



Experimentally Speaking ...

<http://sem.org>

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Message from the President

It seems as if it was just yesterday when I stepped into this office during last year's SEM Annual Conference in Indianapolis, to be President of the *Friendly Society* for 2010/2011. I wrote my first column for ET at that time. Now, a year and a few columns later, I am writing my last column which will appear in ES – our newest publication. The year was busy with continued efforts to advance the Society's services to her members and to sustain her growth. Some of the goals were vibrantly satisfied and, even, exceeded.

For example, growth of our IP and contributions, which may bring in revenue

to the Society, were streamlined by converting ET to an archival journal that will concentrate on *Developments, Applications and Tutorials in Experimental Mechanics Techniques*. Furthermore, growth of our IP was also documented in the journal of *Experimental Mechanics* (EM) the flagship publication of the Society. Last year we celebrated the 50th Birthday of EM and are looking forward to the forthcoming decades of successful dissemination of IP generated by our members. This growth will also be facilitated by Springer publishing our IMAC and SEM Annual Conference Proceedings which was initiated with IMAC-XXIX earlier this year.

Another goal was to develop greater global presence and mutually beneficial collaborations with other societies throughout the world – on par with the SEM logo where letters S-E-M span the globe. This was satisfied by a number of completed and planned events organized and/or cosponsored by SEM. These events included major international conferences and symposia addressing contemporary developments in experimental mechanics around the globe.

- 1) 4th International Conference on Speckle (Speckle 2010), 13-15 September, Florianópolis, Santa Catarina, Brazil;
- 2) IMPLAST 2010, A Symposium on Plasticity and Impact (including



Ryszard J. (Rich) Pryputniewicz,
SEM President, 2010–2011

Blast) Mechanics, 12-14 October, Providence, RI;

- 3) The International Conference on Experimental Mechanics 2010 (ICEM 2010), 29 November – 1 December, Kuala Lumpur, Malaysia;
- 4) International Conference on Advances in Experimental Mechanics: Integrating Simulation and Experimentation for Validation, 7-9 September 2011, Edinburgh, UK;

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SEM Member Achievements

Fu-Pen Chiang elected Fellow of SPIE



Professor Fu-Pen Chiang, of the Department of Mechanical Engineering, Stony Brook University (SUNY), elected Fellow of SPIE United States, for outstanding achievements in photo-mechanics and applied optics.

Chiang is a pioneer in applying optical techniques such as moiré to nondestructive evaluation, stress and strain analysis. He developed a unified theory for the analysis of all moiré methods, and contributed to the development and maturing of moiré methods of strain analysis including the in-plane, shadow, and reflection moiré methods. In addition, Chiang succeeded in bringing in other optical techniques such as holography and speckle methods to experimental mechanics. This includes the development of computer aided speckle interferometry (CASI), and the subsequent development of CASI into a new high-resolution tool to investigate mechanical properties of soft tissues. He also invented speckle interferometry with electron microscopy, which is a micromechanics measurement technique that can give whole-field deformation fields of specimens only a few microns in size, and is important to microelectronic packaging, MEMS, and nanotechnology. More recently Chiang has expanded his research scope to the newly emerging

cross-disciplinary field of biomechanical sensing and instrumentation. For example with his work on the mechanics of the heart, he developed the first high-resolution strain measurement technique and the work loop concept to evaluate the state of health of regional myocardium.

Fu-Pen Chiang is Fellow of SEM and recipient of the B.J. Lazan and M.M. Frocht awards. Chiang is a Fellow of the Optical Society of America and a member of many more organizations including the American Society of Mechanical Engineers, the American Society of Engineering Education, and a founder member of the American Academy of Mechanics. He has chaired and organized many sessions and conferences for various organizations and served as editor, associate editor and editorial board member of different journals including the International Journal of Optics & Lasers in Engineering, Experimental Mechanics, and the Journal of Engineering Materials and Technology (ASME Transactions).

Editor's Note

I regret that the names attributed to this photo, published in the March 2011 newsletter were not all correct. It is actually Daniel Rixen, not Daniel Rittel, standing with George, Lothar and Ulrike. My sincere apology goes to both Daniel Rixen and Daniel Rittel, who have been great sports about this mix-up.

- Jennifer Tingets



George Bissinger, Lothar Gaul, his wife Ulrike Else Kat Gaul-Reiners, and Daniel Rixen

2011 SEM Southeast Graduate Student Symposium

The University of Alabama's College of Engineering hosted this year's Southeast Graduate Student Symposium. Dr. Paul Hubner, an Associate Professor in the Department of Aerospace Engineering and Mechanics, organized the event. The annual gathering, sponsored by SEM and UA (this year), invites graduate and senior undergraduate students involved in research related to experimental mechanics to present in front of their peers in a casual, relaxed environment. Twenty students representing ten faculty advisors and four universities—the host school, Auburn University, University of Florida and University of South Carolina—presented at the meeting which started at noon on Saturday March 26th and ended around noon



on Sunday March 27th. The short time frame, no required paper and Saturday evening social encourages participation. As well as exposing the students to excellent talks on a wide variety of

topics by their peers, potentially life-time professional and friendly relationships develop, as expressed on by Drs. Peter Ifju and Bill Chao, both past student participants at the symposium.

Book Review

E-Book on Experimental Stress Analysis, by K. Ramesh

ISBN: 978-81-904235-6-4

The electronic book on "Experimental Stress Analysis" by K. Ramesh, http://apm.iitm.ac.in/smlab/kramesh/book_5.htm, is the second electronic book after the book: "Engineering Fracture Mechanics" by the author, and the **first electronic book on experimental mechanics**.

It has thirteen chapters and covers most topics of experimental mechanics including strain gages, photoelasticity, moiré, brittle coatings, holography, speckle methods, thermoelastic stress analysis, digital image correlation, caustics and coherent gradient sensors. Digital photoelasticity is also thoroughly covered. Each chapter has a series of animated slides that give a comprehensive presentation of the contents of the chapter.

The book can be used for lecturing in a simple and effective way. The material of the book can cover about 100 lecture hours. The book has 1500 concept slides, 500 animations, 714 figures, 69 tables and 175 questions/problems.

The book presents a thorough, clear, concise and straightforward presentation of both theory and experiments of the various topics. I enjoyed going through the book. The animations provide real-time laboratory experimental results in the classroom. The book comes as a product of teaching the experimental mechanics course to undergraduate and graduate students at the Indian Institutes of Technology at Kanpur

and Madras for the last twenty years. It presents difficult concepts in a simple and effective way and provides practical information for implementation in the laboratory of the various techniques.

The book is valuable for teaching courses in experimental stress analysis. I strongly recommend it to the instructor, the student and the practitioner of experimental mechanics. The author should be commended for the innovative work and the excellent presentation of the various topics.

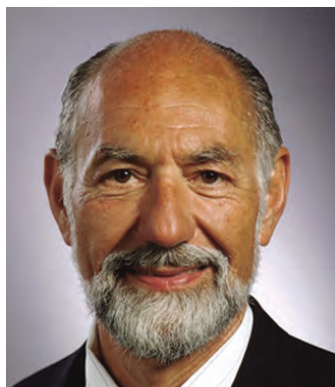
- Emmanuel E. Gdoutos

2011 SEM/IMAC Awards

Since its organization in 1943, SEM has relied heavily upon leadership and the professional expertise of its members. In 1967 an Honors Committee was established and now functions as a screening committee for the majority of SEM awards with final approval resting with the Executive Board. The Honors Committee solicits nominations from the membership. Please see the SEM Web site, <http://sem.org>, for information on how to nominate a candidate. We congratulate these people for their outstanding achievements.



SEM Fellow
José L.F. Freire



**SEM Fellow and
Sia Nemat-Nasser Medal**
Sia Nemat-Nasser



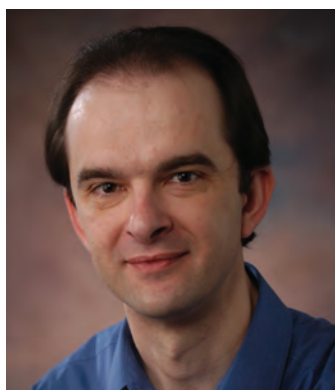
SEM Fellow
Carmine Pappalettere



SEM Fellow
Hareesh V. Tippur



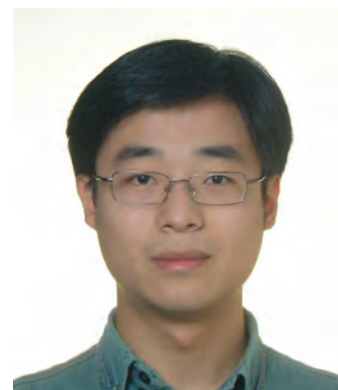
William M. Murray Lecturer
Arun Shukla



**Journal of Strain Analysis
Young Investigator
Lecturer**
Ioannis Chasiotis



**Dominick J. DeMichele
Award**
Mark Richardson



**Dominick J. DeMichele
Scholarship Award**
Zhu Mao

Not pictured: B. Stanford and W. Bowman, recipients of the D.R. Harting Award



A.J. Durelli Award
K. Jane Grande-Allen



**M.M. Frocht Award and
B.J. Lazan Award**
Nancy Sottos



D.R. Harting Award
Pin Wu



D.R. Harting Award
Alexis Schwartz



D.R. Harting Award
Peter G. Ifju



F.G. Tatnall Award
Eddie O'Brien



P.S. Theocaris Award
Cesar A. Sciammarella



F. Zandman Award
Emmanuel E. Gdoutos



M. Hetényi Award (left to right)

Yves Surrel, Jerome Molimard, Laurent Robert, Michel Bornert, Bertrand Wattrisse,
J.-C. Dupré, Jean-José Orteu, Marina Fazzini; P. Vacher, Sebastien Mistou, François Hild,
Pascal Doumalin, Fabrice Brémand, Michel Grédiac

President's Message continued from page 1

- 5) IMAC-XXX Conference and Exposition on Structural Dynamics, 30 January – 2 February 2012, Jacksonville, Florida;
- 6) 2012 Fall Conference on Current Trends and Future Directions in Experimental Mechanics, organized by Prof. Wei-Chung Wang, Past President of SEM, Taipei, Taiwan.

In addition, new awards and funds were established to recognize achievements of members, including junior members, of the Society: the *Journal of Strain Analysis* Young Investigator Lecture, the *Sia Nemat-Nassar Medal*, and the *Gary L. Cloud Scholarship* which was established specially to facilitate education of new generations of experimental "mechanicists." Furthermore, the *International Student Paper Competition* has grown to exceed number of time slots available for oral presentations and has been extended by adding poster presentations to allow eager students to exhibit and herald their achievements.

During the past year, the Society enjoyed sustained growth. This is evidenced again by extending our normal 3-day Annual Conference to 4 days. For the fourth time in the sequence, attendance at these Conferences increased substantially; particularly due to amplified participation by our colleagues from abroad. Our Intellectual Property (IP) continues to bring better revenues than ever before – primarily because of successful Conferences and because of increased circulation of the flagship publications of the Society and introduction of the new one.

Therefore, it is with great pleasure that I welcome everyone to the 2011 SEM Annual Conference & Exposition at Mohegan Sun, in Uncasville, Connecticut, home-state of SEM. Thanks to our members, there were an overwhelming number of abstracts submitted, and the accepted papers were organized into a record 113 sessions. To accommodate this many sessions and to hold the Conference within 4 days we will have 8 parallel sessions. I would like to

stress that this year's technical program was developed with many of our global partners fulfilling the theme of *Experimental Mechanics in the Age of Modeling and Simulation*. The conference is also characterized by a very important first for SEM: first time Springer will publish Proceedings of this Annual Conference.

This year, a high standard for presentations will be set by the Society's prestigious William M. Murray Lecture entitled "From dynamic fracture to blast mitigation – A personal and technical journey" which will be delivered on Monday morning by Prof. Arun Shukla of the University of Rhode Island, Past President of SEM. Also, the Journal of Strain Analysis Young Investigator Lecture on "The quest for spatial and temporal resolution in nanoscale mechanics" by Prof. Ioannis Chasiotis of the University of Illinois at Urbana-Champaign will address, on Tuesday morning, issues shaping contemporary advances in the emerging micro- and nano-technologies that have ever increasing influence on the quality of our daily lives.

Among the many technical highlights planned for the Conference are: the 12th International Symposium on MEMS and Nanotechnology, the 1st International

Symposium on the Mechanics of Biological Systems and Materials, as well as five tracks: Dynamic Behavior of Materials, Thermomechanics and Infra-Red Imaging, Challenges in Mechanics of Time-Dependent Materials and Processes in Conventional and Multifunctional Materials, Engineering Applications of Residual Stress, as well as Experimental and Applied Mechanics, to provide you with plenty of opportunity to update your technical areas of interest. Proceedings of the above listed topics will be published by Springer in individual dedicated-volumes and will be made available electronically to all participants.

It is with great pleasure that I enthusiastically ask all members of SEM to participate in this year's Fall Meeting of the Society that we co-sponsor with BSSM. This is the first time, in my memory, that the Fall Meeting will be held outside USA. This year it will be held in the ancient city of Edinburgh, Scotland. The host city was one of the major centers of Enlightenment, led by the University of Edinburgh, earning it the nickname *Athens of the North*. Scotland is a land of legends dating back to times immemorial and, I feel, visitors enchanted by her sceneries and colorful history will want

Five reasons why we wish you were here

Joint Fall Conference 2011 British Society for Strain Measurement & Society for Experimental Mechanics

- Visit historic Edinburgh, Scotland in September (7-9th) for a culturally & professionally enhancing experience
- Learn about the latest approaches to validating simulations of structural behaviour
- Meet academic & industrial leaders in the field at conference exhibition & social events
- Listen to Young Stress Analysts and collect their curriculum vitae
- Don't miss the chance to quiz the experts with only two parallel sessions at any time

"It is with great pleasure that I write to ask members of SEM to participate in this year's Fall Meeting. It will be held in the ancient city of Edinburgh, Scotland, one of the major centers of enlightenment, earning it the nickname Athens of the North. Scotland is a land of legends and visitors enchanted by its scenery will want to visit again, as I do. Going to the United Kingdom, the land of Sir Isaac Newton, Robert Hooke, Lord Kelvin, as well as countless others who have contributed to the field we practice, will be enlightening because of past, present, and future advances in experimental mechanics."

Ryszard J. (Rich) Pryputniewicz, President of SEM

Visit www.bssm.org to book your trip



Why not combine your trip and visit the world famous Edinburgh Fringe Festival 5-29 August?



to visit again, as I do. Actually, going to the United Kingdom, the land of Sir Isaac Newton, Robert Hooke, Lord Kelvin, as well as countless others who have contributed to the field we practice, will be enlightening because of past, present, and future advances in experimental mechanics. My best wishes to all participants for a fruitful, enjoyable, and informative Fall Meeting. Heartfelt thank you to the Organizers for the effort in preparation of this successful international forum for dissemination of the most recent advances in experimental mechanics!!!

The IMAC series of conferences commenced in 1982. Since modest beginning it grew to a major international event. The next IMAC-XXX, featuring the theme *30 Years of Modal Analysis from the Laboratory to the Real World* is planned to take place in Jacksonville, Florida from 30 January to 2 February, 2012. Judging from the success of this year's IMAC, next year it will be spectacular as we will celebrate the 30th Birthday of the IMAC. My best wishes for the continued success of the IMAC series and I am looking forward to the festivities next year. Please plan to

participate in IMAC-XXX and also join me in wishing Happy Birthday to IMAC!!!

Thanks to your participation and support of SEM activities, I am delighted to report that the Society's financial statement for the first Quarter of 2011 is a success!!! This is primarily due to good expense control at IMAC. How well we will do later this year will largely depend on how successful the Annual Conference is. This, however, is in your hands. The greater participation in these activities will lead to greater overall success for the Friendly Society. Please come and help us achieve this goal!!!

In conclusion, I wish to acknowledge the efforts of the National Meetings Council, countless volunteers, and the tireless SEM staff, who have worked very diligently to put together this conference. My sincere thank you for all you have done and continue to do to enhance SEM.

Thank you ALL for coming!!! Benefit from the Conference & Exposition as well as enjoy many activities available at Mohegan Sun. First of these is the Welcome Reception, taking place in the Uncas Ballroom immediately following the Annual Business Meeting. Therefore, it is with great pleasure that, on behalf of the Friendly Society, I cordially invited you to the Reception as our guests.

I will welcome all ideas and advice you wish to offer. Feel free to send me an e-mail at rjp@wpi.edu.

Thank you for working with me to make certain that we continue to be known as the Friendly Society. It was a busy, but good year. I wish you the best of success in whatever you think about and work on. I am looking forward to receiving your input.

My best wishes for the success to the incoming President. I hope you will enjoy your interactions with our membership as much as I had!!!



SEM Conference Proceedings Update

While the road was a bit bumpier than we might have hoped, I am pleased to say that we appear to have navigated the early difficulties and the proceedings from IMAC XXVIII (2010) and XXIX (2011) as well as the 2010 SEM Annual Conference are now available at <http://www.springer.com>. If you go to [springer.com](http://www.springer.com) and search for "Conference Proceedings of the Society for Experimental Mechanics" you can see what is available.

You will notice that each conference has been split into multiple thematic volumes. The belief is that such a split will make it easier for people to find infor-

mation in their field of interest. People will be able to obtain the proceedings as printed volumes, by downloading individual papers, or, their library may make arrangements through Springer to have the entire conference available to patrons in electronic form.

For conference attendees, SEM will make the proceedings papers available for electronic download at no charge. We actually used this procedure for IMAC XXIX and the download worked with only minor problems, which we believe have been corrected. The most important change we have made is that we in-

tend to have conference papers available for download two to four weeks **BEFORE** the conference. Feedback from attendees has led to this change.

We appreciate your patience with the delay in having IMAC XXIX proceedings available and apologize for the delay. It has been an excellent learning exercise for us and we believe that the lessons learned will be obvious in the next few conferences.

-Tom Proulx



Experimentally Speaking ...

Our sincere thanks goes to the following Exhibitors

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