Winter Meeting in Reno, NV, and be ready to send the request.

#### **11. NUTHOS-7 Update**

Suh provided a brief update on the conference as summarized in Attachment I. He reported that there were a total of 271 abstracts received from 26 countries. The upcoming dates are June 30, 2008 for full manuscripts; July 31, 2008 for notification of acceptance; August 29, 2008 for camera-ready manuscripts and pre-registration. He repeated that selected peer-reviewed papers will be recommended for publication in archival journals of Nuclear Science & Engineering, Nuclear Technology, Nuclear Engineering & Design, and Nuclear Engineering & Technology.

#### **12. Old Business**

None.

#### **13. New Business**

None.

The meeting was adjourned at 4:58 p.m.

*Minutes prepared by K.Y. Suh*

**ANS 2009 Annual Meeting (Atlanta, GA)  
THD-Sponsored Sessions**

**General Thermal Hydraulics**

Yassin Hassan (Texas A&M)  
Fan-Bill Cheung (Penn State)  
Jong Kim (EPRI)

In this General Thermal Hydraulics session the following subjects are solicited: Small and large-scale thermal-hydraulic experiments, laboratory and industrial measuring methods for thermal-hydraulic processes, basic single, two-phase and multiphase flow and heat transfer, thermal hydraulics simulations, system and component thermal-hydraulic codes development, separate thermal-hydraulic effects (critical heat flux, flooding, flow pattern transitions, two-phase choked flow, etc.), sub-channel thermal hydraulics, containment thermal hydraulics and aerosol transport, integral nuclear power plants behaviors under transient and malfunction conditions, thermal-hydraulics of molten core and severe accidents, coupling to system codes (like neutron kinetics, BoP, I&C).

(SA1215611737)

---

**Rod Bundle Thermal Hydraulics**

Seungjin Kim (Penn State)  
Hisashi Ninokata (Tokyo Inst. of Tech)

The session is intended to provide an opportunity for engineers and scientists to present recent developments in applications of computational fluid dynamics (CFD) to nuclear fuel rod bundle thermal hydraulics. Papers are solicited which deal with any aspect of Rod Bundle Thermal Hydraulics. Types of flow may include: laminar or turbulent, compressible or incompressible, steady or unsteady, and single- or multi-phase flows. A wide range of computational techniques are encouraged. Techniques may include finite difference/volume, finite elements, large eddy simulation, direct numerical simulation, and vortex simulations. Examples of topics include modeling techniques, turbulence anisotropy phenomena, buoyant flows, evaluation and interpretation of computational results, CFD code comparison and benchmarking, and uncertainty determination.

(SA1215611779)

---

**Thermal-Hydraulics of Advanced Reactors**

Brian Woods (Oregon State)  
Yassin Hassan (Texas A&M)  
Sama Bilbao Leon (IAEA)

This session is intended to provide a forum for the presentation of recent work involving advanced reactors including Gen III+ and Gen IV, as well as space and other innovative applications. Topics anticipated include thermal-hydraulic design, performance, process studies, and limits of these advanced systems. Nuclear professionals supporting Prismatic or Pebble-Bed Gas Reactors, Gas Fast Reactors, Supercritical Water Reactors, Liquid Metal Reactors, Molten Salt Reactors, etc. as they apply to power generation, process heat systems, hydrogen production, or other relevant activities are encouraged to submit their work.

(SA1215611681)

---

**Computational Thermal Hydraulics**

Kurshad Muftuoglu (GE Hitachi)  
Donna Guillen (INL)  
John Luxat (McMaster Univ.)

This session will provide an opportunity for engineers and scientists to present new, significant work in the area of computational thermal hydraulics. Authors and presenters are invited to participate to expand understanding and share experiences in the area of code development, application, validation and verification, benchmarking, and uncertainty quantification. Papers presenting results, new developments, and novel concepts in computational techniques and code coupling with neutronic, thermal hydraulic, and/or computational fluid dynamics capabilities are also solicited.

(SA1215611919)

---

**General Two-Phase Flow**

Xiaodong Sun (Ohio State)  
Seungjin Kim (Penn State)  
Pradip Saha (GE Hitachi)

This session is intended to provide an opportunity to the engineers and scientist to present recent developments in basic two phase flow and heat transfer. In this sessions the following subjects are solicited: experiments in basic two phase flow and heat transfer involving gas and liquids, gas and solids in pipe or channels; instrumentation and new methods of measurement of two-phase flow parameters such as interfacial area concentration, void fraction and bubble drift velocity; development of models on key two-phase flow phenomena, such as boiling and condensation, entrainment, flooding, critical flow, flow regime transition, and others.

(SA1215611975)

---

**Severe Accidents and Fluid-Structure Interaction**

Donna Guillen (INL)  
Joy Rempe (INL)  
Karen Vierow (Texas A&M)  
Cetin Unal (LANL)

This session is intended to provide a forum for the presentation of recent work to increase our understanding of, and to develop practical measures against, severe accident progression. Topics may include recent experimental results, investigations to evaluate proposed methods for mitigating consequences, and enhancements to methods for predicting event progression. In particular, authors are encouraged to address topics directly applicable to advanced reactors proposed for design certification or currently under construction.

(SA1215612038)

---

**Thermal Aspects of Nuclear Material Handling and Environmental Monitoring**

Si Young Lee (SRNL)  
Chang Oh (INL)

Global Nuclear Energy Partnership (GNEP) program is seeking to bring about a significant and global expansion of nuclear energy while decreasing the risk of nuclear weapons proliferation and effectively addressing the challenge of nuclear waste disposal. Key part of this program includes safety analysis of nuclear material handling & transportation, technology development of radioactive waste treatment & processing, performance assessment of spent nuclear fuel storage facilities, and environmental monitoring related to non-proliferation issues. This session would focus on the thermal performance or management aspects of the nuclear material storage, handling or transport, and the environmental impact assessment related to various nuclear safeguards. Authors and presenters are invited to participate in this session to expand international cooperation, understanding and promotion of efforts and disciplines in the area of a comprehensive nuclear fuel cycle development.

(SA1215612078)