

## ASME Adaptive Structures and Material Systems Technical Committee Meeting

ASME International Mechanical Engineering Congress and Exposition

Tuesday, November 19, 2002 7:30-9:30PM

Hilton New Orleans Riverside

Grand Salon/Section 10 First Floor

### Meeting Attendees

#### Members:

Greg Carman, UCLA	<a href="mailto:carman@seas.ucla.edu">carman@seas.ucla.edu</a>
Inderjit Chopra, Univ. of MD	<a href="mailto:chopra@eng.umd.edu">chopra@eng.umd.edu</a>
Marcelo Dapino, Ohio State	<a href="mailto:dapino.1@osu.edu">dapino.1@osu.edu</a>
Porter Davis, Honeywell	<a href="mailto:porter.davis@honeywell.com">porter.davis@honeywell.com</a>
Alison Flatau, University of Maryland	
Mary Frecker, Penn State	<a href="mailto:mxf36@psu.edu">mxf36@psu.edu</a>
Mehrdad Ghasemi-Nejhad, U. Hawaii Manoa	<a href="mailto:nejhad@wiliki.eng.hawaii.edu">nejhad@wiliki.eng.hawaii.edu</a>
Victor Giurgiutiu, U. South Carolina	<a href="mailto:victorg@sc.edu">victorg@sc.edu</a>
Dan Inman, VPI	<a href="mailto:dinman@vt.edu">dinman@vt.edu</a>
Dimitris Lagoudas, TAMU	<a href="mailto:lagoudas@aero.tamu.edu">lagoudas@aero.tamu.edu</a>
Don Leo, VPI	<a href="mailto:donleo@vt.edu">donleo@vt.edu</a>
Doug Lindner	<a href="mailto:lindner@vt.edu">lindner@vt.edu</a>
Arnold Lumsdaine, U. Tennessee	<a href="mailto:alumsdaine@utk.edu">alumsdaine@utk.edu</a>
Chris Lynch, GA Tech	<a href="mailto:chris.lynch@me.gatech.edu">chris.lynch@me.gatech.edu</a>
John Main, DARPA	<a href="mailto:jmain@darpa.mil">jmain@darpa.mil</a>
Elio Manes, ASME	<a href="mailto:manese@asme.org">manese@asme.org</a>
Jeff Martin, Sandia National Laboratories	<a href="mailto:jwmarti@sandia.gov">jwmarti@sandia.gov</a>
David Martinez, Sandia/DOE	
John Main, DARPA	<a href="mailto:jmain@darpa.mil">jmain@darpa.mil</a>
Roger Ohayon, CNAM/Paris	<a href="mailto:ohayon@cnam.fr">ohayon@cnam.fr</a>
Muhammad Qidwai, Geo-Centers	<a href="mailto:qidwai@anvil.nrl.navy.mil">qidwai@anvil.nrl.navy.mil</a>
Jim Redmond, Sandia National Laboratories	<a href="mailto:jmredmo@sandia.gov">jmredmo@sandia.gov</a>
Janet Sater, IDA	<a href="mailto:jsater@ida.org">jsater@ida.org</a>
John Shaw, U. Michigan	<a href="mailto:jashaw@umich.edu">jashaw@umich.edu</a>
HS Tzou, University of Kentucky	<a href="mailto:hstzou@engr.uky.edu">hstzou@engr.uky.edu</a>
Kon-Well Wang, Penn State	<a href="mailto:kwwang@psu.edu">kwwang@psu.edu</a>
Greg Washington, Ohio State	<a href="mailto:washington.88@osu.edu">washington.88@osu.edu</a>

### Minutes

The meeting started at 7:30 pm. A copy of the final agenda is attached.

**1.0** Members, friends, and visitors in attendance were introduced.

- 2.0** Minutes from the Technical Committee meeting at the 2002 SPIE meeting in San Diego were circulated. A motion was forwarded to accept the minutes subsequent to minor corrections to be submitted by Janet Sater. The motion was passed without objection.
- 3.0** Three candidates were nominated for committee membership: Bill Armstrong (nominated by Jim Redmond), Jeff Martin (nominated by John Main), and Marcelo Dapino (nominated by Greg Washington). The nominations were discussed and passed without objection. A discussion followed concerning optimal committee size, and Elio Manes cited ASME by-laws establishing a limit of 40 members on the technical committee.
- 4.0** Vice Chair John Main, who according to TC operating procedures was due to assume the Chair at the conclusion of the meeting, withdrew his name from consideration citing a possible conflict of interest due to his new position at DARPA. Since the TC operating procedures don't dictate a contingency plan in this event, a motion was forwarded by Janet Sater and passed by consent to allow open floor nominations for both chair and vice chair. Jim Redmond was nominated for chair by HS Tzou, but respectfully declined the nomination. Alison Flatau was nominated by John Main for chair, and was unanimously approved by the committee. Inderjit Chopra nominated Chris Lynch for Vice-Chair, which passed by unanimous consent of the committee.
- 5.0** John Shaw and Mary Frecker provided a summary of the on-going Adaptive Structures Symposium. Of the 72 abstracts submitted, 58 presentations were accepted into 13 sessions. 46 presenters provided papers for the proceedings. While the sessions were generally well attended, the TC members expressed their concern over the session assignment process that resulted in a three day symposium. Since the TC sponsors approximately half of all the sessions allotted to the AERO division (comprising of 4 separate TCs), the members expressed a strong desire to be given a better selection of sessions. Mary Frecker and Don Leo distributed a draft CFP for the 2003 symposium in Washington DC, and expressed an interest in returning to a two day format. Greg Carman agreed to look into this. Jim Redmond suggested that Mary and Don submit a request for special session, in hopes of returning the symposium back to its peak participation of 2000. Elio Manes described the new web-based submission process that is being implemented by ASME for the 2003 Congress. Don and Mary agreed to attend a training session being offered.
- 6.0** The AIAA Adaptive Structures conference was briefly discussed. The 2002 meeting organized by Dian Brei and Vit Babuska featured approximately 60 papers in 10 sessions. For the 2003 meeting, Greg Agnes is assisting Vit, and reports indicate the 57 papers were accepted after 5 rejections..
- 7.0** Inderjit Chopra gave a summary of the health of the SPIE meeting. While total papers in the 9 conferences has declined in recent years, over one half of the papers fall in the four conferences organized by members of the TC. Despite our

contributions, Janet Sater noted that we had no input in the selection of the current chairs and expressed the importance of getting an TC member appointed as co-chair in 2006. Alison Flatau noted that Amir Baz is moving forward with the organizing of the Smart Structures and Integrated Systems Conference. For the Active Materials Conference, Dimitris Lagoudas noted he had 75 papers in sessions with an additional 10 that he was considering including in a poster session. Former organizer Chris Lynch counseled against this. Carman suggested that rejecting papers is healthy for the conference, yet it was noted that SPIE acceptance or rejection is based solely on a short abstract. Kon-Well Wang provided a summary of the Damping and Isolation conference, indicating that 53 papers had been accepted in 12 sessions. No report was provided for the Industrial and commercial Applications Conference, but Porter Davis announced that he had agreed to co-chair the conference. Alison Flatau provided a summary of the ASME/SPIE student paper competition with 22 papers currently identified as participants. The competition is open to any paper that features a student as the lead author. 6 finalists are selected on the basis of a 1000 word extended abstract and placed in a special session during the meeting. The deadline for submission to the contest was extended to December 15, 2003.

**8.0** Norman Wereley summarized the 2002 ICAST held in Berlin October 7-9, 2002. Approximately 110 attendees gathered to hear 60 presentations. The 2003 symposium will be held in Seoul, South Korea under the leadership of Professor Kim. No CFP is yet available.

**9.0** Dan Inman announced that Yuji Matsuzaki had been selected as the recipient of the 2002 Adaptive Structures Prize. John Main noted that nominations for the best paper award for the period July 2001 through June 2002 should be submitted immediately to the new Vice Chair Chris Lynch. Don Leo will lead the selection committee for the structures paper Marty Dunn will lead the materials paper selection. Kon-Well Wang gave a summary on the progress of ASME Fellow nomination. The committee has nominated one candidate for ASME Fellow, and is waiting for approval from ASME.

**10.0** Greg Washington provided a treasury report (attached) and summarized the results of the subcommittee (Greg, Gary Anderson, Elio Manes, and Ephraim Garcia) formed to study alternative methods to raise funds to support TC activities. Ideas forwarded included sponsoring classes or developing a workshop focused on new technologies. Elio cautioned that all activities must be conducted as a member of the greater Aerospace Division, and contributions to the division are suggested by voluntary. Porter Davis inquired about the which entity actually owns the ASMS TC money. Elio Manes and David Martinez noted that while it is essentially all ASME's money, spending it requires approval of the TC chair and treasurer. Jim Redmond and Janet Sater asked what the additional funds will be used for. Greg Washington reviewed the TC expenditures and suggested an increase in the cash awards for the Best Paper Awards and Adaptive Structures Prize should be increased. The possibility of participating in future conferences put on the design division separate from the IMECE was raised by HS Tzou. Because of the low

overhead, this conference, typically held in the third week of September, has historically generated most of the operating revenues for the participating TCs. A new subcommittee featuring Greg Washington, Janet Sater, Ephraim Garcia, and Conor Johnson was appointed by Greg Carman and encouraged to provide one solid recommendation for moving forward at the SPIE meeting.

- 11.0** Jim Redmond led a discussion about the TC operating procedures. Ana McGowan was appointed to chair a subcommittee to update the procedures, and Jim agreed to forward the outdated document to Anna and Alison Flatau. Dian Brei has collected and integrated various databases in an attempt to produce one master list of members of the ASMS community. Professors Nejhad and Dapino agreed to help Dian determine how best to move forward on updating the master database. Don Leo offered to track down the ASMS TC web site and update it.
- 12.0** Inderjit Chopra reported nothing new on government interactions.
- 13.0** No AIAA TC business was discussed.
- 14.0** The meeting was adjourned at 9:39 PM.

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Adaptive Structures and Material Systems Technical Committee**

at the

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**New Orleans, Louisiana**

**AGENDA**

- 1.0 Attendance and acknowledgment of visitors (Greg Carman, Chair)
- 2.0 Review and acceptance of minutes of committee meeting held at the 2002 SPIE Symposium, San Diego, CA (Jim Redmond)
- 3.0 Membership Report (Jim Redmond)
  - Circulation of Roster for Updating
  - 3.2 Consideration of new member:
    - Bill Armstrong, nominated by Jim Redmond
    - Jeff Martin, nominated by John Main
    - Marcelo Dapino, nominated by Greg Washington
- 4.0 Nomination and Voting on Chair/Co-Chair (Greg Carman)
- 5.0 Reports on ASME IMECE
  - 2002 ASMS Symposium: John Shaw and Mary Frecker
  - 2003 ASMS Symposium: Mary Frecker and Don Leo
  - 2004 ASMS Symposium: Don Leo and Chris Lynch
- 6.0 Reports on AIAA SDM
  - 2002 Adaptive Structures Conference: Diann Brei and Vit Babuska
  - 2003 Adaptive Structures Conference: Vit Babuska and Greg Agnes
- 7.0 Reports on SPIE Symposium
  - 2003 – Chair: Marc Regelbrugge, Co-Chair: Vasundara Varadan
  - 2004 – Chair: Vasundara Varadan, Co-Chair: Yoseph Bar-Cohen
  - 2005 – Chair: Vasundara Varadan, Co-Chair: Yoseph Bar-Cohen
- 7.1 Smart Structures & Integrated Systems Conference

2003– Chair: Amr Baz, Co-Chair: Alison Flatau  
2004 - Chair: Amr Baz, Co-Chair: Alison Flatau

- 7.2 Active Materials: Behavior and Mechanics
  - 2003 – Dimitris Lagoudas and Bill Armstrong
  - 2004 – Dimitris Lagoudas and Bill Armstrong
- 7.3 Damping and Isolation
  - 2003 – Greg Agnes, Kon Well Wang
  - 2004 – Kon-Well Wang and William Clark
- 7.4 Industrial and Commercial Applications
  - 2003 – Eric Anderson
- 7.5 Best Student Paper competition Alison Flatau
- 8.0 Reports on International Conference on Adaptive Structures & Technology (Inderjit Chopra)
  - 2002 Berlin-?
  - 2003 South Korea - ?
  - 2004 VPI&SU – Dan Inman
- 9.0 Honoric Subcommittee
  - 9.1 ASME Adaptive Structures and Material Systems Prize (Dan Inman)
  - 9.2 ASMS Best Paper Awards (John Main)
    - Structures and Structural Dynamics (Eric Anderson)
    - Materials and Material Systems (Dimitris Lagoudas)
  - 9.3 Recognition Campaign (Kon-Well Wang/ Alison Flatau)
- 10.0 Treasury Report (Greg Washington)
  - 10.1 Proposal for ASMS fund raising
- 11.0 Operating Procedures (Jim Redmond)
  - 11.1 Membership Guidelines (Anna McGowan)
  - 11.2 TC Mailing List (Dian Brei/Dan Inman)
- 12.0 Government Interactions (Greg Carman)
- 13.0 AIAA Business
- 14.0 Adjourn

# Treasury Report and Revenue Options Presented by Greg Washington

## ASME Increased Revenue Options

Increasing the revenue of our committee is necessary to complete our mission as a technical committee. Presently we have the following yearly commitments:

1. Adaptive Structures Prize (\$1000.00)
2. ASME Wine and cheese reception (\$1000.00)
3. SPIE Student paper competition (\$0.0)
4. Best Paper awards (Materials and Structures \$1000.00)
5. Food for Technical Committee meetings (\$500.00)
6. Miscellaneous (Plaques, Certificates etc. \$500.00)

We receive the following revenue: (\$2K from SPIE) and ~\$400.00 from the ASME Aerospace Division.

### **Proposal 1. Knowledge Camps (every 2 – 4 years)**

For this 1-1.5 day tutorial-based workshop we can have a series of talks FOR the members of our community instead of BY the members of our community. The theme is long-term growth of our community. This conference will address issues like what areas can we branch off into? What are the technical hurdles that need to be cleared for our involvement? We can also add some of our own people to talk about new areas and limitations. Here's a listing of possible topics for these camps

1. Nanotechnology/: Does smart materials play a role?
2. Bio-inspired Material Systems: Letting nature inspire what we do
  - Bio-Electric and Bio-Magnetic Phenomena
  - Bio-Inspired Robotic Systems and devices
  - Biomimetic Vision
  - Molecular Motors
3. High Stroke Advanced Actuators
  - Ferromagnetic SMA's: (James, Ohandley) (6% Strains)
  - Relaxor Ferroelectrics (Shrout – PSU) (1.7% strains)
  - Alkaline based Piezoelectric materials (.85% strains) (Yet-Ming Chiang)
  - Electroactive Polymers:
  - The idea here is to have more of a materials sciences perspective

4. Smart Materials technical hurdles: (Where have we made progress? Where are we stuck?) - This session will be comprised of presentations and a panel discussion.

5. Joint Services/Industrial think tank. This will be a 1-day session where key industry personnel and Armed Forces Agencies make presentations about their core needs and capabilities. Insight into future platforms will be solicited and true needs will be assessed. May be more general or smart material based. Specific problems that have been unresolved for long periods of time can also be addressed.

The key for all these camps is that they be tutorial or knowledge generating in nature. For the conference, we should pick somewhere really nice (maybe exotic and somewhat secluded) and stress a family atmosphere. Thus the sessions should end by 2:00 PM both days. We should also NOT have any order to the talks. Thus no one receives an "ordered" agenda until they get to the conference and therefore should plan for being there the whole time. There should also be ample time in between sessions for discussion and collaboration

ASME has a fund set aside for external conferences. Gaining access to the funds is competitive, but with a proposal its definitely doable. I have had an initial meeting with Elio on this subject and he is supportive.

### **Proposal 2. Membership Dues for Committee Members**

A second proposal involves a voluntary dues structure for committee members. Dues can be paid via donations directly to the TC. The amount of the dues will be initially calculated based on projections of expenses and current active membership. The idea here is to make-up the difference between what we can get through sponsorship and what is needed.

### **Proposal 3. Corporate Sponsorships**

A number of faculty have successful corporate research programs in the smart materials area. In addition there are program managers who are part of this TC who fund many companies in the area. The idea here would be to request a nominal amount for the operation of the yearly (~\$500.00). Sponsoring companies will receive recognition at TC events and any publications and written correspondence of the committee.



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Adaptive Structures and Material Systems Technical Committee**  
at the  
**SPIE Smart Structures and Materials Symposium**

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Royal Palm VI  
Town and Country Resort and Convention Center  
San Diego, California**

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- 3.0 Treasury Report (Greg Washington)
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  - 4.1 Update of Roster
  - 4.2 Consideration of new member
    - Arnold Lumsdaine, nominated by Jim Redmond
    - Mehrdad N. Ghasemi Nejhada, nominated by Jim Redmond
- 5.0 Reports on ASME IMECE
  - 2001 ASMS Symposium: John Main and John Shaw
  - 2002 ASMS Symposium: John Shaw and Mary Frecker
  - 2003 ASMS Symposium: Mary Frecker and Don Leo
  - 2004 ASMS Symposium: Don Leo and TBD
- 6.0 Reports on AIAA SDM
  - 2002 Adaptive Structures Conference: Diann Brei and Vit Babuska
  - 2003 Adaptive Structures Conference: Vit Babuska and Greg Agnes
- 7.0 Reports on SPIE Symposium
  - 2002 – Chair: Marc Regelbrugge, Co-Chair: Vasundara Varadan
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- 7.1 Smart Structures & Integrated Systems Conference
  - 2001 – Porter Davis, Yuji Matsuzaki, and Amr Baz

2002 - ?

- 7.2 Active Materials: Behavior and Mechanics
  - 2002 – Chris Lynch and Dimitris Lagoudas
  - 2003 – Dimitris Lagoudas
- 7.3 Damping and Isolation
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    - Materials and Material Systems (Dimitris Lagoudas)
  - Recognition Campaign (Kon-Well Wang/ Alison Flatau)
- 10.0 ARO Workshop on Smart Structures
  - 2002 Aditi Chattopadhyay ?
- 11.0 New Business – Government Interactions (Greg Carman)
- 12.0 AIAA Business
- 13.0 Adjourn