

**Minutes**  
**SEI of the ASCE: Technical Committee on Structural Control**  
**Meeting of April 10, 2002, 2:00 pm – 8:00 pm, Como, Italy.**

The meeting was called to order by Satish Nagarajaiah. In attendance were:

Satish Nagarajaiah	Rice Univ.
Genda Chen	Univ. of Missouri, Rolla
Michael Symans	Rensselaer Polytechnic Inst.
Yozo Fujino	Univ. of Tokyo, Japan
Sheng-Guo Wang	Univ. of North Carolina, Charlotte
Erik Johnson	Univ. of Southern California
Luciana Barroso	Texas A&M
Peter Chang	National Science Foundation
Richard Christenson	Colorado School of Mines
Larry Bergman	Univ. of Illinois
Zoran Rakicevc	Inst. of Earthquake Engineering, Macedonia
Fahim Sadek	Natl. Institute of Standards and Technology
Henri Gavin	Duke University
Reginald DesRoches	Georgia Tech
Jann N. Yang	Univ. of California, Irvine
Seok J. Moon	Korea Inst. of Machinery and Materials
Gursoy Turan	Izmir Institute of Technology, Turkey
C.C. Chang	Hong Kong University of Science and Tech
M.P. Singh	Virginia Tech
James Beck	CalTech
Loren Lutes	Texas A&M Univ.
Jong-Cheng Wu	Tamkang Univ., Taiwan
Shirley Dyke	Washington Univ.

1. Introductions of members and guests followed. New members were welcomed by the chair. Guests were invited to apply for membership to the committee.

2. The minutes of the committee meeting held on May 20, 2001, in Washington DC were approved. Nagarajaiah distributed the Structural Control Committee Report submitted to the ASCE earlier this year.

3. New members: Prof. Peter Chang (NSF), Prof. Akira Nishitani (Waseda University), Prof. Fabio Casciati (University of Pavia), Prof. Kazuhiko Kawashima (Tokyo Institute of Technology), Dr. Swaroop Yalla (Exponent), Prof. Yufeng Zhang (Lehigh University), Prof. Richard Christenson (Colorado School of Mines), Prof. Ahsan Kareem (University of Notre Dame), Prof. Jong Cheng Wu (Tamkang University), Prof. Bijan Samali (University of

Technology, Sydney). Nagarajaiah invited the following guests to apply for membership: Prof. Wilfred D. Iwan (CalTech), Prof. KO Jan-Ming (Hong Kong Polytechnic), Prof. Rodellar (University of Catalunya, Spain), Prof. Reginald DesRoches (Georgia Tech), and Prof. Zoran Rakicevc (Inst. of Earthquake Engineering, Macedonia).

4. Bill Spencer, Associate Editor, sent his apology and requested Nagarajaiah to report on his behalf. Nagarajaiah summarized the status of the special issue in the *ASCE Journal of Structural Engineering* on semiactive structural control that is being organized by committee members. Sashi Kunnath, Bill Spencer, and Satish Nagarajaiah are editing the issue which is progressing steadily. A total of 17 papers were submitted, of which 14-15 will be included in the special issue. Any additional papers that do not fit in this issue will be published in a subsequent issue. Decisions on the special issue should be finalized by the end of the year.

Satish Nagarajaiah will be taking over from Bill Spencer as Associate Editor, *Journal of Structural Engineering*, ASCE, effective June 2002.

5. Review of sessions at the 2002 Structures Congress organized on behalf of the committee:

*2002 Structures Congress: (2 sessions)*

- Agrawal/Johnson – Smart Damping Systems
- Symans – Base-Isolation Systems for Near-field Earthquakes

6. Review of sessions at various conferences organized on behalf of the committee:

*ICOSSAR, 2001: (1 session)*

Shirley Dyke and Bill Spencer organized the following sessions as representatives of the committee

- Spencer/Dyke – New Frontiers in Structural Control

*2002 American Control Conference: (2 sessions)*

Shirley Dyke and Erik Johnson organized the following sessions as representatives of the committee

- Johnson /Dyke – Control, Monitoring, and Damage Detection for Large Structures I
- Johnson /Dyke – Control, Monitoring, and Damage Detection for Large Structures II

*7<sup>th</sup> US National Conference on Earthquake Engineering: (5 sessions)*

Satish Nagarajaiah and Bill Spencer were the coordinators for advanced technology track and organized the following sessions as representatives of the committee

- “Supplemental Dampers in Symmetric and Asymmetric Structures” Chaired by Genda Chen and Rakesh Goel
- “Base Isolation Systems in Symmetric and Asymmetric Structures” Chaired by Anil Agrawal and Gary Dargush
- “Smart Materials and Structures” Chaired by Henri Gavin and Satish Nagarajaiah
- “Passive Energy Dissipation Systems” Chaired by Michael Symans and Fahim Sadek
- “Structural Control: Cable Stayed Benchmark Bridge” Chaired by Shirley Dyke and Bill Spencer

*2002 Engineering Mechanics Conference: (4 sessions)*

Anil Agrawal and Genda Chen organized the following sessions as representatives of the committee with Andrew Smyth (chair of the conference) and in collaboration EMD Dynamics Committee:

- “Structural Control I: Semi-active Dampers, TMD, and TLCD for Asymmetric Structures,” Chaired by Anil Agrawal and Genda Chen
- “Structural Control II: Smart Dampers and Benchmark Problems” Chaired by Genda Chen and Anil Agrawal
- “Structural Control III: Semi-active Dampers and Base Isolation for Seismic Hazard Mitigation,” Chaired by Satish Nagarajaiah and Genda Chen
- “Structural Control IV: Vibration Control of Structures and Panels” Chaired by Anil Agrawal and Genda Chen

*3rd World Conference on Structural Control, Como, Italy: (3 sessions)*

Shirley Dyke, Akira Nishitani, and Henri Gavin organized the following sessions as representatives of the committee

- “Benchmark Problem on Cable Stayed Bridge” Chaired by Shirley Dyke
- “Semiactive Devices” Chaired by Akira Nishitani & Bill Spencer
- “Semiactive Seismic Isolation” Chaired by Henri Gavin and Satish Nagarajaiah

*SPIE 2002* – Dr. S. C. Liu was the conference chair, and 5 papers invited by Gavin as representative of the committee were a part of the conference.

7. Review of sessions at future Structures Congresses organized on behalf of the committee:

*2003 Structures Congress: (1 session approved)*

- Agrawal/Nagarajaiah - Practical Development of Semiactive Damping Systems

*2004 Structures Congress:*

- DesRoches – Topic TBA

- Gavin – Topic TBA
- Symans/Chen – Topic TBA
- Sadek – Topic TBA

8. Future sessions planned at various conferences.

*2003 American Control Conference*

- Johnson/Barroso – Structural Control
- Johnson/Barroso – Structural Health Monitoring

*2003 Engineering Mechanics Conference*

- TBA

*3<sup>rd</sup> European Conference on Structural Control*

- TBA

9. Special Issues

- *ASCE Journal of Structural Engineering* on semiactive structural control. Sashi Kunnath, Bill Spencer and Satish Nagarajaiah are coordinating the review.
- Spencer is organizing a special issue of the *ASCE Journal of Engineering Mechanics* on the benchmark problems. Most of the reviews are complete and this is almost completed. Please submit any outstanding reviews.

10. Nagarajaiah's term is ending as the chair of this committee. Symans thanked Nagarajaiah on behalf of all the members for his service to the committee and said that he did a very good job.

Nagarajaiah nominated Shirley Dyke as the new chair with term beginning October 1, 2002. No objections to nomination of Dyke. Other new officers recommended by Nagarajaiah are Symans (Vice-chair), and Gavin (Secretary). No objections to the recommendation of Symans and Gavin.

11/12/13/14. Status of Benchmark Problems

11. A special issue of the *ASCE Journal of Engineering Mechanics* has been organized on the nonlinear building benchmark problem and the second generation wind benchmark problem. There are a total of about 30 papers submitted for the issue. The review process is nearing completion.

12. Yang – 1st and 2nd generation problems focused on a 76 story building designed but not constructed for Australia. These are both complete. The new problem definition for the wind benchmark problem was presented. This is based on a structure with an asymmetric distribution of stiffness. They are working on a torsionally asymmetric benchmark problem development. 55 story plus 4 story underground structure. This building was designed as a student project in Australia. Wind tunnel testing is ongoing and data will be available. They have a 1200 FEM model at the moment and model reduction is in progress.

13. Dyke – The benchmark cable stayed bridge problem statement (Phase I) was posted on the web site in October 2000. This problem is based on the Cape Girardeau bridge in Cape Girardeau Missouri. A session was held at the 3WCSC on this problem, and another session will be held at the 7NCEE conference in Boston this July. Phase II, which will consider transverse excitations and multi-support excitation will be posted by May 1, 2002.

14. Gavin/Nagarajaiah/Johnson – The base isolation benchmark problem is nearly complete and should be posted on the web soon. The benchmark problem consists of a linear superstructure, with lateral-torsional coupling, and nonlinear seismic isolation system. The objective for the benchmark participants is to design a smart isolation system by selecting suitable parameters for the passive seismic isolators, and by introducing active or semiactive control systems at the isolation level.

Developers of benchmark problems are recommended to include comments directed towards new participants to the benchmark studies to aid them in how to begin approaching these benchmark problems.

Bergman brought up the question of how we should transmit the results of the benchmark studies to engineering practice and educate the community. Some ideas that were proposed include (a) an article from the committee in Civil Engineering Magazine or similar venue, (b) short courses sponsored by the committee on structural control on benchmark studies, and (c) distributing information on the results of these studies to the practicing community and to government agencies.

Chen briefly discussed soil-structure interaction effects and solicited members input.

15. The meeting was adjourned at 6:30 pm.

Respectfully submitted

Shirley Dyke  
Secretary

Attachment I : Agenda  
Attachment II : Current Roster  
Attachment III : Committee Report