SEM

Experimentally Speaking...

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MESSAGE FROM THE PRESIDENT

Guruswami (Ravi) Ravichandran,
SEM President, 2015-2016

IN THIS Issue

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I am grateful and honored to be elected to serve as the President of SEM for the 2015-2016 term. I am deeply humbled to follow many illustrious leaders of the society who have guided us over the past seven decades.

I am inheriting this position from our able president Nancy Sottos, who has provided outstanding leadership during this eventful past year. This year also marked the passing of our beloved friend and Executive Director, Tom Proulx, who guided the society in an exemplary manner over the last 13 years. He will be missed.

I would like to thank Kristin Zimmerman for stepping into the role of interim Executive Director at very short notice and for guiding the society most ably during this transition. Our thanks to Jon Rogers who rejoined the board as treasurer and diligently oversaw the finances of our society. It is my pleasure to welcome David McThomas as he joins us as the society's new Managing Director.

We should all be proud of SEM's history of technical contributions. I can confidently say that they have had a profound impact in making the world a better and safer place. We are the inheritors of the grand tradition of experimentation that was begun a long time ago by the likes of Archimedes, Galileo and Newton. We carry this tradition forward and seek the truth with vigor since ultimately "experiment is the sole judge of scientific truth" as Richard Feynman elegantly put it. For over seven decades SEM has been leading this charge and defining the future by constantly pushing the technological envelope, which have led to numerous discoveries and inventions. Our society was largely responsible for making strain gages and photoelasticity as the leading techniques for strain measurement and stress analysis. These techniques have had a profound impact on the development of numerous applications that define modern society, from airplanes and space shuttles to automobiles and computers.

SEM members have also pioneered the techniques for advanced modal analysis, digital image correlation and numerous other techniques in the recent years. This has contributed to the resurgence of experimental mechanics and its ever-increasing applications over a large range of spatial and temporal scales. The worldwide experimental mechanics community in academia, government and industry rely on SEM for the knowledge required for new applications, whether it is microelectronics or biomedical devices or exploring Mars. The future of experimental mechanics is bright as we can see from the nearly 500 presentations scheduled for our Annual conference and the equally impressive IMAC conference held earlier this year in Orlando, Florida, which featured more than 400 presentations.

Continued

The theme of this year's Annual Conference captures the essence of our technical breadth and the impact of our society, **Experimental Mechanics spanning multiple scientific and engineering disciplines**. We will have two outstanding prize lectures in this conference, which also resonate with this year's theme. Dr. Gordon Shaw of the National Institute of Standards and Technology will present the JSA Young Investigator Lecture on Monday morning on "Small force measurement from thin films to photons." Professor K.T. Ramesh of the Johns Hopkins University will deliver the prestigious William M. Murray lecture on Tuesday morning on "Dynamics across the scales: Rocks, shocks and asteroids." An integral and important part of our conference is the annual student paper competition, which will feature 14 students. The inaugural video poster session is also scheduled to take place.

As we reflect upon and celebrate the past and present achievements of our society, we have a responsibility to make sure that those following us have the opportunity to build on our success. We need to ensure that we continue to attract and train the best people, who will make inventions yet to be imagined, possible. With this in mind, I would like to define my goals for the coming year:

- Enhance the participation and training of students and young scholars in society activities.
- Strengthen our relations with the international community of scholars and enhance our global visibility.
- Increase the base and value of our intellectual property and knowledge contributions.
- Develop strategies to improve the financial health of the society through fundraising activities.

I am pleased to announce my appointments for the coming year.

They are as follows:

- Kristin Zimmerman, Secretary of the Society
- Jon Rogers, Treasurer
- Nancy Sottos, immediate Past President as Chair of Editorial Council
- Kathryn Dannemann, current Vice President, has been appointed for a two-year term as Chair of the Technical Activities Council
- Ghatu Subhash, At-Large Board Member as Vice Chair of Technical Activities Council
- Gaetan Kerschen, At-Large Board Member as Executive Board Representative to the IMAC Advisory Board
- Michael Mains, At-Large Board Member as Vice Chair of National Meetings Council
- Hareesh Tippur, At-Large Board Member as Vice Chair of Editorial Council
- Daniel Rixen, At-Large Board Member of Honors Committee

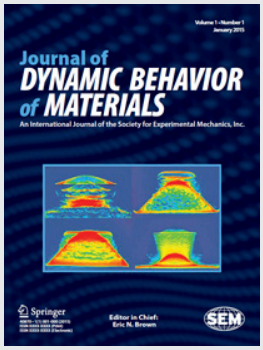
I would like to thank the many exhibitors at this conference, whose products and instruments enable us to imagine and develop new and novel experimental techniques. Please make sure you visit the exhibits and learn about recent advances during your time here at the conference.

Let us all thank the SEM staff for their outstanding service to the society. We remain the friendly society thanks to their efforts and unwavering dedication. I look forward to working with the Executive Board and serving you as President. I encourage you to provide me your suggestions on how the society can better serve you and your needs.

G. Ravichandran

Guruswami (Ravi) Ravichandran
SEM President

Have you checked out JDBM?

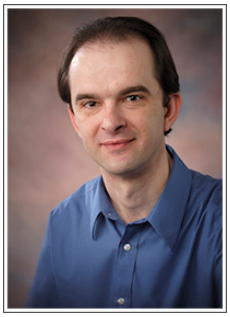


Two issues of the Journal of Dynamic Behavior of Materials are now in print! Submit your best work on the study of the Dynamic Behavior of Materials to the journal and help get the word out to your colleagues.

Visit https://www.editorialmanager.com/jdbm for instructions for authors and to submit your article.

We look forward to your submissions!

IOANNIS CHASIOTIS APPOINTED THE EDITOR OF EXPERIMENTAL MECHANICS



Professor Ioannis Chasiotis, University of Illinois, Urbana-Champaign has been appointed the Editor of Experimental Mechanics, effective January 1, 2016. Professor Chasiotis is a distinguished researcher in the field of mechanics of materials and has made pioneering contributions to experimental mechanics.

Ioannis Chasiotis is a Professor of Aerospace Engineering at the University of Illinois at Urbana-Champaign and an affiliate of the Beckman Institute for Advanced Science and Technology. He received his Ph.D. and M.S. degrees in Aeronautics from the California Institute of Technology in 2002 and 1998, respectively, and his Diploma in Chemical Engineering in Greece in 1996.

His research focuses on the experimental deformation and fracture mechanics of thin films, micro and nanoscale structures and their composites. He has developed high resolution atomic force and optical microscopy based experimental methods to capture full-field strains in heterogeneous materials at the micro and the nanoscales, and to investigate strain rate dependent mechanisms responsible for the inelastic mechanical behavior of nanocrystalline metal films. His research group has developed a versatile MEMS-based experimental method to study the mechanics of polymeric and biological nanofibers in a broad range of size and time scales.

He is a recipient of a Presidential Early Career Award for Scientists and Engineers (PECASE), the M. Hetényi and A.J. Durelli awards from the Society for Experimental Mechanics (SEM) , the SES Young Investigator Medal, the ASME Thomas J.R. Hughes Young Investigator Award, the Journal of Strain Analysis Lecture from the SEM, an NSF-CAREER Award, an ONR Young Investigator Award, the Founder's Prize from the American Academy of Mechanics, and the Charles Babcock Memorial Award from the California Institute of Technology. He is a member of the SEM and the ASME.

Professor Chasiotis will succeed Professor Hareesh Tippur, Auburn University who will be completing his 5-year term as Editor. Under Professor Tippur's leadership, the journal grew in stature and also attracted a record number of submissions from around the world. He also initiated and oversaw the publication of a number of special issues on a wide range of subjects of interest to SEM. The society thanks Professor Tippur for his exemplary service as Editor.

2015 SEM INTERNATIONAL STUDENT PAPER COMPETITION

Student Paper Competition Winners: *Helio Matos, Elizabeth Jones and Ehsan Hosseinian with Nancy Sottos–SEM President*

FIRST PLACE:

#5285 – Elizabeth Jones, University of Illinois at Urbana-Champaign
"Electrochemically-Induced Stiffness Variations
in Lithium-Ion Battery Electrodes"

SECOND PLACE:

#541 – Helio Matos, University of Rhode Island
"Pressure Wave Mitigation of Polyurea Coated Aluminum Cylinders"

THIRD PLACE:

#531 – Ehsan Hosseinian, Georgia Institute of Technology
"Real-time Insitu TEM Creep and Fatigue of
Nanocrystalline Ultra-thin FCC Films"

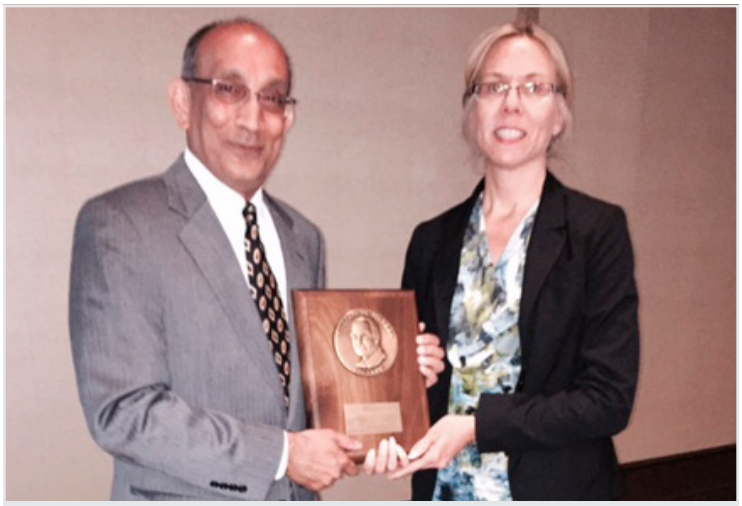
2015 ANNUAL CONFERENCE AND EXPOSITION ON EXPERIMENTAL AND APPLIED MECHANICS

JUNE 8–11, 2015 AT HILTON ORANGE COUNTY, COSTA MESA, CALIFORNIA USA

Over 450 attendees enjoyed our June 7-11 Annual Conference & Exposition on Experimental & Applied Mechanics at the Orange County Hilton in Costa Mesa, California. This year's theme of Experimental Mechanics Spanning Multiple Scientific and Engineering Disciplines covered 4 distinct tracks and 3 Symposia. A total of 415 presentations were given and, in addition, the event offered two pre-conference courses on "Digital Image Correlation" and "Infra-red Thermography in Experimental Mechanics".

The conference featured Dr. K. T. Ramesh, of John Hopkins University, who presented this year's William M. Murray Lecture on "Dynamics across the Scales: Rocks, Shocks and Asteroids" and Dr. Gordon A. Shaw III, of the National Institute of Standards and Technology, our JSA Young Investigator Lecturer, who presented "Small Force Measurement from Thin Films to Photons".

This year's successful Conference also included a well-attended Exhibitor Hall, 14 participants in our International Student Paper Competition and SEM's first Video Paper Session. Our Annual Business Meeting and Executive Board meeting was held during the event and SEM's leaders held over 18 committee, council and advisory group meetings. Our attendees renewed ties and made new acquaintances during the course of the five days and were treated to our Opening and President's Receptions, a pizza lunch, and SEM's All Society Awards luncheon.



K.T. Ramesh–William M. Murray Lecturer with Nancy Sottos–SEM President

Accompanied by family, K.T. Ramesh–William M. Murray Lecturer with Nancy Sottos–SEM President

Eann Patterson–Editor, Journal of Strain Analysis for Engineering Design and Gordon A. Shaw III–JSA Young Investigator Lecturer with Nancy Sottos–SEM President

Nancy Sottos–SEM President with
Hugh Bruck–SEM Fellow

Wendy Crone–SEM Fellow with
Nancy Sottos–SEM President

Peter Ifju–SEM Fellow with
Nancy Sottos–SEM President

Ghatu Subhash–SEM Fellow with
Nancy Sottos–SEM President

Frank W. DelRio–A.J. Durelli awardee with Nancy Sottos–SEM President

John Lambros–M.M. Frocht awardee with Nancy Sottos–SEM President

Nancy Sottos–SEM President with Michel Grédiac–B.J. Lazan awardee

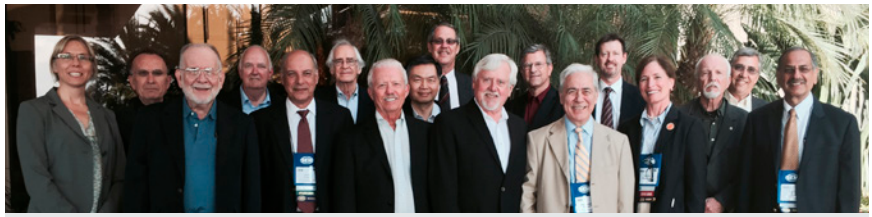
Nancy Sottos–SEM President with
Ares J. Rosakis–S. Nemat-Nasser awardee

Fu-pen Chiang–P.S. Theocaris awardee with
Nancy Sottos–SEM President

Wei-Chung Wang–F.G. Tatnall and F. Zandman awardee with
Nancy Sottos–SEM President

Kristin Zimmerman–SEM Interim Executive Director being recognized
for her efforts in her role with Nancy Sottos–SEM President

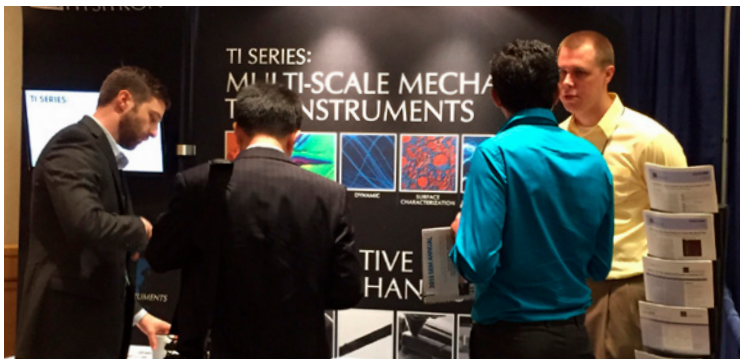
Student Paper Competition participants

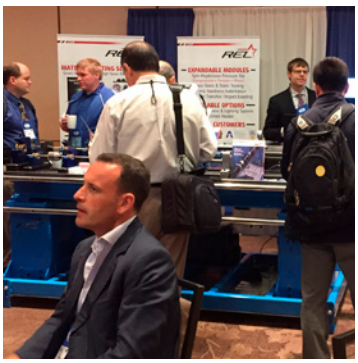


SEM Past Presidents gathered before their annual dinner

HIGHLIGHTS

Attendees mingling and interacting with exhibitors during receptions and show hours.





Eric N. Brown–Editor-in-Chief of the Journal of Dynamic Behavior of Materials with a first issue printed copy in hand after the successful launch

MEMBER NEWS

LAURENT ROBERT (1971-2015)

Dr. Laurent Robert, Associate Professor at Ecole des Mines d'Albi in France, passed away on April 15, 2015, at the age of 43 after a long fight against myeloma cancer.

Laurent Robert received his Agrégation, the highest high school teacher's qualification in France, in Mechanical Engineering from the French Ministry of Education in 1996. In 2001, he received his PhD on polymer extrusion from University of Nice in France. His PhD thesis was awarded the 2002 PhD prize from the French Society of Rheology.

Since 2002, Dr. Laurent Robert has been developing his research activities at Ecole des Mines d'Albi in France, in the research group on Metrology, Identification, Control and Monitoring at the Clément Ader Institute. Dr. Laurent Robert's research activities spanned a broad range of technical areas including photomechanics, identification from full-field measurements, and instrumentation based on optical fiber sensors for process monitoring. He was a worldwide expert in Digital Image Correlation (DIC) and an outstanding experimentalist.

Since 2007, Dr. Laurent Robert was the co-leader of a working group on "Metrology" within the French research network on Full-field Measurements and Identification in Solid Mechanics (in which 25 French research laboratories are involved) under the auspices of CNRS (National Center for Scientific Research). All his colleagues from the network wish to acknowledge Laurent for his strong commitment and for his leading actions for the benefit of the whole French photomechanics community.

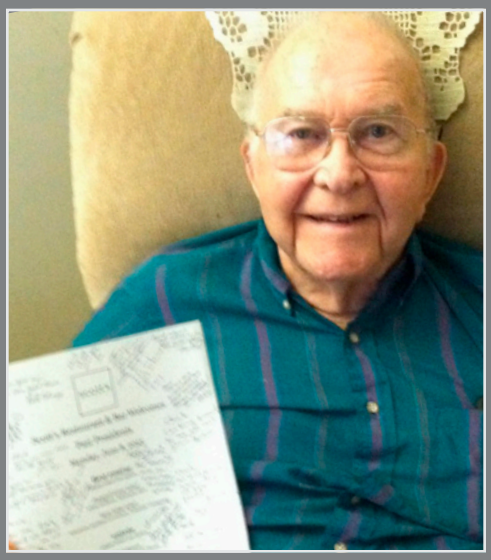
Since 2011, Dr. Laurent Robert was an active board member of the DIC Challenge under the auspices of SEM, providing his expertise on DIC accuracy assessment for the international community. In the same year, Dr. Laurent Robert and his co-authors received the SEM Hetényi Award for the best research paper published in Experimental Mechanics in 2009. Laurent was the corresponding author of this collective paper (14 co-authors) and he did a great job to coordinate and merge all the co-authors contributions. In 2013, Dr. Laurent Robert earned his habilitation from University of Toulouse. In France, this degree is required to supervise PhD students and apply for a senior academic position.

In addition to being a great scientist, Dr. Laurent Robert was also an exceptional teacher. His teaching activities included a broad range of fields including Continuum Mechanics, Strength of Materials, Mechanical Design and Manufacturing, Plastics Processing, Rheology, Photomechanics, Optical fiber sensors, Probability and Statistics for Measurements. At Ecole des Mines d'Albi, Dr. Laurent Robert also had several educational duties. He was member of the Management Team of the Master's degree (in English) "Advanced Manufacturing Processes for Aeronautical Structures (AMPAS)" and he was also in charge of an Engineering Co-operative Program (Co-op program) on Mechanical & Aeronautical Industries.

The overwhelming consensus among his friends, colleagues, and students is that Dr. Laurent Robert was extremely passionate in his job, skillful, efficient, conscientious, open-minded, hardworking, discreet, modest and friendly. Since 2007, Laurent has fought cancer with an incredible courage, under the admiration and respect of all. During his long medical treatments, he maintained his excellent work and continued to do his research and give his courses until the very end.

Two things helped him carry on: the passion for his job and the love for his two children Adrien (8 years old) and Quentin (6 years old).

They will miss him greatly as we will!



CHUCK TAYLOR

During the SEM Annual Conference in Costa Mesa, CA, the Past Presidents celebrated the Annual Past Presidents Dinner in the traditional manner, except that Charles (Chuck) E. Taylor (SESA President in 1966-67) was not in attendence, since his health didn't allow him to make the trip from Florida.

This didn't deter those in attendance from involving Chuck during the dinner. They called Chuck on the phone and everyone had the opportunity to voice their salutations.

Additionally, everyone in attendance signed the specially printed menu which was hand delivered to Chuck.

To the left is a photo taken of Chuck with the menu. He is doing quite well and sends his regards and hopes to make the SEM Annual Conference in Orlando next year.

INVITE COLLEAGUES TO JOIN SEM!

Very soon, we will be forwarding our annual dues statements to our membership. As we begin another association year, we're sure you are familiar with the benefits of belonging to the Society for Experimental Mechanics, but your colleagues are missing out on the chance to be part of an active network of professionals working in Applied Photoelasticity, Biological Systems and Materials, Dynamics of Civil Structures, Composite, Hybrid & Multifunctional Materials, Dynamic Behavior of Materials, Fracture and Fatigue , Inverse Problem Methodologies, MEMS and Nanotechnology, Modal Analysis, Model Validation & Uncertainty Quantification, Optical Methods, Residual Stress, TCSG, Thermomechanics and Infrared Imaging, Time Dependent Materials and Sensors and Instrumentation.

Tell your colleagues about the value of our "Friendly Society," the access they can achieve and the savings they can enjoy!

Encourage your colleagues to complete and send in a membership application and they can begin to benefit from SEM's member services:

- Reduced conference rates
- Discounts on publications
- Access to professional resources
- Technical Divisions
- *Experimental Techniques*
- *Experimental Mechanics*
- *Journal of Dynamic Behavior of Materials*
- Reduced cost of membership at our sister organizations

Tell your colleagues now is the time to join!

Visit http://www.sem.org/Membership.asp for an application form.

FUTURE CONFERENCES

Plan ahead for our 2016 conferences.

IMAC-XXXIV

A CONFERENCE AND EXPOSITION ON STRUCTURAL DYNAMICS
DYNAMICS OF MULTIPHYSICAL SYSTEMS:
FROM ACTIVE MATERIALS TO VIBROACOUSTICS

JANUARY 25–28, 2016

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INTEGRATING EXPERIMENTAL MECHANICS

JUNE 6-9, 2016

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