

**MINUTES**  
**ASME HEAT TRANSFER DIVISION**  
**K-7 STANDING COMMITTEE ON THERMOPHYSICAL PROPERTY**

**FRIDAY, JUNE 28, 2002**

**9 a.m. – 5 p.m.**

**NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY**  
**BUILDING 2 – CONFERENCE ROOM 1019**  
**BOULDER, COLORADO**

Attending: James Ely, Dan Friend, Mickey Haynes, Jim Holste, Dick Jacobsen, Tony Overfelt, Jan Sengers, George Thomson (by phone), Neil Wright

Not attending with notification: Andreas Mandelis, Jim Olson, Steve Penoncello, Rajiv Singh, Zhuomin Zhang

Not attending: Rajat Basu, David Dandy, Peter Kezios, John Kincaid, Paul Mathias.

1. Call to Order, 9:00 am
2. Review of Agenda
3. Review of Action Items from June 29, 2001 meeting.

3a. The following resolution of the K-7 Committee was considered:

Resolved:

The passing of Dr. Thomas F. Irvine, Jr. on June 2, 2001, saddens the members of the ASME Heat Transfer Division K-7 Standing Committee on Thermophysical Properties. Dr. Irvine served as a member of the K-7 committee for many years, and his service will be greatly missed. His dedication to this committee was exemplified by the honors bestowed upon him by the ASME as a Fellow of the Society and with the prestigious Heat Transfer Memorial Award in 1992. The K-7 Committee members will miss his active participation and thoughtful insight.

The motion carried unanimously.

**A/I Dick Jacobsen: contact John Kincaid for address of family so that the resolution can be communicated by letter.**

3b. Jan Sengers proposed the following resolution to express the gratitude of the committee for the efforts of Dr. Pablo Debenedetti for his contributions to the formation of the Joint ASME-AIChE Committee on Thermophysical Properties.

Resolved:

The members of the Ad hoc Joint Committee on Thermophysical Properties appreciate the good work of Professor Pablo Debenedetti of Princeton University on behalf of this committee. His work with AIChE has been invaluable in moving forward the proposal for a Joint ASME-AIChE Committee on Thermophysical Properties.

The motion carried unanimously.

**A/I Jan Sengers: will communicate the committee's appreciation to Dr. Debenedetti. In addition, the committee will send a copy of the minutes to Dr. Debenedetti .**

3c. HTD webpage link for the K-7 webpage is working as of June 27, including announcement for 15<sup>th</sup> Symposium.

3d. Meetings and schedules for future NHTCs.

2003 Heat Transfer conference won't be the same as in the past. ASME will run the 2003 conference itself. That conference will be in Las Vegas in late July or early August.

K7 will have two sessions at 2002 IMECE. Further discussion deferred to later in the meeting.

3e. Touloukian Award fund value and historical rate of increase (completed – information sent to K-7 members, October 17, 2001). Total was \$ 36,158.00 as of 5/29/02.

3f. Rajiv Singh was invited for membership (completed July 7, 2001); he accepted membership.

4. Restructuring of the committee – finalizing of committee bylaws and proposal to ASME and AIChE; confirmation of calendar (minor revisions to agree with proposal).

There were some issues in the May draft of the proposal and bylaws that needed to be addressed. Discussion was needed to resolve redundancies and conflicts between the two documents. These items were tabled until after the next item.

5. Dick Jacobsen reported on the session at 2001 IMECE -- Thursday, November 15, 2001. It was a good session with well-presented papers, but few attendees.

6. Restructuring of the committee. Several members have provided comments and corrections to the May proposal and bylaws. Discussion details follows:

George Thomson commented that there are three members of K-7 that are also AIChE members. George suggested removing ( )'s from (also), and changing "support of the formation" to "support for the formation".

Dan Friend noted that there are other members who belong to both societies, including, at least, himself. The list of K7 members attached to the Proposal was corrected to reflect society membership. Furthermore, the wording was changed by changing "there are 3" to "several".

Name of the committee: Jan Sengers commented that it was good to have "Joint" in the title to reflect the Society's and Institute's cooperation in forming the new committee. It was further noted that the dash will be used to denote equality, and that ASME will be listed first in light of the historical origins of the Joint Committee.

The title was chosen by consensus as:

**JOINT ASME-AIChE COMMITTEE ON THERMOPHYSICAL PROPERTIES**

Under the Mission section, George Thomson noted that the Joint Committee sponsors sessions at national and international society meetings. Further discussion noted that "as interest dictates" suggests that there was no need to name specific meetings in the Proposal or Bylaws. The last sentence of the Mission section now reads:

The committee also organizes sessions, as interest dictates, at appropriate ASME and AIChE sponsored meetings.

George Thomson's contact information will be added to the membership list. George has asked that Martin Schiller be added to the committee because he is more active in technical issues. Dick Jacobsen encouraged George Thomson to nominate Martin Schiller for the committee's consideration.

Jan Sengers stated that we have need for both the technically active members and visionaries who may not be as technically active, but may provide perspective with respect to a large portion of the thermophysical property field.

George Thomson asked for clarification on the two-thirds majority requirement for voting on new members. Is it two-thirds of the members present or two-thirds of all members? Jim Ely suggested using e-mail voting so that two-thirds of the entire committee may be the rule. Dan Friend asked about historic response to e-mail messages and requests for information and replies. Jan Sengers stated that e-mail ballots should also be an indication of member's interest. Tony Overfelt suggested that the wording be "two-thirds of the committee," with the understanding that reasonable efforts will be made to solicit responses from the full committee. The consensus of those attending was that the wording is adequate as written in May 2002.

Jan Sengers suggested that the draft is vague about the K-7 identity. George Thomson suggested that it is okay to be vague, and that this may be an advantage, as long as ASME has the K-7 identified. Membership in K-7 and membership in the Joint Committee will be by the same vote. The sentence remains unchanged.

George Thomson suggested that the officers be nominated by the committee members and then voted in by a two-thirds vote. Dan Friend suggested that a majority vote of the members present at the committee meeting should be sufficient. It was noted that the voting takes place, except in rare circumstances, at the symposium, where the maximum number of attendees are available. The consensus was that officers should be elected by majority vote. The wording in the Bylaws was changed to reflect that officers are to be nominated by committee members and elected by majority vote of the committee, usually at the meeting after the Triennial Symposium.

Jan Sengers expressed concern with respect to the description of the Touloukian Award Committee. Because the Touloukian Award is an ASME national award, the Award committee should be composed of ASME members. Membership must be specified in the bylaw governing the Touloukian Award Committee. This must be changed in the proposal and the bylaws.

The Proposal and Bylaws now read:

Because the Yeram S. Touloukian Award, which is presented at each Symposium, is an ASME National Award, members of The Touloukian Award Subcommittee will be composed of ASME members.

The question was raised as to the method by which the bylaws would be changed. A statement was added to the bylaws.

Jan Sengers asked about the schedule for the K-7 committee review of the Proposal and Bylaws. Three weeks after these documents are sent to the committee for review is suggested so that these changes can be added and considered by the K7 members via e-mail and submitted to the ASME and AIChE for approval.

**A/I: Dick will represent the Ad hoc Joint Committee for interactions with the ASME with respect to the Proposal and Bylaws and Jan will do the same with the AIChE.**

Dan Friend moved to approve, with changes, the Proposal and Bylaws for forwarding to the AMSE and AIChE for approval. Tony Overfelt seconded this motion. The motion carried unanimously.

#### 7. Status of 15<sup>th</sup> Symposium Plans and Preparations

Dan Friend presented for himself and Andreas Mandelis.

Dan Friend thanked the members for their help. A number of the organizational issues of size and having multiple venues are being worked.

Accomplishments -- 3800 first announcements printed, about 3000 being sent out in March. Copies available for those going to meetings. Fliers to about 250 bad addresses have been returned (mainly from overseas, especially China). There have been about 50 initial interest responses. Expected to have a few more (Mickey notes that there were about 250 by the time of the second announcement for previous symposia). The web-based system is going to accept abstracts after the second announcement. There may be a problem with Greek letters, subscripts, and such. Dan Friend would like to limit the format to Word. Neil Wright asked that we consider accepting other formats as well, such as LaTeX.

**A/I: Jim Ely agreed to develop style files in word and LaTeX for abstract submission to the Symposium.**

Parallel sessions will still be a problem (up to 10 or 11 sessions at one time, though at levels beyond nine it may be with software demonstrations).

Dan presented the temporary schedule. First, Dan reviewed the sessions of the 14<sup>th</sup> Symposium. New sessions are being developed.

The Committee emphasized that each special session has relevance to the symposium with respect to properties measurement; specifically noted was "Biothermophontonic diagnostics and imaging".

A question was raised about the interest in "Inverse Problems in Thermophysics". In response it was noted that this is of interest, especially in the solid-state area, where it plays a critical role in the design of experiments, for example.

There was some discussion as to the wording of "Non-destructive Evaluation with Thermophysics" and the interest in "Thermophysical Properties of Biomaterials"

Sessions and session topics may be added if interesting abstracts come in for a single thematic area that has not been anticipated.

"Nano-scale and sub-second thermophysics" have been combined. Jan Sengers suggested that there may be a need to get "nano-materials" into the title and that there is a need to maintain "Sub-second thermophysics" as a separate session -- a more reflective title may be "Short Time-Scales".

Debate ensued that properties must be more emphasized: "Photothermal and Photoacoustic Processes" might better be entitled "Photothermal and Photoacoustic Techniques for Property Measurement".

"Properties at Extreme Conditions, including in Low Gravity" -- Jan Sengers recommended a separate session on "Properties in Low Gravity". There needs to be an advocate and session chair for "Properties at Extreme Conditions".

**A/I: Dan Friend will ask R. F. Berg to test the sense of an "extreme conditions." sessions.**

Publications from the last Symposium:

JCED: 23 papers, 111 pages.

Fluid Phase Equilibrium: 73 papers, 830 pages.

IJT: 200 Papers ~7 issues

Mickey Haynes asked if 23 papers warranted continuing participation with JCED?

Jan Sengers moved that for this Symposium we use only Fluid Phase Equilibrium and IJT for publication. Jim Holste seconded the motion. The motion carried unanimously.

Dan Friend asked that the acknowledgment to the conference be included in the published paper. The journals and their publishers have been removing the acknowledgements. It was noted that this is a problem for academics who need publications for tenure and promotion; there is a prejudice against conference papers without regard to the rigor of review of the individual conference.

Mickey Haynes asked if there is an overlap between sub-second and metallurgical processes.

**A/I: Mickey Haynes will check with Dr. Kaschnitz - about sub-second topics and coverage.**

Complex systems and polymeric systems are now combined.

**A/I: Dan Friend will call Charles Han about being session chair and about the possibly of a co-chair (perhaps a domestic one to help facilitate arrangements).**

"Fuels" has been added to "Natural Gas Systems".

"Fluids" has been added to "Refrigerants" because of anticipated reduced interest in the latter.

"Theory and Modeling of Thermophysical Properties", is a proposed "catch-all" session designated a "special session" so that there is a session chair early in the process of organization.

Candidates are being recruited to organize "Thermophysical Properties of Biomaterials" and "Thermophysical Properties of thin films and interfaces"

Upon discussion of the compatibility of "thin films" and "interfacial properties," Dan Friend noted that the alternative to some of these combined topics was to have more sessions, although it complicates parallel-session conflicts.

A session on "ionic liquids" was suggested with possible organizers discussed.

Some discussion ensued as to the meaning of "ionic liquids" are these mixtures, for example? It was noted that electrolytic solutions are different from "ionic liquids".

I/KM (Information and Knowledge Management). Jim Olson has been asked by Dan to explore this with respect to fluid properties.

Suggestions were made for sessions on "Thermophysical properties far from equilibrium" and adding "meso-scale" to "complex systems".

It was suggested that there be two organizers for each "Thin Films and Interfaces" and "Short Time/Length Scales".

Experimental techniques will morph to "Novel Measurements and techniques" or similar.

Some suggestions for sessions and modification of session names

Properties of Solids.

Fluid Property Measurements.

Properties for Biothermophotonic Diagnostics and Imaging.

Photothermal and Photoacoustic Techniques.

Charge to organizers: asked to solicit contributed papers and recommend invited papers, help with acceptance decisions, appoint session co-chairs, handle reviews.

Second announcement will come out in the late summer or early fall.

Poster sessions are doubtful.

About 200 are needed so that parallel sessions will be covered. Only one of the 50 early responses expressed a willingness for participating in a poster session.

Consensus was to maintain the freedom of having poster sessions, without committing to them at this time.

Plenary Sessions (4 talks) -- Dan Friend initially requested a volunteer to chair the efforts of coordinating the plenary sessions, but was persuaded that he should perform the task himself. Jan Sengers offered assistance with finding plenary speakers. Johanna M.H. Levelt Sengers was suggested as one who may be able to suggest speakers.

Specific speakers and topics for the plenary sessions were discussed, but individual names will not be included in these minutes.

-- Thermophysical properties of Nano-materials.

-- Bose-Einstein Condensate

Green Chemistry / Ionic Fluids ??

Energy former CEO and astronaut ??

Richard Jacobson on Perspective of thermophysical properties, with possible connection to energy.

Jan Sengers suggests that it is valuable having a speaker from abroad.

German gas business

It was also suggested to scan recent ACS and AIChE award winners.

**A/I: Dan Friend will send an e-mail soliciting sessions.**

Publicity: The announcement of the Symposium now appears in ASME website listings.

Suggestions for other venues: IJT? High Temperatures / High Pressures? (AIChE website and publications unlikely this time since the Joint Committee is yet to be approved.)

**A/I: Dan Friend will send to a letter to Japan Thermophysical committee and an e-mail to Trusler in Europe.**

Budget is not yet in hand. Formal proposal from University is due this summer. The last time the registration fee was \$325. This time registration fee may be about \$400 as the University costs have risen dramatically.

Fees have been typically waived for those from Eastern Europe and former USSR, and for invited speakers. It is suggested that there be three categories: invited papers, invited papers but without money, submitted papers. Consensus is to keep the current system, but treat fee on a case-by-case basis. Waive fee if the paper is one we "must get". Session organizers will be told that in special cases the fee may be waived, but organizers must make recommendations to Dan Friend who will make the final decisions. Some NIST money might be available for domestic travel for foreign speakers.

Arrangements for ancillary meetings, typically before and after the Symposium, need to be made. For example: TRC, DIPPR, IATP (formerly, IUPAC), K-7 meetings before and after, Thermophysics Congress, IJT editorial board.

**A/I: members aware of such meetings must notify Dan Friend.**

#### 8. Other conferences

At the 2001 IMECE K-7 session - 24 was the maximum attendance, but steady state attendance was considerably smaller -- mostly the speakers themselves. It is noted that this is typical of many sessions at IMECE. There were good papers presented and good discussion following.

At the 2002 IMECE K-7 has two sessions on - Thermophysical Properties in Nano- and Micro materials. Neil Wright is Session Chair and Zhuomin Zhang is Session Co-chair. Twelve papers have been reviewed and are expected for presentation.

No sessions are planned for the 2003 ASME Heat Transfer Conference and at the 2003 IMECE, due to the close scheduling with the 15th Symposium. K-7 is interested in participating in future such meetings when there is no conflict with Symposia, i.e. two out of every three years.

**A/I: Neil Wright to contact Carey.**

**A/I: Neil Wright will contact Russell Skocypec, HTD program chair for 2003 IMECE, about the deadlines for proposing sessions and will inquire about co-sponsoring sessions.**

K-7 will submit topics for sessions in 2004 IMECE and will notify the HTD after the 15th Symposium of the topics.

Mickey proposed that the 16th Symposium in 2006 be a joint meeting with ICCT (International Committee on Chemical Thermodynamics). ICCT meets every second year, rotating between Europe, Asia, and the Americas. Asked Colorado University (CU) about policy and dates for a conference of 800 participants. CU suggests between summer session and fall session (first week in August), which works for each group. ICCT is interested. The sense of the committee is that these will be separate conferences in the same location, having some joint plenary sessions, but each conference keeps its own identity. Each conference will provide their own organizing committee, and a small joint executive committee to facilitate the joint interests. Mickey will make presentation at Rostock.

#### 9. Touloukian Award Nominations—Jan Sengers

Concerned about lack of nominations. One nomination is known to be coming. (A solid-state person.) Touloukian Award Committee members are ineligible to offer nominations. Need new nominations. Dick Jacobsen knows of another nomination in the fluids area.

**A/I for K-7 committee: Nominations for the Touloukian Award should be sent to Jan Sengers.**

Jan is still against an honorarium for the award, but is in favor of paying for the travel expenses.

After some discussion, Jan moved, Mickey seconded: It is proposed to modify the rules of award to reimburse the recipient for attendance at the meeting where the award is given (according to the ASME rules of reimbursement). The motion carried unanimously.

**A/I: Dick Jacobsen will contact ASME for the precise statement of the current rules of award and will use the sentiment of the committee to develop a statement for including travel expenses to the awardee.**

#### 10. Membership

Nominations for new members should be sent to the chair prior to the next meeting.

#### 11. Officers

Nominations for officers are needed for next year. The date for transition of the officers (Chair, secretary, web-master) is 1 July 2004 and the elections are at the Symposium 2003. A vice-chair (newly formed office for the Joint Committee) will take office immediately after elections.

#### 12. New Business

George Thomson announced that there will be a DIPPR dinner at the beginning of the AIChE meeting (Indianapolis in November) to recognize Evan Buck, Al Larson and Costa Tsonopoulos.

The meeting was adjourned at 4:37 pm.

#### Post meeting note:

Nominations for officers of the Joint ASME-AIChE Committee should be sent to Dick Jacobsen. (Inquiries may be made in confidence.) Members are reminded that elections will be held at the end of the Symposium in 2003.