



# Experimentally Speaking ...

<http://sem.org>

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## Message from the President

I'm fresh off of my trip to Edinburgh, Scotland, where the British Society for Strain Measurement (BSSM) and the Society for Experimental Mechanics (SEM) co-sponsored a conference on "Advances in Experimental Mechanics – Integrating Simulation and Experimentation for Validation." This conference marks the beginning of a series of fall conferences held outside the United States, solidifying our quest to be a more global society.

I would like to personally thank the organizers Margaret Lucas, Eann Patterson, and Simon Quinn for putting together a truly stimulating program.

The conference spanned three days and boasted 85 presentations including, two keynote lectures, invited talks for the best paper in the journal *Strain* as well as the prestigious Measurements Lecture, and four student paper competitors. I must say that I was impressed by the organization, hospitality, and venue of the conference. I was also impressed by the number of participants from North America as well as from Asia.

The conference started Wednesday, September 7, with a keynote given by Wolfgang Osten on what metrology can do for experimental mechanics. Sessions on experimental challenges of high strain rate and dynamic events dominated most of the first day. On the second day of the conference, topics included material behavior, measurement innovation, residual stress, and vibration analysis. In the afternoon, there was a student paper competition followed by Cesar Sciammarella who presented the best paper in *Strain* and Janice Dulieu-Barton who presented a nice historical review of thermomechanical coupling and applications to stress and damage analysis. The conference banquet was held in a beautiful old church that was repurposed as a banquet hall. After a wonderful meal of smoked salmon, venison, and lots of wine, there were spirited welcoming speeches by the



Peter G. Ifju, SEM President, 2011–2012

organizers and sponsors. The student paper awards were also presented. Even though most people stayed at the banquet until well past midnight, there was great attendance for the final morning's keynote lecture, presented by Guruswami Ravichandran. Friday's topics included validation methods, composite materials, thermal deformation, photoelasticity, and thermomechanics. After some sightseeing, I enjoyed a nice meal of ale, haggis, neeps and tatties with friends. The following morning I was on my way back to the States.

I can't wait until next year's fall SEM-sponsored conference which is being

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# What You May Not Have Known



Photo by Shari Matthews

**A Baptism by Fire.** It is hard to believe that three decades have gone by since SEM's then-Managing Director, Ken Galione, walked into the office of his newly-hired assistant, who had been a part of the SEM Staff for less than three months, and told her that he had an "opportunity" for her. Yes, I am talking about how Kathy Ramsay – who came to be the face of SEM's IMAC and Annual Conferences for hundreds, if not thousands, of people – was catapulted into the responsibilities of being SEM's Meetings Manager!

Of course, like any good manager, Ken saved the best for last – and only told Kathy, after she had voiced a very hesitant, "I can give it a try," that the first Spring Conference she was going to be responsible for was the one scheduled to take place in Hawaii the following May, with its split between two locations (Oahu and Maui) and all the attendant complications of getting 400-plus people checked out of the Ilikai, transported to the Honolulu Airport, shepherded onto inter-island flights, bussed from the Kahului Airport to Lahaina, checked-in at the Marriott, and successfully reunited with their luggage. The icing

on the cake? Kathy had never even attended an SEM Conference before, let alone put one together! Talk about learning how to swim by stepping off the highest-available diving board into the deep end of an Olympic-sized swimming pool!!

So you see, for those of you who may have wondered how Kathy could possibly stay so cheerful and unflappable through so many of the crises (some small and some not-so-small) that inevitably accompany events that are as logistically complex as the periodic gatherings of the "Friendly Society," everything since has been a mere bump in the road compared to that very first event that Kathy had to take charge of. Whether it was arranging for the special section containing late submissions to be inserted at the very back of the camera-ready Annual Conference Proceedings so that lowly grad students like me wouldn't have to explain why the paper we were responsible for wasn't in the printed volume, or making sure that those of us who had forgotten to make hotel reservations didn't have to camp on the sidewalk, or talking to nervous first-time speakers and calming them down before their session, Kathy could always be counted on to help each and every one of us through whatever complication we needed her help with. In the process, she made countless numbers of first-time attendees at SEM's events feel that this was a place they wanted to return to, and probably did more than any of us to increase the membership of the society. When I had students of my own and they would ask me how to best do this-or-that in connection with their SEM Conference Paper, I knew that I could just say, "Call Kathy Ramsay at SEM HQ and she'll help you figure it out!" Most importantly, I knew that Kathy would go out of her way to take care of each and every one of "her" speakers and

attendees, regardless of whether they were Past-Presidents of SEM or grad students traveling to their first-ever technical conference.

For those of us, like me, whose road in SEM has pretty much paralleled Kathy's until now – my own first SEM Conference was Boston in May of 1980 – we have seen the Annual IMAC and Spring Conferences (and the periodic Fall Conferences) go through many of the changes that make today's events look nothing like the ones from the early-1980s. But one thing was always the same for the past thirty years – the sight of Kathy, with bulging three-ring binder in hand and sneakers on her feet, crisscrossing the meeting space at whatever venue we were at, dealing with and resolving whatever glitch had arisen so that SEM and its members could walk away at the end of the week saying, "Now that's what I call an enjoyable technical conference. I have to make sure I come back next year!"

Obviously we will all miss seeing Kathy at our future conferences. But, we will come to the next one (and the one after that, and the one after that one, and ...) knowing that Kathy's legacy to SEM will endure for many years to come because of the time and effort that she put into helping create the outstanding staff team that, thanks to her, knows how to put on a great event and how to overcome the on-site challenges that can so easily overwhelm the best and most careful pre-event plans. From all of us that had the pleasure and privilege of working with you, Kathy, "Thank you!"

– Ravi Chona

*Continued*

**Kathy Ramsay - Part I.** For 20 years, the energy behind IMAC has been Kathy Ramsay. She is retiring to a slower life-style of travel and grandchildren. Working with the hotel to make our conference a success is no trivial task, but in addition, we have seen her each day of the conference making sure the session chairs' needs are met, the coffee breaks are perfect, and the conference luncheon is on schedule with the appropriate table arrangements. What people haven't seen is the effort invested to make IMAC successful prior to each conference. Kathy organizes the abstracts as they come in. As many of you know, she communicates with each author, sometimes gently reminding them that they need to get their paper in. She has handled the assignment of Chairs to each session,

and organizing the pre-conference short courses.

Kathy has been the foundation and soul of IMAC with her consistent effort to make the conference evolve within the vision of Dick DeMichele. IMAC has always had the reputation of a conference where lifelong relationships are forged, and Kathy is the epitome of this ideal.

Kathy, we appreciate the great work you have done, the passion you have brought to our conference, and warmth you have shared with each of us.

Although you'll be missed, we wish you the many pleasures you have earned with your family and loved ones. Part II . . .

–Al Wicks

On behalf of the staff at SEM, I want to take this opportunity to wish Kathy Ramsay many years of happiness and fun as she heads off into her new world of retirement. She has been a friend to us all, and we will miss her. As you have read in the accompanying pieces, she had a very large hand in making SEM conferences the success they are today. She was the embodiment of the "Friendly Society." Good luck Kathy. We expect to see you at SEM conferences in the future – this time as a guest.

–Tom Proulx

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## SEM XII International Congress & Exposition on Experimental & Applied Mechanics Measurement Challenges for New Structures and Materials June 11-14, 2012 • Hilton Orange County/Costa Mesa

### Location

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quad \$159+ (Taxes currently 8.11%)

### Tracks & Symposia

Dynamic Behavior of Materials  
Challenges in Mechanics of Time-dependent Materials and Processes in Conventional and  
Multifunctional Materials  
Imaging Methods for Novel Materials and Challenging Applications  
Experimental and Applied Mechanics  
2<sup>nd</sup> International Symposium on the Mechanics of Biological Systems and Materials  
13<sup>th</sup> International Symposium on MEMS and Nanotechnology  
1<sup>st</sup> International Symposium on Joining Technologies for Composites

### Exposition

If your company is interested in exhibiting at the SEM XII International Congress & Exposition, please contact Joni Normandin: Phone 203.790.6373, Email [joninormandin007@aol.com](mailto:joninormandin007@aol.com).

Complete details: <http://sem.org>

# 2012 SEM Executive Board Nominees

The SEM National Nominating Committee has announced nominations for 2012–2013 SEM Executive Board officers. Biographies for each nominee appear in this article. The Executive Board Nominees are: President–Carlos E. Ventura; President-Elect–Emmanuel E. Gdoutos; and Vice-President–Nancy Sottos. Executive Board Member nominees are: Alberto Carpinteri, Kathryn Dannemann, James De Clerck, and Charles Van Karsen. If elected, they will join current Board members whose terms extend to 2013; Peter G. Ifju, Ryszard J. Pryputniewicz, Jonathan D. Rogers, Thomas W. Proulx, Paul Reynolds, Todd Simmermacher, K. Jane Grande-Allen, and Cosme Furlong.

## President Carlos E. Ventura



Dr. Carlos Ventura is a Civil Engineer with specializations in structural dynamics and earthquake engineering. He has been a faculty member of the Department of Civil Engineering at the University of British Columbia (UBC) in Canada since 1992. He is a registered professional engineer in British Columbia, California and Guatemala. He is currently the Director of the Earthquake Engineering Research Facility (EERF) at UBC, and is the author of more than 200 papers and reports

on earthquake engineering, structural dynamics and modal testing. He is a member of several national and international professional societies and advisory committees. Dr. Ventura has conducted research for more than twenty-five years in the dynamic behavior and analysis of structural systems subjected to extreme dynamic loads, including severe ground shaking. His research work includes experimental studies in the field and in the laboratory of structural systems and components. Research developments have included novel techniques for regional estimation of damage to structures during earthquakes, detailed studies on nonlinear dynamic analysis of structures and methods to evaluate the dynamic characteristics of large Civil Engineering structures. Ventura has a substantial research record in shake table testing and vibration studies of existing structures subjected to different levels of dynamic loading and seismic retrofit of existing structures. His current research is focused on the development of performance-based guidelines for seismic retrofit of schools, on methods to evaluate the interaction between critical infrastructure vulnerable to natural and

## Additional Nominations

These individuals are the official choice of the SEM Nominating Committee. The Society's bylaws also provide for alternate nominations. Article IX, Section 4, of the SEM constitution states that, "A member may also be nominated by written petition of at least 75 members of the Society, and submitted to the Secretary, together with the member's consent to serve, if elected, at least 90 days prior to the Annual Business Meeting," (June 11, 2012 in Costa Mesa, California).

The Bylaws also provide that, if no additional nominations are submitted by the membership at large, the Secretary of the Society (in this case, the Executive Director) shall cast an affirmative vote on behalf of the membership at the Society's Annual Business Meeting.

man-made hazards, and on structural health monitoring of bridges.

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## President-Elect Emmanuel E. Gdoutos



Dr. Emmanuel E. Gdoutos is Professor and Director of the Laboratory of Applied Mechanics of the Democritus University of Thrace, Greece, and Adjunct Professor at Northwestern University. He is a member of the European Academy of Sciences and Arts, the European Academy of Sciences, Academia Europaea, Russian Academy of Engineering, International Academy of Engineering, Bulgarian Academy of Sciences, and Corresponding Member of the Academy of Athens. He is Fellow of the American Academy of Mechanics (AAM), the American Society of Mechanical Engineers (ASME), the European Structural Integrity Society (ESIS), the International Congress on Fracture (ICF) and honorary member of the Italian Group of Fracture (IGF). He received an honorary Ph.D. from the Russian Academy of Sciences.

Dr. Gdoutos is author of over 250 technical papers and 17 books and editor of 15 books. He served as Editor-in-chief of *Strain* (2007-2010), President of the European Structural Integrity Society (ESIS) (2006-2010), the Greek Group of Fracture (2002-2010), and chairman of the European Association for Experimental Mechanics (EURASEM) (2003-2007). He received the award of merit and the Griffith medal from ESIS, the award of merit from EURASEM, Medal and Diploma of the International Academic Rating of Popularity "Golden Fortune," the Paton Medal of the Ukrainian Academy of Sciences, and the Jubilee Medal "XV Year to IAE" of the International Academy of Engineering.

He is Fellow of SEM, served on the Executive Board (2006-2008), and received the Lazan, Theocaris, Tatnall and Zandman awards.

## Vice President Nancy Sottos



Nancy Sottos is the Donald B. Willet Professor of Engineering in the Department of Materials Science and Engineering at the University of Illinois Urbana-Champaign. She is also a co-chair of the Molecular and Electronic Nanostructures Research Theme at the Beckman Institute. Sottos started her career at Illinois in 1991 after earning a Ph.D. in mechanical engineering from the University of Delaware. Her research group studies the mechanics of complex, heterogeneous materials such as self-healing polymers, advanced composites, and thin film microelectronic devices, specializing in micro and nanoscale characterization of deformation and failure in these material systems. Sottos' research and teaching awards include the ONR Young Investigator Award (1992), Outstanding Engineering Advisor Award (1992, 1998, 1999 and 2002), the R.E. Miller award for Excellence in Teaching (1999), University Scholar (2002), the University of Delaware Presidential Citation for Outstanding Achievement (2002), the Hetényi Award from the Society for Experimental Mechanics (2004), Scientific American's SciAm 50 Award (2008), Fellow of the Society of Engineering Science Fellow (2007), and the M.M. Frocht and B.J. Lazan awards from the Society for Experimental Mechanics. She served

as Associate Editor (1999-2002) and as Editor-in-Chief (2003-2006) for *Experimental Mechanics* and currently chairs the International Advisory Board. She has also been a member of the SEM Executive Board (2007-2009).

## Member-At-Large Alberto Carpinteri



Professor Alberto Carpinteri is the President of the National Research Institute of Metrology in Italy, INRIM (2011-2015). He is also the Chair of Structural Mechanics at the Politecnico di Torino (Italy), and the Director of the Laboratory of Fracture Mechanics, since 1986. He has held different responsibilities during this period, among which: Head of the Department of Structural Engineering (1989-1995), and Founding Member and Director of the Post-graduate School in Structural Engineering (1990-). He has been a Visiting Scientist at Lehigh University, Pennsylvania, USA (1982-1983), and a Fellow of different Academies and Institutions, among which: European Academy of Sciences (2009-), International Academy of Engineering (2010-), Turin Academy of Sciences (2005-), American Society of Civil Engineers (1996-). Prof. Carpinteri is President of the International Congress on Fracture, ICF (2009-2013), and has been President of the European Structural Integrity Society, ESIS (2002-2006), the International Association of Fracture Mechanics for Concrete and Concrete Structures, IA-FraMCoS (2004-2007), the Italian Group of Fracture, IGF (1998-2005). He is a Member of the Congress Committee of the International Union of Theoretical

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and Applied Mechanics, IUTAM (2004-2012), a Member of the Editorial Board of thirteen international journals, the Editor-in-Chief of the journal *Meccanica*, and the author of over 700 publications, of which more than 300 are papers in refereed international journals and 42 are books. Prof. Carpinteri received numerous Honours and Awards: the Robert L'Hermite Medal from RILEM (1982), the Japan Society of Mechanical Engineers Medal (1993), the Honorary Professorship from the Nanjing Architectural and Civil Engineering Institute, China (1996), and from the Albert Schweitzer University, Geneva, Switzerland (2000), the Wessex Institute of Technology Eminent Scientist Medal, UK (2000), the Griffith Medal from ESIS (2008), the inclusion in the "Top 100 Scientists" list of the International Biographical Centre, Cambridge, UK (2009), the Honorary Fellowship Medal from ICF (2009), and the Swedlow Memorial Lecture Award from ASTM (2011).

## Member-At-Large Kathryn Dannemann



Dr. Kathryn Dannemann is Principal Engineer in the Engineering Dynamics Department at Southwest Research Institute. She is a materials engineer with professional interest and experience in the interactive effects of microstructure and processing on materials performance. For the past decade, Dr. Dannemann has focused on the high strain rate behavior of various materials (e.g., high strength structural steel for naval applications, aluminum alloys for armor applications and brittle

materials (high strength ceramics, glass, reinforced carbon-carbon) for defense and space applications), often implementing customized test setups. She has taught as an adjunct in the ME Department at the University of Texas-San Antonio. Prior to joining SwRI, she worked at the GE Corporate Research and Development Center and at the Bethlehem Steel Homer Research Laboratories.

Kathryn received her Ph.D. in Materials Engineering from the Massachusetts Institute of Technology in 1989, and B.S. and M.S. degrees in Materials Engineering from Rensselaer Polytechnic Institute. She has been actively involved with SEM since 2006 and has chaired and organized numerous conference sessions, as well as the Dynamic Behavior of Materials Track for the 2008 and 2009 annual conferences. Dr. Dannemann is past Chair of the SEM Dynamic Behavior TD, and is currently serving as Guest Editor for a special issue of *Experimental Mechanics*. She has held numerous leadership positions in other technical societies, including ASM International, The Minerals, Metals and Materials Society (TMS), and the Society of Women Engineers.

## Member-At-Large James De Clerck



Dr. James De Clerck is a Professor of Practice in the Mechanical Engineering-Engineering Mechanics Department at Michigan Technological University. He received his Ph.D. in Engineering

Mechanics in 1991. Prior to joining Michigan Tech in 2009, Jim was a Project Design Engineer at the General Motors Noise and Vibration Center in Milford, Michigan. His areas of expertise include noise and vibration, structural dynamics, design, modal analysis, model validation, inverse methods applied to design, and advanced measurement techniques.

## Member-At-Large Charles Van Karsen



Chuck Van Karsen has been a member of the Michigan Tech Department of Mechanical Engineering - Engineering Mechanics since August 1987. He is currently Associate Chair and Director of the Undergraduate Program. Prior to that he had a twelve year career as a practicing engineer in the Machine Tool, Automotive, and Software industries. He specializes in Experimental Vibro-Acoustics, NVH, and Structural Dynamics. His research efforts have concentrated on experimental noise and vibration methods related to automotive systems and subsystems, large home appliances, machine tools, and off-highway equipment. Chuck regularly presents seminars and short courses on Experimental Modal Analysis, Digital Signal Processing, Acoustic Measurements and Sound Quality, and Source-Path-Receiver methods. At Michigan Tech, Chuck teaches Mechanical Vibrations, Experimental Vibro-Acoustics, Analytical and Experimental Modal Analysis, Mechanical Engineering Laboratory, and Controls. He received his BSME and MSME degrees from the University of Cincinnati. Chuck is currently Chair of the Modal Analysis Technical Division of SEM.



# Register Now for IMAC-XXX

## The 30<sup>th</sup> Anniversary of IMAC!

### Preconference Courses

Fri., January 27–Sat., January 28

Modal Analysis: Theory & Application

David Brown, *University of Cincinnati*; Randall Allemang, *University of Cincinnati*;

Peter Avitabile, *University of Massachusetts Lowell*

Sat., January 28

Noise & Vibration Analysis—With MATLAB®/Octave Examples

Anders Brandt, *University of Southern Denmark*

Sun., January 29

Operational Modal Analysis: Background, Theory & Practice

Svend Gade, *Brüel & Kjær University*; Carlos Ventura, *The University of British Columbia*

Theoretical and Experimental Modal Analysis of Nonlinear Mechanical Systems

Gaëtan Kerschen, *University of Liège*; Alexander Vakakis, *University of Illinois at*

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### Exposition

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### Preconference Courses:

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\$200+ Triple \$225+ Quad

(Taxes currently 14.13%)

## IMAC-XXX: A Conference & Exposition on Structural Dynamics

### 30 Years of Modal Analysis—From the Laboratory to the Real World

*President's Message continued from page 1*

organized by Wei-Chung Wang and will be held at the Grand Hotel in Taipei, Taiwan November 8-11, 2012. So, mark your calendars.

On the subject of conferences, I would like to extend my heartfelt appreciation to Kathy Ramsay, who retired at the end of September. As you may know, Kathy has been our conference organizer for as long I can remember. She was my first SEM contact back when I was a graduate student attending my very first conference. I have a hard time imagining our society without her. When we call ourselves the "friendly society" it's because of Kathy and the rest of our hardworking and talented staff. We will miss her and hope that she visits our meetings from time to time. Kathy, thank you so much!

Rest assured, our society will continue to have world class conferences. I was delighted to hear that Jen Tingets (many of us know her as Jen Proulx) will replace Kathy as conference coordinator. Jen will move on from her current role as head of publications, while Alessandra de la Vega will be taking her place. Alessandra is new to SEM, so please welcome her when you get a chance. We all can thank Tom Proulx, our Executive Director, for negotiating this smooth transition.

On a final note, abstracts for the annual conference in Costa Mesa, California were due on October 17. There may still be time to submit an abstract. Contact SEM to find out. This year, with the revival of our technical division enthusiasm, and since it is

an International Congress (every four years), we expect record participation. The technical divisions are sponsoring four tracks and three symposia. Please refer to the SEM web page for more information.



# Experimentally Speaking . . .

## 25 Years of Capacitec, Inc.



*Robert Foster, Capacitec President*

On September 1, 2011, SEM Corporate Member, Capacitec, Inc., celebrated twenty-five years of cutting edge technological innovation, customer service, employee enrichment, and community giving.

Incorporated in September of 1986, Capacitec President Robert Foster acquired the capacitance-based dimensional measurement product line to focus on improving the science of dimensional measurements. Starting

with a few dedicated materials testing, nuclear, and aerospace customers, the Capacitec team grew the fledgling company into successful and “counted-on,” Multi-national Corporation. Capacitec has been an SEM Corporate Member and conference supporter throughout its history.

SEM sincerely appreciates Capacitec’s continued strong support and wishes them many more years of success!

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