



Experimentally Speaking...

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MESSAGE FROM THE PRESIDENT



Peter Avitabile, SEM President, 2016-2017

I am both humbled and proud to have been elected to serve as your President of SEM for the 2016-2017 term. When I look at all of the presidents before me, it is clear that I am standing on the shoulders of giants that have made significant contributions to the society.

As I move into this position, I have to thank Ravi our current president and his team for passing along a society in a very healthy state. And I think it is very important to note that the society still feels the impact of losing Tom Proulx who for more than a decade guided and helped to move the society to where we are today. Still today I can hear his kind voice with the friendly greeting of "Hey Guy...".

Tom certainly was a special guy and we are still trying to comprehend all that he did as we continue to search for our next Executive Director. I want to thank Kristin Zimmerman, who continues in the role of Executive Director as she has kept the society on the same positive path that Tom Proulx laid out. I also want to thank Jon Rogers for continuing his role on the board as treasurer and diligently overseeing the finances of our society.

SEM has made significant impacts through the continuing contributions through the conferences and publications. The IMAC and Annual conferences are continuing to grow and there is an increased interest in all the main topic areas of both conferences. It is very satisfying to see the conferences grow not just with the current members but also with the younger engineers starting to take significant roles to promote the conferences and the wide range of experimental topics that spans across the society. It is hard to believe that SEM has continued for over 7 decades and yet there are still major contributions that are being made to continue for many years to come. The techniques developed years ago still affect our lives and the latest developments have an effect right now and will continue for years to come. As the society has grown over the years, we have learned how to morph and transition as new techniques and methodologies arise. And just considering the simple strain gage as one of our very basic starting points and how we have now grown to newer and more capable techniques such as digital image correlation – stepping from the analog to the digital and providing new ways to answer still current questions related to product design.

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The theme of this year's annual conference highlights much of what we do...

Experimental Dynamic Behavior: Integrating Experimental Mechanics

There are 4 tracks on:

Dynamic Behavior of Material
Challenges in Mechanics of Time-Dependent Materials
Advancement of Optical Methods in Experimental Mechanics
Experimental and Applied Mechanics

along with 4 symposia

2nd International Symposium on the Mechanics of
Composite and Multifunctional Materials
2nd International Symposium on Joining Technologies
for Composites and Dissimilar Materials
6th International Symposium on the Mechanics
of Biological Systems and Materials
17th International Symposium on Micro- and Nanomechanics

We will have the JSA Young Investigator Lecture by Clive Siviour from the University of Oxford on "Techniques for High Rate Properties of Polymers" on Monday which shouldn't be missed - and the prestigious William M. Murray lecture by Horacio Espinosa from Northwestern University entitled "Ten Years of Progress in Experimental Nanomechanics Applied to 1D and 2D Materials" which will provide a broad range perspective in this area - and a Plenary Lecture by Yu-Lung Lo from National Cheng Kung University entitled "Analysis of Optically Anisotropic Turbid Media Based on Mueller Matrix for Biomechanics and Sensing Researches" which will also provide a wide view of progress in this area.

All these presentations are clearly indicative of the progress, relevance and thrust of the SEM in many of our lives in countless ways.

So as I start my role as President this year, I am looking at a society that has an obligation to move technology forward and at the same time educate others in what we do. We need to define the road, we need to pave the road, we need to maintain the road and of course we need to make sure the funds allow us to do so. So I am looking forward to:

- Supporting new goals and extensions of what we do to define the future
- Provide increased opportunities to present and publish our knowledge and findings
- To support the continued education and enhance learning of our members
- To support the successful health of the society

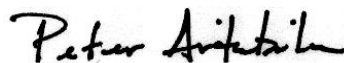
As we move forward and create new areas of growth and technology, we need to keep a mindful eye of who we are, where we have been and where we want to go. As Henry Kissinger once said "If you have no destination, any road will get you there". I believe we have identified who we are and where we want to go and we need the support of the entire society to continue the tremendous accomplishments that have been made and will continue into the future. Together we can continue the fantastic journey!

I am pleased to announce my appointments for the coming year are as follows:

Kristin Zimmerman as Secretary of the Society
Jon Rogers as Treasurer
Guruswami (Ravi) Ravichandran,
Immediate Past President, as Chair of Administrative Council
Kathryn Dannemann, President-Elect,
as Chair of the Technical Activities Council
Wendy Crone, Vice President,
as Chair of the National Meetings Council
Michael Mains, as Vice-Chair of National Meetings Council
Ghatu Subhash, as Vice-Chair of Technical Activities Council
Hareesh Tippur, as Vice-Chair of Editorial Council
Sezar Atamturktur (IMAC), At-Large Board Member
as Vice-Chair of Technical Activities Council
Randy Mayes (IMAC), At-Large Board Member
of Honors Committee
Gaetan Kerschen, At-Large Board Member
as Executive Board Representative to IMAC Advisory Board
Helena Jin, At-Large Board Member
as Vice-Chair of National Meetings Council
Horacio Espinosa, At-Large Board Member
as Vice-Chair of the Research Committee

And we need to all be extremely grateful for the dedication and loyalty of the SEM staff – please thank them because we could not function without their constant and persistent support to all the functions of the SEM society. We are the friendly society and much of that is directly attributed to the staff thanks to their efforts and unwavering dedication. I look forward to working with the Executive Board and serving you as the President. I encourage you to provide me your suggestions on how the society can better serve you and your needs.

Thank you.



Peter Avitabile
SEM President

FROM THE EXECUTIVE DIRECTOR

With this message, I would like to share with you a few highlights from our 2016 XIII International Congress and Exposition on Experimental and Applied Mechanics held at the Hilton Lake Buena Vista in Lake Buena Vista, Florida. The hotel venue worked very well for our Annual Conference and we are evaluating whether or not it can fit our needs for future IMAC conferences.

Like IMAC, our Annual Conference was an outstanding success with over 430 attendees. Our Executive Board, Councils, Committees and Technical Divisions (TDs) accomplished a great deal. The TDs have already begun planning for 2017 and 2018 (the year of our 75th Anniversary). I look forward to learning of the potential Technical Program content that we can prepare to build over the next two years as we tap into the new energy that I am feeling, not only from the veteran members, but amongst the rising number of new, young conference attendees and members.

Our conference net revenue targets were about 17% better than budget. What this means, is that we are continuing on a nice trajectory in strategic surplus funds that we can eventually tap to support growth in key areas across the membership and the Society collective.

As I stated in my March message, "SEM is defined by its ability to remain agile, focused and open to all experimental mechanicians who have an insatiable thirst to learn and grow as experts in their field of study. Our relatively small conference size enables our agility...allowing us to keep our finger on the pulse of what is next, create a focus group or TD to represent a new area, and carve out our niche in that new area. A niche that sends the message to our meeting participants that the SEM IMAC, Annual and Fall conferences are the ones to attend. This, I believe is one of the keys to what defines us and gives strength to the meaning of the "friendly society."

I am extremely grateful to the conference organizers, session organizers, and TD Chairs for putting together a Technical Program that clearly hit the mark in terms of covering both emergent and emerging areas of the greatest interest to our conference attendees and members. The Technical Program is the core of our conference. We invite all members and conference attendees to get involved so you can offer ideas for growth and planning of future conference Technical Programs.

During our Annual meeting, the Editors-in-Chief of our three Journals held their respective Editorial and Advisory Board meetings with a new, focused effort on increasing communication across the journal editors and boards to grow greater coordination. We all agreed that we need a better way to publish the work presented at our meetings into one of SEM's peer reviewed journals. You may have noticed that I mentioned this specifically in the thank you email that was sent out to all conference attendees inviting each and every one of you to write a paper for submittal to EM, ET or JDBM based on the work presented at the conference.

I firmly believe that we, the SEM, owe all of our conference attendees and members a community (through our three conferences per year) as well as an appropriate peer-reviewed journal to publish in. I believe very strongly in this message and will be working diligently with our Technical Programming Committee on conference planning and the leadership of our three journals to be sure that the aims and scope of each journal remain current to the needs of our membership, we want our members to publish their latest work, in an SEM journal.

We are in the midst of preparing proceedings to highlight the contributions that will be made during our upcoming International Digital Image Correlation Society (iDICS)/SEM Fall Conference, November 7-10, 2016 in Philadelphia, PA. Please look to the following website (idics.org/idics-2016) for additional information. Thank you to Michael Sutton and Phillip Reu for their leadership and coordination of this meeting.

Where do we need help? We have now launched our new web platform. It may look and feel much like the old website at this time, but I assure you, the back end has been designed to enable greater throughput and efficiency for the staff, better design flexibility, and far better usability amongst our members. Please continue to be patient with us as we enter into what I would like to call our beta testing phase this summer and fall. We will need your input, your guidance, and especially your patience and support to be sure it is your 'go-to' website for all things regarding SEM and the experimental mechanics community.

As a final note, I want to extend a special thank you to the SEM staff for their tireless work in putting together two outstanding conferences this year, for being there to answer the numerous emails from the conference attendees and members in preparation for the conferences, and for all of the other things that they do, day-in and day-out as a team to be sure SEM continues on its strong growth trajectory. I invite you to send an email to Jen, Shari, Joni, Nuno and Sharon to acknowledge the work that they do on your behalf and on behalf of SEM. Thank You!!

I want to also personally thank all of you for a tremendously successful and fun Annual Conference. I look forward to seeing you in Indianapolis, IN in 2017.

As always, your questions and comments are very welcome, so please don't hesitate to email or call.



Kristin Zimmerman,
Executive Director

2016 SEM XIII INTERNATIONAL CONGRESS

CONFERENCE AND EXPOSITION
ON EXPERIMENTAL AND APPLIED MECHANICS

DYNAMIC BEHAVIOR:
INTEGRATING EXPERIMENTAL MECHANICS

JUNE 6–9, 2016 AT THE HILTON ORLANDO LAKE BUENA VISTA, LAKE BUENA VISTA, FL USA

HIGHLIGHTS AND AWARDS OF XIII INTERNATIONAL CONGRESS IN LAKE BUENA VISTA, FLORIDA



William M. Murray Lecturer—Horacio D. Espinosa (Northwestern University)
with Guruswami Ravichandran (SEM President)



Guruswami Ravichandran (SEM President) with JSA Young Investigator
Lecturer—Clive Siviour (University of Oxford) and ?? ()



Plenary Lecturer—Yu-Lung Lo (National Cheng Kung University)
with Guruswami Ravichandran (SEM President)



Guruswami Ravichandran (SEM President)
with new SEM Fellow Janice Dulieu-Barton



Guruswami Ravichandran (SEM President)
with G.A. Brewer awardee Phillip L. Reu



Guruswami Ravichandran (SEM President)
with A.J. Durelli awardee Junlan Wang



Guruswami Ravichandran (SEM President)
with B.J. Lazan awardee Douglas E. Adams



Guruswami Ravichandran (SEM President)
with new SEM Fellow K. Jane Grande-Allen



Guruswami Ravichandran (SEM President)
with F.G. Tatnall awardee Hareesh V. Tippur



Guruswami Ravichandran (SEM President)
with C.E. Taylor awardee William Fournay



Guruswami Ravichandran (SEM President)
with F. Zandman awardee Peter Ifju



Guruswami Ravichandran (SEM President)
with new SEM Fellow Xiaodong Li



Guruswami Ravichandran (SEM President)
with M.M. Frocht awardee Lawrence N. Virgin



M. Hetényi awardees Meredith N. Silberstein
and Elizabeth M.C. Jones [awardees not
pictured: Scott R. White and Nancy R. Sottos]



Guruswami Ravichandran (SEM President)
with G.L. Cloud Scholarship awardee
Xueju "Sophie" Wang and Gary L. Cloud



Guruswami Ravichandran (SEM President)
with new SEM Fellow Hongbing Lu



Guruswami Ravichandran (SEM President)
acknowledging Hareesh Tippur's dedicated
service as EIC of Experimental Mechanics journal.



Guruswami Ravichandran (SEM President) with
J.W. Dally Young Investigator awardee Samantha Daly, J. W. Dally and Arun Shukla

2016 SEM XIII INTERNATIONAL CONGRESS PEOPLE AND EVENTS



International Student Paper Competition winners with Jonathan Rogers (Sandia National Laboratories)



SEM 2016 XIII International Congress' International Student Paper Competition winners

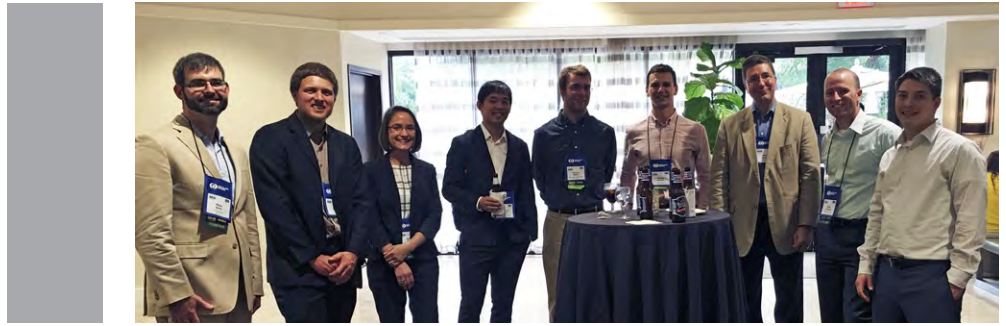


William M. Murray Lecturer–Horacio D. Espinosa (Northwestern University) with 300+ members of academia, industry and government present.



mpetition participants.





MEMBER NEWS

PETER K. STEIN (1928-2016)



It is with our deepest sympathies, the Shock and Vibration Exchange has learned of the passing of Professor Peter K. Stein. Professor Stein, SAVIAC Lifetime Achievement Award recipient, passed away June 8th, 2016 in Phoenix, AZ at age 87. Until failing health slowed him in more recent times, Pete had been a regular contributor to the Shock and Vibration Symposia for decades.

Professionally, Pete devoted his career to the enhancement of the measurement sciences. As a graduate student at MIT he was mentored by Prof. William Murray, founder of the Society for Experimental Stress Analysis (now Society for Experimental Mechanics). He also worked in proximity to Prof. Arthur Ruge, co-inventor (1938) of the resistance strain gage. Professionally he first worked four years as Engineering Group Leader in the small-gas turbine industry. Subsequently he became affiliated with Arizona State University (ASU), and was employed there for 23 years, 14 as full professor. While at ASU he established a program in Measurement Systems Engineering, based upon his Unified Approach, which awarded 960 combined undergraduate and graduate degrees.

Prof. Emeritus Stein was a Senior Member IEEE, Fellow of the Instrument Society of America (ISA), and Fellow of the Society for Experimental Mechanics (SEM). He was a founding member of the Western Regional Strain Gage Committee, a member of the Old Guard of ASME, and was for 24 years a delegate and former Board Member of the National Conference of Standards Laboratories. He served on the National Academy of Sciences Evaluation Panels of the

National Bureau of Standards (now NIST) for their Mechanics Division, Electronic Technology Division, and for the Center of Mechanical Engineering and Process Technology. He was the U.S. delegate to four Technical Committees of the International Measurement Confederation - IMEKO: Education & Training, Measurement Science, Measurement of Force and Mass, and Measurements in Experimental Mechanics. During a portion of his tenure at ASU he also served as editor-publisher of the journal *Strain Gage Readings*. He published this journal (beginning in 1958) bi-monthly for six years featuring news in experimental stress analysis.

He received the Frocht Educator Award from SEM, the Eckman Educator Award from ISA, and the Faculty Achievement Award from Arizona State University. He also received SEM's Tatnall Award for Service to the Society. Pete was Visiting Professor of Mechanical Engineering at Stanford University, of Electrical Engineering at the Technical University of Braunschweig, Germany and of Civil Engineering at the Technical University of Denmark. He has been an Exchange Scientist between the U.S. and Polish National Academy of Sciences.

While at ASU, Prof. Stein initiated a series of short course programs in Measurement Systems Engineering, which have been presented 300 times in 28 states in the U.S., 17 countries, and four continents covering the spectrum of governmental, industrial, and educational institutions. These courses have had over 3,000 attendees and extended through 2002. The preceding, plus 100s of publications, just begin to provide a professional tribute to Pete.

Personally you could have no better friend than Pete Stein. His professional colleagues (e.g., Henry Pusey) would always look forward to a personal call from him on their birthday. For approximately two decades he published a semi-annual newsletter to keep in touch with the 960 engineering students who passed through his ASU classes. Ed Simons, who belatedly received the patent for the invention of the strain gage (1936) ended up destitute in his later years. Pete raised funds and had Ed placed in a caring nursing facility until he passed away.

Pete's faithful wife and partner Sandy was always at his side in his short courses guiding the women's tours, welcoming guests with fruit baskets, often directing his activities, and more. He always introduced Sandy as "the best thing that happened to me in college". Sandy survives and misses Pete as do his son David and daughter Baracha and their families. Rest in peace Peter K. Stein!

- This remembrance provided to SAVE by Dr. Patrick Walter of Texas Christian University and PCB Piezotronics.

EVENTS CALENDAR

2016

INTERNATIONAL DIC SOCIETY 2016 CONFERENCE AND WORKSHOP/ SEM FALL CONFERENCE

EXTENDING THE FRONTIERS: TRAINING THE NEXT GENERATION:
STANDARDIZING FOR INDUSTRY: IMPROVING OUR PRACTICE

NOVEMBER 7–10, 2016

DOUBLETREE BY HILTON HOTEL

Philadelphia Center City
237 South Broad Street
Philadelphia, PA USA

sem.org

2017

IMAC-XXXV

STRUCTURAL DYNAMICS CHALLENGES
IN NEXT GENERATION AEROSPACE SYSTEMS

JANUARY 30–FEBRUARY 2, 2017

HYATT REGENCY ORANGE COUNTY

11999 Harbor Boulevard
Garden Grove, California, USA, 92840
(714) 750-1234
orangecounty.hyatt.com

2017 SEM ANNUAL

JUNE 12–15, 2017

HYATT REGENCY INDIANAPOLIS

Indianapolis, IN, USA

To explore these events and others SEM and its partners are planning, please go to sem.org for more information.