

Minutes of Research Committee on the Mechanics of Jointed Structures

Meeting Location: IMECE, Vancouver, BC, Canada. Monday, November 15, 2010.

Attendees:

David Ewins, University of Bristol, Chair

Larry Bergman, University of Illinois – Urbana, Vice-Chair

Michael Starr, Sandia National Laboratories, Secretary

Dan Brown, AWE

Matt Brake, Sandia National Laboratories

Christian Furrone, Politecnico di Torino

Arif Masud, University of Illinois – Urbana

The agenda was only loosely organized, but is defined through two general elements: Administrative actions and technical discussion.

I. Administrative Actions

- A. Discussion/amendment of committee by-laws
- B. Membership rolls
- C. Access to online resources, documents, and minutes
- D. Establishment of subcommittees
- E. Selection of committee chairs

II. Technical discussion – focus on the final list of Actions and Challenges from the last Joints Workshop held in Dartington, UK, 2009.

I. ADMINISTRATIVE ACTIONS

A. The by-laws were originally modified by **Segalman**, **Ewins**, and **Bergman** and approved by the eight founding members of the committee:

Professor **Larry Bergman**, University of Illinois – Urbana

Professor **David Ewins**, FRS, University of Bristol

Professor **Hugh Goyder**, Cranfield University

Professor **Norbert Hoffmann**, Hamburg University of Technology

Professor **David Nowell**, University of Oxford

Professor **Dane Quinn**, University of Akron

Dr. **Daniel Segalman**, Sandia National Laboratories

Dr. **Michael Starr**, Sandia National Laboratories

Proposed modifications to the by-laws:

Article II –

Due to the broad geographical distribution of the potential regular members of the committee, a quorum for a meeting of the committee will consist of six of the regularly elected members. There will be no distinction made between physical presence and attendance through other means such as a live telephone, video, or internet connection. Further, a regular member may designate a representative, for the purposes of

establishing a quorum, provided the representative is from the same institution and is also an associate member of the research committee. The designation of being a representative only is to be used for determining the presence of a member and does not transfer voting privilege.

Article III –

The executive subcommittee will consist of the officers and the chairman of each of the other subcommittees.

Article IV –

The nominating subcommittee will be comprised of the three committee officers.

Article VI –

Each subcommittee chair will develop their own rules of engagement.

Article VIII –

The term of the nominating subcommittee will not be three years, but will rather be the same duration as the length of his/her term as an officer of the committee.

B. The committee officers will compile a list of associate members to be included in all future mailings and committee correspondence. This initial list will be populated with all of the people invited to the first two joint workshops. In accordance with the by-laws, twenty (20) members will be invited to become regular members of the research committee. In addition to the eight founding members (listed previously, five of whom are ASME members), the following will be invited to be regular members:

***Andreas Polycarpou**, University of Illinois – Urbana

***Arif Masud**, University of Illinois – Urbana

Phil Ind, AWE

***Alex Vakakis**, University of Illinois – Urbana

David Hills, University of Oxford

Lothar Gaul, University of Stuttgart

***Marc Mignolet**, Arizona State University

***Ed Berger**, University of Virginia

Muzio Gola, Politecnico di Torino

***Randy Mayes**, Sandia National Laboratories

Daniele Dini, Imperial College

Adnan Akay, Bilkent University

Jeff Green/John Schofield, Rolls Royce

* Denotes American ASME members

Invitations will be extended to the American ASME members before membership is offered to other potential members (the committee by-laws require that a majority of the regular members are ASME members). Note that the above list contains thirteen names and will be modified before official invitations are extended.

C. At a minimum the committee will establish a website through ASME that will allow all interested committee members (emeritus, regular, and associate) access to documents and information related to the committee. The information available includes, but is not limited to: meeting minutes, proceedings, monographs, handbooks, details about organized seminars, workshops, symposia, and conferences. It was suggested that **Ed Berger** be involved in administration of such a site.

D. The following subcommittees have been established: Administrative, Events, and Publications.

E. The Administrative Subcommittee will be populated by the committee officers and may also include a representative from AWE (e.g. **Phil Ind**).

The Events Subcommittee will be chaired by **Dane Quinn**. It is proposed that other members of the subcommittee will be **Daniele Dini** and Andreas **Polycarpou**.

The Publications Subcommittee will be chaired by **Dan Segalman**. It is proposed that **Ed Berger** and **Arif Masud** also be invited to be members of the subcommittee.

The committee with the most pressing business is the Events Subcommittee. The committee officers strongly suggest that some immediate actions be taken to develop a presence at several conferences. It is desired that committee sponsorship of a session at the following conferences be explored:

McMAT, Chicago, June: primary contact **Andreas Polycarpou**
IJTC, Los Angeles, October: primary contact **Daniele Dini**
IDETC, Washington, D.C.: primary contact **Dane Quinn**

It is also desirable to start planning the next Joints Workshop. A suggestion for the next workshop location and date is Charlottesville, VA in April 2012. It might be good to apply some immediate pressure on **Dane Quinn** and especially **Ed Berger** to begin planning for such a location.

II. TECHNICAL DISCUSSION

In an effort to bring focus to the next Joints Workshop (tentative date April 2012), it was suggested that the Actions and Challenges from the Dartington Workshop be considered. First, status will be collected from the Actions leaders. It is desired that the Actions be closed out by applying leverage to arrive at a result and submit them to the committee. This is a short term item that could be resolved in three months. The results will be compiled and distributed to committee members and potential workshop attendees.

It is further suggested that the first four challenges could serve as themes for the next workshop. These themes are:

1. Round robin/benchmarking

- a. Hysteresis measurement
- b. dissipation measurement and prediction
2. Repeatability and variability in joint design and manufacture
3. Framework for multiscale modeling

Some time was spent on discussion of the round robin/benchmarking activity. The principal players in such an effort seem to be Polito, Oxford, University of Illinois, Imperial, and Technion. Unfortunately it seems as if such a task will be difficult to accomplish since each institution has developed it's own test apparatus and approach and haven't necessarily defined the same experimental scope. This will require additional discussion and/or negotiation.

III. NEW BUSINESS

A. The next meetings

The next physical meeting of the research committee will occur during IDETC. Arrangements will be made with the conference organizers to reserve meeting space for this meeting.

Due to urgency of some of the committee's business it was suggested that a meeting be held in April 2011(?). This meeting would facilitate addressing some of the shorter term action items such as membership, conferences, working planning and themes. This meeting will be organized by the executive subcommittee and held at multiple sites using on online meeting tool (such as WebX)

B. Assignments

The following assignments have been given to the committee officers:

1. David Ewins

- a. Contact owners of Actions and Challenges and initiate discussion. Develop schedule for submission deadlines of Actions and further development of Challenges.
- b. Talk to **Daniele Dini** about organizing a session in IJTC.

2. Larry Bergman

- a. Organize WebX meeting in April.
- b. Talk to **Andreas Polycarpou** about organizing a session in McMAT.
- c. Send complete lists of potential members to **Mike Starr**.

3. Mike Starr

- a. Compile/distribute minutes including proposed changes to the by-laws.
- b. Develop membership and subcommittee mailings.
- c. Talk to **Dane Quinn** about organizing a session in IDETC.