



Experimentally Speaking...

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MESSAGE FROM THE PRESIDENT



Peter Avitabile, SEM President, 2016-2017

SEM has been providing a special place in the experimental mechanics community for almost three quarters of a century now. I am proud to be a part of that history and humbled to be the President for the Society. While my strong roots are in the experimental structural dynamics community and the IMAC side of the SEM organization, I feel very welcome into the entire society for sure. And that is because SEM is known to be the “friendly society” and for sure, all the members here feel that friendly sense of community that is very hard to find elsewhere in other technical societies. And these are not words that we banter but a real and true feeling being associated with SEM. And as SEM grows, there is a very clear attention to that friendly environment that has kept so many of us associated with the society and also to bring on board the new growth that will continue SEM’s leadership into the future. As president, I intend to keep a strong eye on growth that does not infringe on who we are as SEM continues.

We are very fortunate to have clear leaders in the society that have kept us moving forward. And our three journals clearly attest to that. The Experimental Mechanics Journal keeps a high standard on their publications under Ioannis Chasiotis, our current Editor-in-Chief.

EM has been a strong journal for many years and Ioannis will maintain and grow the journal as he is settling into his first two years heading the journal. The Journal of Dynamic Behavior of Materials is continuing its tremendous start mainly due to the great leadership of Eric Brown as the Editor-in-Chief. Eric set the vision, identified the need and now is seeing the fruits of his hard work along with all his support team for the journal. And we also need to realize that Experimental Techniques has begun the morphing from a magazine format to yet another journal for the society under Paul Reynolds as Editor-in-Chief. Paul has already turned the corner from our previous publisher to the new Springer venue; the backlog has been swept away as we start our new venture with ET. I want to send my thanks to all the journal editors for their dedication, vision and hard work that is very important to the success of SEM. And let’s not forget that the editors are also complemented by a wide range of folks that support the effort whether it be in the limelight or hidden working to make sure every issue is published with as much pride as every other issue. Publications and intellectual property are critical pieces that help maintain SEM in a financially healthy state. Again, thanks to all those involved.

Continued

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The society benefited from Tom Proulx's recognition of intellectual property and Tom helped put SEM in a much better state financially, technically and professionally in his decade of service to us. Tom is still very much missed as a friend and colleague but he set SEM on a very good path and we should all thank Kristin Zimmerman and Jon Rogers for their outstanding support of the Society. Their dedication and commitment has helped maintain Tom's vision and direction and has kept SEM in a very good state. I want to thank them for their support – please thank them when you see them.

And of course conferences are also another important part of our society. The Annual Conference in June 2017 will be held in Indianapolis and the call for abstracts process is underway. The theme of Challenges in Experimental Mechanics is an accurate statement for sure. Experimental Mechanics is a key focal point for the society and the increasing computer capabilities and the expansion of imaging have helped expand and foster new directions across all the areas of interest to the society. The Annual conference is sure to highlight all of these areas of interest. The International Modal Analysis Conference will hit a 35 year landmark in February. IMAC has long been a place where folks in the analytical and experimental structural dynamics community could come to present their work, share ideas and learn new directions. I still remember my first conference – IMAC 1- and the thrill of being involved with a collection of people that all had a common goal as this new and involving field emerged. I am still excited every year I go to IMAC because the technology and capabilities keep growing and expanding. IMAC started as a modal analysis community and now has morphed into a structural dynamics community. And both of our major conferences have been very healthy over the past several years with new areas, new ideas and most importantly, new people who have found a home at SEM and in our conferences. And as a society, we must remember that our conferences are a time to educate all of our members as well as the new members who look to the society to help them move forward in their professional careers.

In recent months, the webpage has undergone drastic renovations. And renovations is not the right word to really use. The entire former webpage was dismantled and a completely new webpage has been born. And just as a new child needs support and nurturing, so does our webpage. Please be patient and understanding as the staff works over and above anything that could have been expected as this new webpage roles out. It will be trying, it will be difficult, it will not do everything we want it to do immediately...but once complete, it will be a great asset to the organization. So bear with us as all that takes place. Children growing up can be difficult at times and they need support and advice and help – our webpage will be no different. Help us to understand difficulties you encounter along the way so we can make the webpage as useful and productive as possible.

So in closing I would like to say that I am proud to be a part of SEM and my association with all the people where our paths have crossed. If you have any thoughts, suggestions and yes even complaints, please let me know and we will address these to help make the society even better yet.

I wish all of you a very happy holiday season.

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Peter Avitabile
SEM President

FROM THE EXECUTIVE DIRECTOR

With this message, I would like to take the opportunity to share with you a few 2016 highlights.

Both the IMAC and Annual Conferences were outstanding successes with close to 1,000 attendees and revenues that far exceeded budget. Our Executive Board, Councils and Committees and Technical Divisions (TDs) accomplished a great deal and have already put together outstanding programs for 2017 including a new coordinated track on Adaptive & Advanced Manufacturing for our Annual Meeting. I continue to be encouraged as we tap into the new energy that I am feeling across, not only the veteran members, but amongst the rising number of new, young conference attendees and members.

I want to also touch on the special planning that is ongoing in preparation for IMAC's 35th Anniversary, January 30-February 2nd, 2017 in Garden Grove California. The technical program and four courses look outstanding for what I'm sure will be a very successful conference and kickoff for 2017. IMAC 35 paid attendees will receive a shirt to commemorate the conference.

On November 7-10 we held our first SEM-International Digital Image Correlation Society Conference in Philadelphia, PA. We published the proceedings from the conference, which should be available to all members by the end of the year. I want to again thank Phillip Reu and Michael Sutton for their leadership and coordination of this conference.

Our three SEM Journals continue to grow in quality and ranking. After our Annual conference we all agreed that we need a better way to publish the work presented at our conferences into SEM's peer reviewed journals. This is starting to occur based on directed outreach methods by our three Editors in Chief. Note, as members you are given free access to all of the SEM journals as well as many other Springer journals.

As I have mentioned before, I firmly believe that we, SEM, owe all of our conference attendees and members a community (through our three conferences per year) as well as appropriate publishing options (our conference proceedings and peer-reviewed journals). Therefore, in working with Springer, we have arranged the ability to publish a 2-3 page extended abstract in our conference proceedings rather than the requirement for a full paper. This offers all authors the opportunity to submit their full paper to one of SEM's Journals in addition to submitting their abstract as a proceedings publication. I believe that this will work well and offer another added publishing benefit to our membership. I look forward to hearing from you if you have other ideas that we can implement.

Where do we continue to need help and most importantly patience and understanding? As many of you are now aware, the Society launched its new web platform. Please continue to be patient with us as we continue to work out the bugs during our beta testing phase. This phase will last through next year so we will continue to 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, for going way above and beyond to learn the operational elements of the new web platform, 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. The SEM staff is one of the key reasons we are referred to as the friendly society. 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!!

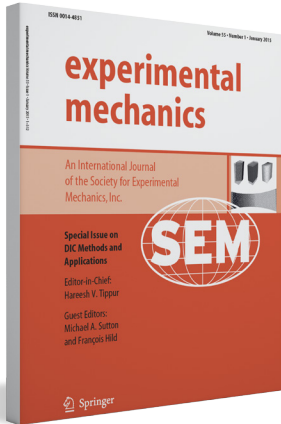
I look forward to seeing many of you at IMAC 35 and as always, invite your questions and comments, so please don't hesitate to email or call.



Kristin Zimmerman,
Executive Director

STATE OF SEM'S JOURNALS

EXPERIMENTAL MECHANICS



In 2016, Experimental Mechanics published 130 original papers in nine issues, two of which were special issues: Professors Leslie Lamberson and Veronica Eliasson, and Dr. Tusit Weerasooriya coedited a special issue of EM on Quantitative Visualization of Dynamic Material Behavior and Professor Arun Shukla and Drs Yapa Rajapakse and James LeBlanc coedited a special issue on Composite Materials Subjected to Extreme Conditions. The remaining seven issues of EM contained novel works, among others, on Digital Image (DIC) and Digital Volume Correlation (DVC), micro-computed tomography, thermomechanics, methods for high strain rates experiments, and optical, x-ray, electron and probe microscopy based experimental methods for the study of a broad range of engineering and novel materials. All papers are available online at <http://link.springer.com/journal/volumesAndIssues/11340>.

In 2016 the impact factor of Experimental Mechanics reached a new high of 1.764, thanks to the efforts of its Editorial Board and its former editor-in-chief, Professor Hareesh Tippur. The Editorial and International Boards of Experimental Mechanics invite all SEM members to publish your outstanding research in Experimental Mechanics to help further propel the reputation of the Society for Experimental Mechanics and continue the lasting contributions of Experimental Mechanics in the last 56 years.

Thanks to all who contributed to the success of EM including the authors and reviewers, the Associate Technical Editors Francois Barthelat, Vijay Chalivendra, Weinong Chen, Samantha Daly, Adrian DeWald, Michel Grédiac, Louis Hector, Francois Hild, Francesco Lanza di Scalea, Hongbing Lu, Michael Mello, Paul Reynolds, John Shaw, Ghatu Subhash, Parameswaran Venkitanarayanan, Junlan Wang, Huimin Xie, Satoru Yoneyama, Alan Zehnder, and EM's Managing Editor Nuno Lopes.

Ioannis Chasiotis,
Editor-in-chief, Experimental Mechanics

EXPERIMENTAL TECHNIQUES

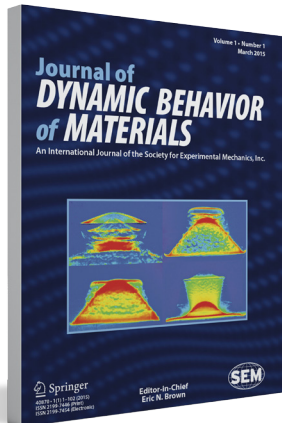


2016 has been a year of significant activity and change for the Experimental Techniques (ET) journal. I have taken over from Jeff Helm as Editor-in-Chief and I would like to pay testament to his excellent leadership over the previous five years, during which ET has transitioned to a high quality formal peer reviewed format and has achieved an impact factor of 0.716. In addition, ET moved to a new publisher Springer this year, which gave us the opportunity to take a very bold action and publish two bumper issues in February and April with more than 40 articles each, hence clearing a backlog of papers that had built up in recent years due to the popularity of the journal operating within previous more limited capacity. As a result, we are pleased that publication times will reduce and authors can expect more timely publication of their work.

I would like to thank all those who work tirelessly to ensure the success of the journal. In particular, our current Associate Technical Editors; Masoud Allahkarami, Bonnie Antoun, Javad Baqersad, Jason Blough, Alfredo Cigada, Cosme Furlong, Paul Gloeckner, Jeff Helm, Luciano Lamberti, Brian Owens, Bart Prorok, Xing Zhang and Kristin Zimmerman; and our Managing Editor Nuno Lopes. Thanks also to all of our authors and reviewers, who's contributions continue to ensure the success of Experimental Techniques.

Paul Reynolds,
Editor-in-Chief, Experimental Techniques

DYNAMIC BEHAVIOR OF MATERIALS



December 2016 marks a major milestone for the Journal of Dynamic Behavior of Materials with the publication of two full volumes of this new SEM journal. The journal is off to a great start with outstanding submissions from Australia, Canada, China, Finland, France, Italy, Japan, Kingdom of Saudi Arabia, Korea, Luxemburg,

Norway, Qatar, Russia, South Africa, Sweden, Switzerland, United Kingdom, and the United States of America. Volumes 1 and 2 contain 86 papers encompassing experimental and theoretical studies of metals, polymers, glasses, composites, granular materials, explosives, biological materials, geological materials, phase transitions, and structural response. The journal includes application and development of techniques including split Hopkinson pressure bar, Kolsky bar, plate impact with light gas guns and powder guns, Taylor anvil, spectroscopy- and pyrometry-based shock temperature measurements, optical and x-ray imaging methods, interferometry and velocimetry techniques, dynamic fracture, laser based dynamic drivers, penetration and ballistics, Equation of State and Spall Failure.

Our publishing partner Springer Nature has made the first two years of papers freely available online at <http://www.springer.com/materials/special+types/journal/40870>. Starting with Volume 3 in 2017, JDBM articles will be available through a subscription or freely as an SEM membership benefit through the SEM website. The journal is filling a longstanding significant gap for a home for high strain rate and dynamic loading research within the SEM community and broader field. Please consider publishing your outstanding research in the field of dynamic behavior of materials to JDBM.

Thank you to everyone who made JDBM a success including the authors without whom the journal would not have been possible, the Associate Technical Editors: Nadia Bahlouli, Nicola Bonora, Neil K. Bourne, Daniel T. Casem, Ellen K. Cerreta, Wayne Chen, Kathryn A. Dannemann, Jow-Lian Ding, Pascal Forquin, Robert S. Hixson, Mikko Hokka, Jennifer L. Jordan, Arlington, Leslie Lamberson, Jeffrey Nguyen, Thomas D. Sewell, Bo Song, Ghatu Subhash, Tracy Vogler, and Takashi Yokoyama, the Advisory Board members: Dana M. Dattelbaum, William L. Fournery, Yogendra Gupta, K. T. Ramesh, Guruswami Ravichandran, Arun Shukla, Naresh Thadhani, Hareesh Tippur, and SEM Staff including Nuno Lopes, Jen Tingets, and Tom Proulx.

Eric Brown,
Editor in Chief, Journal of Dynamic Behavior of Materials

IMAC-XXXV COURSES

COURSE 101: MODAL ANALYSIS: THEORY AND APPLICATION SATURDAY, JANUARY 28 AND SUNDAY, JANUARY 29, 2017 | 9:00 A.M.–6:00 P.M.

INSTRUCTOR(S): Dr. David L. Brown and Dr. Randall J. Allemang from Univ. of Cincinnati; Dr. Peter Avitabile—Univ. of Massachusetts Lowell

Modal analysis theory, modal test methods, modal parameter estimation and applications are explored in this intensive two-day course by distinguished lecturers in this field. Lectures will be reinforced with demonstrations as lecture material is discussed. This format provides immediate comprehension and understanding of the theoretical and practical aspects of modal analysis methods.

At the completion of this course you will have a understanding of modal analysis theory; experimental techniques and potential applications. Based upon the time limitations, the course will only focus on providing an overview of the subject material. Demonstrations will include excitation techniques, parameter estimation techniques and some advanced processing of data.

COURSE 102: PRACTICAL CONSIDERATIONS IN ACCELERATION MEASUREMENTS SATURDAY, JANUARY 28, 2017 | 9:00 A.M.–6:00 P.M.

INSTRUCTOR(S): Bill Zwolinski and Thomas Petzsche from Kistler

Part I: Measurement Considerations and Terminology for Acceleration Measurement with Application Examples

Part III: Verify good functionality of your measuring chain before starting a measurement

Part II: Typical Measurement Errors

COURSE 103: NONLINEAR SYSTEM IDENTIFICATION IN STRUCTURAL DYNAMICS SUNDAY, JANUARY 29, 2017 | 9:00 A.M.–6:00 P.M.

INSTRUCTOR(S): Gaëtan Kerschen—University of Liège and Keith Worden—University of Sheffield

Because nonlinearity is a frequent occurrence in real-life applications, there is a need for efficient and rigorous analysis methods for accounting for nonlinear phenomena. This course focuses on nonlinear system identification techniques, which amounts to extract useful information directly from experimental measurements. Specifically, the identification process is a progression through three steps: nonlinearity detection, nonlinearity characterisation and model parameter estimation.

The course will present these three steps in great detail and illustrate them using both academic and industrial examples. At the completion of this course you will have a understanding of modal analysis theory; experimental techniques and potential applications. Based upon the time limitations, the course will only focus on providing an overview of the subject material. Demonstrations will include excitation techniques, parameter estimation techniques and some advanced processing of data.

COURSE 104: BAYESIAN MODEL UPDATING AND UNCERTAINTY QUANTIFICATION: THEORY, COMPUTATIONAL TOOLS, AND APPLICATIONS SUNDAY, JANUARY 29, 2017 | 9:00 A.M.–6:00 P.M.

INSTRUCTOR(S): Costas Papadimitriou—University of Thessaly, Greece and Babak Moaveni—Tufts University

In simulations of complex physical systems, uncertainties arise from imperfections in the mathematical models introduced to represent the systems and their interactions with the environment. Such uncertainties lead to significant uncertainties in the predictions using simulations. Since such predictions form the basis for making decisions, the knowledge of these uncertainties is very important.

The course will present the Bayesian model updating framework, the associated computational tools, and selected applications, along with the main challenges for quantifying and propagating uncertainties in complex structural dynamic simulations.

Detailed course information can be found on our website at sem.org/imac-conference/

INTERNATIONAL DIGITAL IMAGE CORRELATION SOCIETY (IDICS)

The International Digital Image Correlation Society (iDICs) annual meeting was held November 7th through the 10th in downtown Philadelphia, PA. A full conference schedule with 130 technical papers presented in three parallel sessions over three days was well attended by over 200 conference attendees from 13 different countries. Dr. Brian Bay of Oregon State University was awarded the first ever iDICs Founders Award for his outstanding contributions through his pioneering development and application of the digital volume correlation (DVC) method.

iDICs also formed four active committees to carry out the society mission: training, standardization, education, and applications. Over the next year these committees will help define best practices for DIC and standards for conducting tests. If you would like to join a committee, please email info@idics.org.

Next year's conference will be held in Barcelona, Spain. Information will be posted at www.idics.org as it becomes available.



Michael Sutton
(iDICs President),
Brian Bay
(Founders Award Recipient),
and **Phillip Reu**
(iDICs Vice President)



**Well attended
iDICs session.**

MISSION: EXTEND – IMPROVE – TRAIN

Extending the Frontiers: Training the next Generation:
Standardizing for Industry: Improving our Practice

MEMBER NEWS

KEN METZGAR



Ken Metzgar, the founder of APS Dynamics, Inc., passed away on 19 October 2016 in Carlsbad, CA. Ken was 87 years old.

Ken and his wife, Dottie, began the operations of APS Dynamics in Anaheim, CA in 1971 and later moved to Carlsbad, CA in 1981. Under Ken's technical leadership and Dottie's customer service experience, APS Dynamics became a leading designer and manufacturer of vibration shakers and systems for modal test excitation, low frequency calibration and component test. After a long and successful business career, Ken and Dottie sold APS Dynamics in 2008. A few years later in September 2011, Dottie passed away.

Ken's innovative designs, especially the ELECTRO-SEIS Long Stroke Shaker, are used by companies and institutions worldwide and have played an important part in the research and engineering community. His expertise, attention to detail, easy-going style, firm handshake, and big smile will be missed.

2017 SEM EXECUTIVE BOARD UPDATES

The SEM Nominating Committee has announced the following updates for the 2017–2018 SEM Executive Board. Biographies for each member appear in this article. The newly elected members will join current Board members whose terms extend to 2018.



Kathryn Dannemann



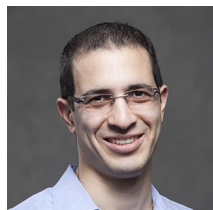
Wendy C. Crone



John Lambros



Matt Allen



Babak Moaveni



K.T. Ramesh



Y.J. (Bill) Chao

PRESIDENT

KATHRYN DANNEMANN

Kathryn Dannemann is Principal Engineer in the Engineering Dynamics Department at Southwest Research Institute. She is a materials engineer with professional interests and experience in the mechanical behavior of materials, and the interactive effects of microstructure and processing on materials performance. At SwRI, Dr. Dannemann's technical work focuses on the dynamic behavior of various materials (metals, ceramics, composites, glass). She directs technical programs for both government and industry, often implementing customized experimental setups in her programs to aid with understanding mechanical response. She has taught as an adjunct professor in the ME Department at the University of Texas-San Antonio. Prior to joining SwRI in 1996, she worked at the GE Corporate Research and Development Center where she was most recognized for her contributions on the mechanical behavior of materials in extreme (high temperature) environments.

Kathryn received her Ph.D. in Materials Engineering from the Massachusetts Institute of Technology in 1989, and earned B. S. and M. S. degrees in Materials Engineering from Rensselaer Polytechnic Institute. She has made dedicated contributions to SEM since becoming actively involved in 2006. Dr. Dannemann has chaired and organized numerous conference sessions, as well as the Dynamic Behavior of Materials Track for the 2008 and 2009 annual conferences. She served as a Member at Large (2012–2014) of the SEM Executive Board, and is past Chair (2008–2010) of the SEM Dynamic Behavior of Materials Technical Division. Kathryn has served as a Guest Editor for Experimental Mechanics, and will also serve on the Editorial Board of the new SEM journal, Dynamic Behavior of Materials. 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 (SWE). Dr. Dannemann was recently nominated to the Board of Trustees of ASM International.

PRESIDENT-ELECT

WENDY C. CRONE

Wendy C. Crone is a Professor in the Department of Engineering Physics with affiliate appointments in the Departments of Biomedical Engineering and Materials Science and Engineering at the University of Wisconsin–Madison. Her research is in the area of solid mechanics, and many of the topics she has investigated are connected with nanotechnology and biotechnology. She has applied her technical expertise to improving fundamental understanding of mechanical response of materials, enhancing material behavior through surface modification and nanostructuring, exploring the interplay between cells and the mechanics of their surroundings, and developing new material applications and medical devices. In addition to more than 50 peer reviewed journal publications, dozens of explanatory education products, and four patents, she is the author of the book *Survive and Thrive: A Guide for Untenured Faculty*. Prof. Crone has garnered awards for research, teaching and mentoring, including Fellow (2015) and M.M. Frocht Award (2013) from the Society for Experimental Mechanics (SEM). She has been a member of SEM since 1988 and has served on the Executive Board (2010–2012); National Meetings Council (2010–2012); Vice-Chair, MEMS and Nanotechnology Technical Division (2001–2006); and society representative to the US National Committee on Theoretical & Applied Mechanics, National Academy of Science (2015–2018). She has also served in numerous leadership roles at UW-Madison, including Interim Dean and Associate Dean of the Graduate School (2011–2015).

VICE-PRESIDENT

JOHN LAMBROS

Prof. Lambros received a B.Eng. degree in Aeronautical Engineering from the Imperial College of Science and Technology of the University of London in 1988, an M.S. degree in Aeronautics from Caltech in 1989, and a Ph.D. degree also in Aeronautics from Caltech in 1994. After a year as a postdoctoral researcher, he joined the Mechanical Engineering department of the University of Delaware as an Assistant Professor in 1995 and moved to the Aerospace Engineering department of the University of Illinois in 2000, where he is currently a Professor. He is a Fellow of the American Society of Mechanical Engineers, the Society for Experimental Mechanics, and the American Academy of Mechanics. He has served as an Associate Editor for *Experimental Mechanics* (1999-2005) and the *ASME Journal of Applied Mechanics* (2011-2014). He has also served on the Executive Board of the SEM (2008-2010) and recently completed one term as Associated Head for Graduate Studies in the Aerospace Engineering Department at Illinois (2011-2016). Over his 20-year career he has received numerous honors and awards for both research and teaching achievements including an NSF CAREER Award (1999), the SEM Hetényi (2012) and Frocht (2015) Awards, and the UIUC Campus Award for Excellence in Graduate and Professional Teaching (2015).

MEMBERS-AT-LARGE

MATT ALLEN

Matt Allen is an Associate Professor in the Engineering Mechanics program in the department of Engineering Physics at the University of Wisconsin-Madison. He was previously employed as a post-doctoral researcher at Sandia National Laboratories and received Doctoral and M. S. degrees from the Georgia Institute of Technology in 2005 and 2004 and a B.S. in Mechanical Engineering from Brigham Young University in 2001. He has developed robust experimental/analytical substructuring methods, a new framework for identifying linear time-periodic systems, continuous-scan laser vibrometry methods and is now studying nonlinear normal modes and reduced order models for geometrically nonlinear structures. He also enjoys Spanish, downhill skiing, tennis and mountain biking and time with his family.

BABAK MOAVENI

Dr. Moaveni is currently an Associate Professor at the Department of Civil and Environmental Engineering at Tufts University. Dr. Moaveni's main research interests include vibration-based system and damage identification of civil structures; finite element model updating; and uncertainty quantification in structural dynamics. He has co-authored 21 journal papers and 38 conference papers on topics related to his research interests. He is currently serving as the chair of the ASCE-SEI technical committee "Methods of Monitoring Structural Performance" and as the vice-chair of the ASCE-EMI "Structural Health Monitoring and Control" committee.

K.T. RAMESH

K. T. Ramesh is the Alonzo G. Decker Jr. Professor of Science and Engineering at Johns Hopkins University. He is the Director of the Hopkins Extreme Materials Institute (HEMI), which advances the fundamental science associated with materials and structures under extreme conditions through the collaboration of academia, industry and external research organizations. His research interests are in high strain rate behavior and dynamic failure of materials, nanostructured materials, injury biomechanics and planetary scale impact problems. Prof. Ramesh received his doctorate from Brown University in 1987 and continued his education as a postdoctoral fellow at the University of California, San Diego. He joined the Department of Mechanical Engineering at Johns Hopkins in 1988 and served as Department Chair from 1999-2002. He has served as founding Director of the Hopkins Extreme Materials Institute (HEMI) since 2012. He has published one book (*Nanomaterials: Mechanics and Mechanisms*; Springer) and is an avid amateur astronomer.

Y.J. (BILL) CHAO

(Bill) Y.J. Chao is a Professor of Mechanical Engineering at the University of South Carolina, Columbia, SC. He received undergraduate degree from National Cheng-Kung University, Taiwan and graduate degrees from National Tsinghua University, Taiwan (MS) and the University of Illinois (PhD). He has been with the University of South Carolina since 1984.

Dr. Chao has worked extensively in fracture mechanics, welding modeling and weld performance, and experimental mechanics. He is part of the team at the University of South

Carolina who developed the digital image correlation experimental technique in 1980's. His work on impact failure of resistance spot welds reveals the science and has practical applications in vehicle crashworthiness. Dr. Chao's primary contribution in fracture mechanics is in constraint effect which lays the foundation for transferability of fracture toughness values from laboratory specimen to structures.

Dr. Chao has over 160 journal publications which results in over 6500 citations and h-index of 37. He has received several awards from professional societies, including B.J. Lazan Award, Hetenyi Award, and R. E. Peterson Award from the Society for Experimental Mechanics. He is a Fellow of the SEM and ASME and served as the Chief Editor of *Experimental Mechanics*, 2000-2003.

He has worked extensively in the areas of fracture and failure mechanics of solids with an emphasis on high-strain rate response of novel materials. He is credited with the development of several quantitative visualization tools including hybrid laser-speckle and moiré method, coherent gradient sensing (CGS), infrared rough surface interferometry, digital image correlation for ultrahigh-speed photography and more recently the digital gradient sensing (DGS) method. His other major contributions are in the areas of fracture and failure mechanics of dissimilar material interfaces, functionally graded materials, syntactic structural foams, cellular structures, interpenetrating phase composites, nanocomposites, to name a few. To date his research has resulted in over 200 publications in archival journals, books and conference proceedings. Several federal agencies including NSF, DOD and NASA have sponsored his research consistently over the years. He has numerous received accolades from professional societies including the Hetényi Award from the Society for Experimental Mechanics, Beer-Johnston Mechanics Educator Award from the American Society for Engineering Education, Fellow status in the American Society of Mechanical Engineers and the Society for Experimental Mechanics, Fyfe Electronics Prize from the British Society for Strain Measurement, A.S. Kobayashi Award from ICCES and Orr Award from ASME-Materials Division. Currently he serves on the editorial boards/committees of *Strain*, *ASME Journal of Engineering Materials & Technology* and as the Chief Editor of *Experimental Mechanics*.

UPCOMING EVENTS

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

2018

IMAC-XXXVI

FEBRUARY 12–15, 2018
ROSEN PLAZA HOTEL
Orlando, FL, USA

2018 SEM ANNUAL

JUNE 4–7, 2018
HYATT REGENCY GREENVILLE
Greenville, SC, USA

U.S. NATIONAL CONGRESS OF THEORETICAL AND APPLIED MECHANICS

JUNE 5TH-JUNE 9TH, 2018
CHICAGO, IL

<http://sites.northwestern.edu/usnctam2018/>
(Please note that these dates are in direct conflict with SEM's Annual Conference and 75th Anniversary.)

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