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Design Engineering Division Newsletter

Krishna C. Gupta, Editor

Fall 2000

Message from the Chair



*Kenneth J. Waldron,
DED Chair*

I am honored to address you as the Chair of the Design Engineering Division. This Division is the largest, or the second largest ASME Division, depending on whether one counts only primary, primary and sec-

ondary, or all members nominating design as one of their interest areas. It has enjoyed that status through many of the more than fifty years since it was established.

Today, the Design Engineering Division is in a better position to serve its members than ever before. Hard work and foresight on the part of Division Executives over the past ten years has resulted in the establishment of a strong financial base. The Division can now strongly support the activities of its Technical Committees and Liaison Committees. Consequently, a major thrust over the past two years has been the establishment of procedures to share some of the Division's income with the Committees whose activities are instrumental in generating that income. The Division has also taken steps to ensure that, over time, all of its major award accounts will be funded to the level of permanent endowment.

The Division supports many activities that serve the interests of our members. The Design Engineering Technical Conferences (DETC), held in Baltimore this year, are our primary conferences for presentation and discussion of new technologies. We also participate in the International Mechanical Engineering Conference and Exhibition (IMECE). To serve our many industry-based members we have actively participated in the National Manufacturing Week Conference (NMWC), held in Chicago every March. Recent changes by the organizer of NMWC will give the Division an even larger role in the conference component of that event.

The Division also sponsors a variety of publications. There are our two transactions journals: *Journal of Mechanical Design* and *Journal of Vibrations and Acoustics* for publication of new technical results. In addition, we are one of two ASME Divisions that sponsor the *IEEE/ASME Transactions on Mechatronics*, along with two IEEE societies. We also have representation on the editorial board of the new transactions *Journal of Computing and Information Systems in Engineering*, for which the primary sponsor is our sister division: Computing and Information Engineering. We have also been active in supporting more general interest publications, such as the Design Engineering supplement to *Mechanical Engineering* that appeared last year.

Highlights from IDETC 2000 in Baltimore

The 2000 International Design Engineering Technical Conferences (IDETC) and the Computers and Information in Engineering Conference (CIE) were held in Baltimore, September 10 - 13. The conferences under the IDETC umbrella included the Mechanisms & Robotics Conference (MECH), Design Automation Conference (DAC), International Power Transmission and Gearing Conferences (PTG), Design for Manufacturing Conference (DFM), Flexible Assembly Conference (FLEX), Design Theory & Methodology Conference (DTM), and Reliability, Stress Analysis, and Failure Prevention Conference (RSAFP). The General Conference Chair was Lung-Wen Tsai.

The conferences were well attended. The actual number of registrants handily beat the estimates made during the budgeting process for the conference. The flip side was that people without advance reservations could not find rooms at the Conference Hotel (Omni Inner Harbor).

The Sunday Early Bird Reception on the campus of Johns Hopkins University (JHU) drew large numbers—several buses transported the attendees to and from the JHU campus. At the Conference

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Message from the Chair

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We have been working steadily to raise the Division's profile internationally. A long standing activity has been the Division's role in representing ASME as a member of IFToMM, the international federation for mechanism and machine science. ASME is an affiliate organization to IFToMM representing the U.S. professional community. We are moving toward more formal relationships with other international groups such as the one that sponsors the International Conference on Engineering Design each year, and the MOVIC group that joined our Vibrations and Acoustics Conference last year.

A list of contact information for the Division Officers, along with much other information, may be found on our web site <http://www.asme.org/divisions/ded/index.html>. We invite suggestions and comments on the Division's activities, and ways in which they might be made more effective.

Kenneth J. Waldron, Chair

Past Chair's Report

During the last year the Design Engineering Division has consolidated its financial position and continued to improve its use of the computer for communication and publications. The Division Custodial Account has grown to the point where we can help our ten technical committees with funding of their operations, awards and special projects in a way not possible in the past. With the help of the ASME staff in New York, sub-accounts attached to the Divisional Custodial Account have been set up which will allow each Technical Committee to keep track of money that it earns or accepts through donations and to use the funds for their own awards or other purposes, within the ASME guidelines. The Division is also now in a position to assume the complete financial risk associated with the Design Engineering Technical Conferences, starting in 2001.

The focus now is more on current issues of concern in design engineering and ways in which the Division can meet the needs of the international design community and industry more effectively. There is a continuous effort to improve our conferences, become more involved with design education and strengthen our outreach activities. Hard work by our conference teams and divisional representatives to improve the mechanics of our conferences in conjunction with the ASME staff in New York has been most fruitful. The 1999 combined Design Engineering Technical Conferences in Las

Vegas became our biggest event ever, with over 900 participants. The decision some years ago to publish the DETC proceedings on "compact discs" instead of paper raised many issues which have taken time to resolve. Most of the problems have now been overcome and we are concentrating on how to make the best use of the medium for our members and for promotional purposes. The overall cost of these conferences is a continuing concern, but the meetings' staff in New York are now providing excellent help in minimizing the cost increases. With regard to the IMECE, the process for allocation of sessions has been greatly improved, resulting in noticeably fewer complaints from the Technical Committees. The Division has qualified for many additional sessions at the IMECE 2000 and will have a strong presence there this year. Technology transfer sessions continue to be presented at the NDEC each March in Chicago. The three journals associated with the Division continue to thrive. We were pleased to be instrumental in the publication of the first *Design Supplement to Mechanical Engineering Magazine* in November 1999. The International Committee is now well established and plans a two-track symposium in the DETC 2001, addressing international issues in design education and the product development process.

Over the years the number of Divisional and Committee "Honors and Awards" has increased and it has required considerable work to rationalize the various types and categories. It has been all too easy to introduce new awards while neglecting existing ones and during this next year it is hoped to set in place guidelines, based on ASME Award guidelines, which will improve the stewardship and presentation of our Divisional and Committee Honors and Awards. Similarly we hope to improve Divisional awareness and involvement with student competitions and awards. It is pleasing to report an increase in the number of nominations for our awards during the past few months.

The Division is blessed with a team of enthusiastic, professional and dedicated volunteers. Our appreciation and thanks are due to all of them. For me it has been an honor to work on the Executive Committee and to serve as Chair of the Division for the year 1999-2000. Each year the administrative team is replenished and we welcome Professor Subhash Sinha as the new secretary of the Executive Committee. Dr. Ken Waldron is Chair of the Design Division for the year starting July 1, 2000, and under his excellent guidance we can look forward to another year in which the Division will continue to develop and prosper.

Crispin Hales, Ph.D., C.Eng.

Highlights from IDETC 2000 in Baltimore

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Reception at the Omni Hotel on Monday evening, this observer (ed.) saw shoulder-to-shoulder crowd; the Reception was hosted by the University of Maryland. Some of the conference luncheons were also oversubscribed.

In spite of their early morning hour, the Key Note addresses (Mechanisms, CIE, PTG, and RSAFP Plenary Sessions) proved to be popular with the attendees.

Several National and Divisional level awards were presented at the DED/Mechanisms Luncheon on September 11, 2000. These included:

Machine Design Award - Joseph Duffy

Leonardo Da Vinci Award - Joel Spira

Triodyne Safety Award -

Gunnar Heskestad

Outstanding Design Educator Award - Bernard Roth

Pictures of the award presentations can be found elsewhere in this Newsletter.

In addition, Best Paper Awards, Student Design Contest Awards, and Certificates of Appreciation were presented at various luncheons held during DETC'00.



Joseph Duffy (right) receiving the ASME Machine Design Award from division chair Kenneth Waldron (left)

The 2000 National Manufacturing Week Conference

This year's conference was held in Chicago, March 13 through 16.

There were a total of 112 sessions with 44 of interest to Mechanical Design Engineers. The Design Engineering Division sponsored 14 with 9 organized by the DFM Committee, 4 by the Design Education Committee and one by the TCVS. In addition there were 2 organized by the Manufacturing Engineering Division, 2 by the Management Division and one each by the Non-Destructive Evaluation Engineering and Technology and Society Divisions.

The overall conference attendance was down somewhat from previous years. A total of 950 attended the "Design" sessions as opposed to 1100-1200 in prior years. The average attendance at these sessions was 21.6 but the average of the ASME sessions was 29.4. The DFM sessions continue to be very popular averaging 35 per session. Special thanks go to Kathy Jacobson, Tom Boronkay, and Mike Carter of the committee.

The show floor was extremely busy as usual. ASME had a great booth in a prominent position on the Design Show floor. The staff signed up 60 new members during the show. The winners of the Student Design Contest had their own little booth and displayed the winning design. Input for sessions for the 2001 conference is due this summer. Send any input to hirschr@asme.org.

Richard A. Hirsch, PE



Gunnar Heskestad (right) receiving the Triodyne Safety Award

IMECE 2001 @ Big Apple

The theme for the 2001 International Mechanical Engineering Congress & Exposition (IMECE) in New York, NY is "Progress through Partnerships - Team Approaches for Today's Economy." The Design Division has been allocated 22 sessions. There will also be industry/highlight sessions.

For further information, the Technical Committee Chairs or their representatives should contact Bahram Ravani (bravani@ucdavis.edu). Deadline for the Calls for Papers is September 29, 2000 and for Industry/Highlight Session proposals is January 5, 2001. Current information will be available at the conference web page:

<http://www.asme.org/conf/congress01/>

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Announcement and Call for Papers for the 2001 DETC

2001 International Design Engineering Technical Conferences September 9-12, 2001 Hilton Pittsburgh and Towers, Pittsburgh, Pennsylvania

The Vibration and Sound Committee of the Design Engineering Division (DED) will be hosting the different individual conferences listed below, which are sponsored by technical committees within DED. Information about the various conferences will be updated on a continuing basis at the web site <http://www.me.cmu.edu/DETC2001>.

Author Information:

Manuscripts due for review: January 26, 2001

Notification of paper acceptance: March 30, 2001

Final camera-ready manuscript due: April 27, 2001

General Conference Chair:

Dr. Dean T. Mook, Waldo N. Harrison Professor
Department of Engineering Science & Mechanics
Virginia Tech, Blacksburg, VA 24061-0219
PH:(540)231-6841
FAX:(540)231-2290
dtmook@vt.edu

6th Design for Manufacturing Conference
Professor David O. Kazmer, Conference Chair
Department of Mechanical & Industrial Eng.
University of Massachusetts, Amherst, MA 01003
PH:(413)545-0670
FAX: (413)545-1027
kazmer@ecs.umass.edu

18th Biennial Conference on Mechanical Vibration and Noise

Professor Dean T. Mook, Conference Chair
(see contact information above)

27th Design Automation Conference
Professor John E. Renaud, Conference Chair
Aerospace & Mechanical Engineering
University of Notre Dame, 365 Fitzpatrick Hall
Notre Dame, IN 46556

PH:(219)631-8616
FAX:(219)631-8341
John.E.Renaud.2@nd.edu

21st Computers and Information in
Engineering Conference
Professor Richard H. Crawford, Conf. Chair
Department of Mechanical Engineering
University of Texas, Austin, TX 78712-1063
PH:(512)471-3030
FAX:(512)471-7682
rhc@mail.utexas.edu

13th International Conference on Design Theory and Methodology

Dr. Janet Allen, Conference Chair
Woodruff School of Mechanical Engineering
Georgia Tech, Atlanta, GA 30332-0405
PH:(404)894-8168
FAX:(404)894-9342
janet.allen@me.gatech.edu

International Issues in Engineering Design
Professor Philip E. Doepker, Conference Chair
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University of Dayton
300 College Park Dr.
Dayton, OH 45469-0210
PH:(937)229-2971
FAX:(937)229-4766
pdoepker@engr.udayton.edu

15th Reliability, Stress Analysis and Failure Prevention Conference

Professor Rudolph Scavuzzo, Conference Chair
College of Polymer Engineering
The University of Akron
Akron, OH 44325-0301
PH:(330)972-5508
FAX:(330)972-6027
rscavuzzo@uakron.edu



Joel Spira (middle) receiving the Leonardo Da Vinci Award as the Honors and Award Chair Farrokh Mistree looks on

Vibration and Sound Committee Reports

From the Past Chair, Subhash Sinha:

The past year was very busy for the Technical Committee on Vibration and Sound (TCVS) in connection with the organization of the 1999 DETC and Vibration conference. Out main activities are summarized as follows.

1. TCVS Fall meeting was held in Las Vegas during the 1999 DETC. The Spring meeting was held in Chicago on 12 March, 2000, during the National Design Engineering Show.
2. There were a total of 196 sessions consisting of 834 technical papers were presented at the 1999 DETC in Las Vegas. 426 papers were in the Vibration and Noise Conference (including 48 papers from MOVIC). Twenty-nine symposia were organized with few of them having well over 30 papers. The Program Chair, Professor George Flowers of Auburn University, worked very diligently to make sure that all sessions were suitably arranged. Local activities, exhibits, short courses and tutorials were planned and well participated. The keynote lectures were delivered by Professors. L. Meirovitch (Virginia Tech; Den Hartog Lecture "From Rayleigh-Ritz to the Finite Element Method"), V. J. Modi (Univ. British Columbia; "From Sputnik to the space Station: Evolution and Challenges"), and P. D. Spanos (Rice Univ.; "Versatile Methods for Nonlinear random Vibration Analysis").
3. TCVS sponsored four sessions during the 1999 IMECE. Three of these sessions (12 papers) were distributed between two symposia, "Structural Health Monitoring" organized by D. Zimmerman and "Active and Passive Vibration Control" by P. Reinhall. Professor Dean Mook chaired the fourth session on a special Nonlinear Vibrations topic by Professor Ali Nayfeh. Planning for symposia at the 2000 IMECE is underway. Ten sessions have been approved and will be distributed between two symposia: "Active Control of Vibration and Noise" organized by H. S. Tzou and M. F. Golnaraghi, and "Dynamics, Acoustics and Simulations" by R. Han, K. H. Lee, and A. Luo.
4. Preparations for the 2001 DETC and Vibration Conference are underway. The Conference Chair, D. Mook (Virginia Tech), has selected the conference venue to be at the David Lawrence Convention Center (connected to Hilton Hotel) in Pittsburgh. B. Balachandran (Univ. Maryland) is the Program Chair. The local committee Chair is J. Wickert (Carnegie

Mellon Univ.) and the Vice Chair is W. Clark (Univ. Pittsburgh).

5. Professor L. A. Bergman (Univ. of Illinois, Urbana) is the new Technical Editor of the *ASME Journal of Vibration and Acoustics*.
6. At the Spring 1999 meeting, Jeff Dohner was appointed to be the TCVS coordinator for the Design Show, and C. Pierre was voted to be the DED representative to the Applied Mechanics Review Board. The following members were elected to serve a three-year term from July 1, 1999 to June 30, 2002: W. Clark (renewed; Univ. Pittsburgh), R. Han (renewed; Univ. Iowa), K. Grosh (Univ. Michigan), A. Luo (Southern Illinois Univ., Edwardsville), and C. Rahn (Clemson Univ.).
7. At the Fall 1999 meeting, the Chair of the Awards Committee (Dean Mook) was appointed to be in charge of the preparation of packages for Fellow nomination.
8. Robert Parker was appointed as the Chair of the nominating committee for new memberships to TCVS. Karl Grosh would serve as the Co-Chair. Voting on new members took place at the Spring 2000 meeting.
9. TCVS has set up its own web page www.me.psu.edu/tcvs where information on committee members, meetings, minutes, and other activities will be posted. A hyperlink to the *ASME Journal of Vibration and Acoustics* is also provided. The page was initially developed by C. Tan (TCVS Vice-Chair) and is now maintained by C. Rahn.

Subhash Sinha, Past Chair, TCVS

From the Current Chair, Chin An Tan:

At our last March meeting during the Design Show in Chicago, the committee voted on:

New Officers - C. A. Tan (Chair, Wayne State Univ.), R. Han (Vice Chair, Univ. Iowa), and W. Clark (Secretary, Pittsburgh Univ.) were elected to serve a two-year term beginning July 1, 2000.

New members - S.-E. Chen (Ford Motor Company), G. T. Flowers (Auburn Univ.), H. Hamidzadeh (South Dakota State Univ.), R. G. Parker (renewed; Ohio State Univ.), T. J. Royston (Univ. Illinois at Chicago), B. Banerjee (Caterpillar, Inc.) were elected to serve a three-year term from July 1, 2000 to June 30, 2003.

S. Sinha (immediate past Chair) has been elected as the Secretary of the DED Executive Committee.

IDETC 2001: Dates have been set for 9-13 September. The Conference Chair (D. Mook, TCVS member) and ASME have signed a contract with the city of Pittsburgh on the use of the David Lawrence Convention Center (connected to Hilton Hotel) to be the conference venue. A wide range of symposia has been organized and Call-for-Papers flyers have been sent out to potential contributors and various magazines. Conference information can be found at the web site address: <http://www.me.cmu.edu/DETC2001>. J. A. Wickert and W. Clark are organizing the local activities, and Clark will organize the exhibitions at the conference. A subcommittee will look into various issues such as the rental of audio-visual equipment, the format of the conference proceedings.

IDETC 2003: A proposal was submitted from TCVS to DED and was accepted. The conference venue will be in Chicago. The General Conference Chair is A. A. Shabana (Univ. Illinois, Chicago), General Conference Vice-Chairs are K. W. Wang and J. Renaud, Program Chair is T. Royston, and Program Vice-Chair is R. G. Parker. Preliminary preparations are underway.

***TCVS web site:** C. Rahn (cdr10@psu.edu) was appointed as the webmaster. The address was moved to <http://www.me.psu.edu/tcvs>. A hyperlink (<http://www.asme.org/divisions/ded/index.html>) from ASME to this site has also been established (or simply go to www.asme.org and then follow the links). Current activities include updating the members database with links to their personal homepages and establishing hyperlinks to symposia organized by TCVS and international conferences that are of interest to TCVS members and friends. In the near future, a document on the history of DETC and TCVS will be uploaded, and information on the members' research expertise will be added.

***Interactions:** An effort to invite the Power Transmissions and Gearing Committee to participate in the IDETC was initiated by Sinha. K. W. Wang was appointed as the TCVS liaison officer to the Adaptive Structures and Material Systems Committee (Aerospace Division). K. Grosh was appointed as the TCVS liaison officer to the Noise Control and Acoustics Division.

Chin An Tan, Current Chair, TCVS

Mechanism News

There were several items on the agenda of the Mechanisms Committee meeting on September 12, 2000, which this observer (ed.) attended partially. These included progress reports on the ongoing 2000 Mechanisms & Robotics Conference and the IDETC 2000 in Baltimore. The Mechanisms Committee has been the lead committee for organizing IDETC in the even-numbered years. The planning and organization of IDETC 2002 in Montreal, Canada was discussed. The proposals for IDETC 2004 (Salt Lake City and Philadelphia) were presented and discussed—these will be taken up next by the Division Executive Committee. The Committee is soliciting proposals for IDETC 2006 (Quebec? Others?). In view of recent difficulties in booking hotels in attractive locations at affordable prices, the Division will move up the schedule for site selection for future IDETCs. The Committee also elected new members to replace those members whose term was expiring in 2000. Other information was not available to this observer (ed.) at the press time. More information will be available on Committee's

web page which can be accessed via Design Division homepage: <http://www.asme.org/divisions/ded/index.html>.

The Mechanisms Plenary Session was on Monday, September 11, 2000. The Mechanisms & Robotics Conference Chair Kazem Kazerounian led the audience to observe one minute of silence in the memory of Atmaram Soni who passed away unexpectedly on February 8, 2000 in Cincinnati at a relatively young age of 64. The Keynote Speaker for the Plenary Session was Bernard Roth who shared his thoughts on important milestones reached in mechanism field in the 20th Century, and on several interesting problems which remain open today. He also took a note of Ferdinand Freudenstein's ambitious and visionary "1972 San Francisco Program," and observed that most of the challenges posed by it have been tackled successfully in the intervening years. However, Roth tactfully declined to offer a similar program of his own for the future generations of kinematicians.

The Mechanisms Committee Award was presented to Jorge Angeles at the DED/Mechanisms Luncheon on September 11, 2000.



Mechanisms Committee Chair Harvey Lipkin presenting the Mechanisms Committee Award to Jorge Angeles as the Mechanisms & Robotics Conference Chair Kazem Kazerounian looks on

Calendar of DED Events

March 5-8, 2001

National Manufacturing Week

McCormick Place Complex

Chicago, IL

<http://www.manufacturingweek.com>

September 9-12, 2001

ASME International Design Engineering Technical Conferences

Hilton Pittsburgh and Towers

Pittsburgh, PA

<http://www.me.cmu.edu/DETC2001>

September 29-October 2, 2002

ASME International Design Engineering Technical Conferences

Sheraton Hotel

Montreal, Quebec, CANADA

September 3-6, 2003

ASME International Design Engineering Technical Conferences

Chicago Marriott, Downtown

Chicago, IL



Outstanding Design Educator Award recipient Bernard Roth and DED Chair Kenneth Waldron sharing a lighthearted moment during the Award presentation

Plan Ahead for Future IDETCs

IDETC 2001 - Pittsburgh, September 9 - 12 (*Dean Mook, Chair*)

IDETC 2002 - Montreal, September 29 - October 2 (*Kazem Kazerounian, Chair*)

IDETC 2003 - Chicago, September 3 - 6 (*Ahmed Shabana, Chair*)

Proposals to organize and host IDETC must be submitted to the Division Executive Committee several years in advance of the planned event. General guidelines for submitting conference proposals and for conference organization can be viewed at:

<http://www.asme.org/divisions/ded/idetcProposal.htm>

<http://www.asme.org/divisions/ded/idetcGuide.html>



Mrs. Tsai, Key Note speaker Bernard Roth, DETC'00 General Chair Lung-Wen Tsai, and DED Chair Kenneth Waldron pose for a group picture after a satisfying lunch

ASME Design Engineering Division

July 1, 2000 - June 30, 2001

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