SEM Experimentally Speaking...

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Message From the President

Daniel Rixen, SEM President, 2020-2021

IN THIS ISSUE

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I REMEMBER WHEN I ATTENDED my first SEM conference in 2001 as a young professor, meeting in the corridors of the Hyatt in Kissimmee (Orlando) those "big shots" of whom I had read the papers or books, and who inspired attendees of that IMAC in vivid sessions or insightful tutorials. I have come back to SEM conferences ever since and brought with me many students, knowing that hearing the latest theoretical and technological developments and sharing their work with colleagues from the "friendly society" would give them a motivation boost.

This year, nearly 20 years later, I feel honored taking over for a year the presidency of SEM to help keep the Society as young and friendly as ever and steer it, together with a fantastic team, through the challenges and chances ahead of us. When I was asked by the board to enter the president-trajectory, I hesitated (to say the least …) but was convinced that it was a useful thing to do and that it is through teamwork that you learn and grow. Indeed, I was not aware before of the organization of SEM deep inside (although it is clearly detailed on sem.org) but soon understood that one starts as in-coming president then goes over to vice-president and president-elect before being president. And then one stays as past president for a while. So enough time to understand the organization and work in a team of volunteers dedicated to make SEM a great place for its members. I came to understand, over the past years that SEM, a nonprofit cooperation, works with a small highly professional office staff that relies on committed members of the Executive Board, Technical Divisions and conference organization. So, a society worth investing my energy in! Every member is more than welcome to help SEM become an even better community, for instance by participating in Technical Divisions, organizing student symposia, publishing in one of the three journals of the society or expressing your ideas and needs to the board.

"We will need to be creative, listen to our members and go over unconventional roads to ensure that young and senior SEM members continue to feel involved and have the experience they have come to enjoy"

While taking over the presidency, I would like to thank John Lambros for his presidency over the last year. He did a great job fueling the discussions and leading the decision-making process in a time when SEM started to deal with the consequences of a pandemic wave that deeply affects us all and requires rethinking the way our friendly society can perpetuate the scientific debate at conferences. John will continue to support us in implementing the strategic changes proposed by the ad-hoc committee he formed.

In this year, we will further work hard to preserve the excitement of fruitful and inspirational exchange at conferences, even if it has to be over virtual encounters. We will need to be creative, listen to our members and go over unconventional roads to ensure that young and senior SEM members

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continue to feel involved and have the experience they have come to enjoy over years at conferences, just in a different format for now. There is tremendous potential to rejuvenate the way we organize scientific meetings and we have a unique chance to think about a new normality, better and more sustainable. We have the power to rethink the future: as scientists and engineers, it is part of our mission. SEM is a strong and healthy instrument to support us on that road: its organization is very mature, resting on a highly motivated staff, and its financial health, under the visionary supervision of Jon Rogers for many years, has grown strong thanks to the success of our conferences and journals over the last two decades.

In my short presidency term, next to the usual duties of the president, I intend to dedicate my modest energy to three topics that are dear to me and that I consider essential for the future of the society:

Virtualization

The last months have significantly changed the way we work, communicate and set our priorities. Conferences are being reshaped, for the best or for the worst, future will tell. SEM is deploying a lot of efforts to find an efficient and enjoyable manner to hold the coming Annual Conference as a virtual event, making sure scientific dialog and personal networking are enabled with new tools. The scientific debate and technological exchange between members and with exhibitors are at the very heart of our friendly society. While reorganizing the conference into a virtual event, these aspects must drive our decisions. Those changes will have a long-lasting impact on the way we will conceive our meetings in the future. But where is the balance between debating face-to-face and discussing over video-conferencing tools? How can we ensure that young members, who spend part of their life in the cyber-world and on social media, can continue to interact with senior members less digitally agile but having so much experience to share? Next to the current effort to setup the upcoming conferences, I am convinced that we must take this opportunity to distill the good aspects out of the current changes and integrate them in our way of conferencing and interacting in the long-term. This reflection will need the brainwaves of members with different visions and needs.

Societal Challenges

The challenges our world is facing influences all of us in our daily life and will impact even more the life of the next generations. As professionals that everyday make choices in the way we shape the world through our teaching, research, or product development, it is our responsibility to weigh the impact we make. Climate change, mobility needs, the poor state of our oceans, extreme poverty and technological underdevelopment of entire parts of our world, pandemic threats, aging society in many countries … Engineering and science are partly responsible for some of these overwhelming problems, but are also important actors in finding solutions. Regularly, publications in our journals and presentations at our conferences show novel directions that can help tackle these challenges and I am convinced that SEM, through the way it enables emerging areas through keynotes, in special journal issues or in conference themes, can stimulate the positive impact we can have.

Internationalization

Members from SEM are coming from many different countries. However, its activities are mainly concentrated in the USA, where the society was founded and grew. In my opinion, SEM has a lot to gain in looking at further cooperation with other international societies and in planning more activities such as student symposia and chapters, short courses or topical workshops outside of the US. As one of the few non-American presidents of the society, I feel that SEM can profit from fostering new activities beyond the US borders and I know that we can count on our international members to seed the friendly spirit of our society in new grounds.

SEM can only function thanks to the dedication of many members and the support of our highly motivated office staff. It is my privilege as the president to appoint those who will help run the different activities at the heart of SEM (please look on sem.org to understand the role of those bodies):

- **Kristin Zimmerman** as Secretary of the Society
- **Nuno Lopes** as Managing Director of the Society
- **Jon Rogers** as Treasurer of the Society
- **Eric Brown**, President- Elect, as Chair of Technical Activities Council
- **James De Clerck**, Vice President, as Chair of National Meetings
- **John Lambros**, Immediate Past President, as Chair of Administrative Council
- **Wendy Crone**, Past President, as Chair of Editorial Council
- **Janice Barton**, At-Large Board Member as Vice-Chair of Editorial Council
- **Javad Baqersad** (IMAC), At-Large Board Member as Executive Board Representative to IMAC Advisory Board
- **Samantha Daly**, as Vice-Chair of the National Meetings Council
- **Brandon Dilworth** (IMAC), At-Large Board Member as Vice-Chair of Technical Activities Council
- **Jeff Helm**, as Vice-Chair of the Education Committee
- **Greg Tipton** (IMAC), as Vice-Chair of the Applications Committee
- **Kendra Van Buren** (IMAC), At-Large Board Member as Vice-Chair of the Research Committee
- **Junlan Wang**, At-Large Board Member as Vice-Chair of Administrative Council

I look forward to working with you! ■

Daniel Rixen

From the Directors

WITH THIS MESSAGE, we would like to share with you a few highlights from our 2020 Annual Virtual Technical Division and Business Meetings held June 1-4, and June 5, 8-10, 2020, respectively.

The most significant outcome from the meetings was that the Executive Board determined that SEM will be conducting a Virtual Annual Conference, September 14-17, 2020 due to all issues surrounding the COVID-19 pandemic. SEM knows, very well, how to coordinate and run a successful face to face conference. SEM's conference expertise assists the hotels, so much so that the hotels ask SEM to return. Over the past six years. SEM's 'well oiled conference machine' has increased to where it is now bringing in 67% of SEM's total annual revenue. Please refer to the recently published Annual Report of the Officers, Divisions and Committees to learn more of the details of SEM's success in 2019.

During the week of June 1st, SEM's Technical Division (TD) Chairs hosted virtual TD meetings to complete their tasks of putting together topics and content for the 2021 Annual conference in Albuquerque, NM, June 7-10. The meetings were very well attended and participatory. And, offered a wonderful opportunity to speak with, and in some cases, see, our friends and colleagues.

Our Executive Board, Councils and Committees accomplished a great deal of work during the virtual business meetings held June 5, 8-10, 2020. Again, all meetings were very well attended with participants offering a lot of great ideas for focus groups, symposia and other new and exciting conference elements as we all worked together to build the 2021 technical program and conference activities. We continue to tap the new energy from our Council and Committee leadership and participants, which is critical to growing the membership and conference success.

A few of the highlights from the meetings include:

- SEMEF is now offering virtual student symposia and has extended free SEM student membership to symposium participants. Check out the SEM website for details.
- The Membership Committee will be preparing new data and analysis to better illustrate conference first timer retention and the ebbing and flowing of membership over time.
- The Technical Activities Council approved three IMAC focus groups to transition into two new TDs. Both of the new TDs represent topical areas at both IMAC and Annual. Click here to see the new TD and Committee leadership for 2020-2021.
- SEMs New Strategic Plan is now available on the SEM website.
- Going forward, SEM conferences will likely always have a virtual component

During the virtual meetings the Editors in Chief (EIC) of our three journals held their respective Editorial and Advisory Board meetings and continued their efforts to increase communication across the TD's, journal editors and boards to grow greater coordination and benefit to the membership. Experimental Mechanics (EM) announced that Alan Zehnder from Cornell University will be the incoming EIC replacing Ioannis Chasiotis from University of Illinois at Urbana-Champaign, starting 1/1/21. Experimental Techniques (ET) announced that Bonnie Antoun from Sandia National Laboratories, is to begin her term as EIC beginning now replacing Paul Reynolds from University of Exeter, UK. We also have Jennifer Jordan from Los Alamos National Laboratory who transitioned into the role of EIC for the Journal of Dynamic Behavior of Materials (JDBM) in January 2020. We recognize the significant contributions of our Journal EICs, editors and reviewers and are extremely grateful to their service to the Society, and the experimental mechanics community.

We need to continue to better understand where and why our conference attendees are publishing their work in order to promote increased member submissions to EM, ET and JDBM. We have updated and refined the aims and scope of ET and EM and are looking carefully at JDBM to be sure that all SEM journals are relevant and current to the membership and research represented by our TDs. Anita Lekhwani, SEM's Springer Nature publishing representative participated in the meetings. Anita will be working very closely with the EICs to be sure that the publishing processes (author submission, editorial manager system, online first, website content, marketing, transfer desk data tracking, SEM member/author tracking, etc.) are efficient and effective.

SEM staff is working closely with the Executive Board on communicating and conveying the SEM Annual Conference 2020 using virtual platforms and means. We will need your support, and patience as we roll out the process for submitting videos, registration, and facilitated synchronous Q&A sessions. We look forward to your participation as we learn together.

We want to acknowledge the SEM staff for their tireless work in putting together an outstanding IMAC conference in February and for working together, though remotely, to learn the many new aspects of conducting a virtual conference. Our goal is to give our SEM community a valuable, learning experience. We invite you to send an email to Jen, Shari, Kathryn, Dan and Nicole to acknowledge the work that they do on your behalf and on behalf of SEM.Thank You!!

We look forward to your questions and comments so please don't hesitate to email or call.

See you online in September! ■

Kristin Zimmerman, Executive Director
Nuno Lopes, Managing Director

2020 SEM Awards

THE SOCIETY FOR EXPERIMENTAL MECHANICS, INC., was founded in 1943 as a nonprofit sci-entific and educational organization. Since its inception, SEM has made a special effort to live up to its goal to be the "friendly society." The members of SEM encompass a unique group of experimentalists, development engineers, design engineers, test engineers and technicians, students, and research and development scientists from industry and educational institutions.

Since its organization in 1943, SEM has relied heavily upon volunteer leadership and the professional expertise of its members. In the early 1950's, the Executive Board began to explore means to formally recognize worthy individual contributions to the Society. Over the years several awards were established. Prior to 1967, the selection of award recipients was the sole responsibility of the Executive Board. 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 seeks nominees from the general membership (except where noted). For those with internet access, the simplest procedure is to submit the online Nomination Form that can be found on the Society Web site.

25 and 50 Year Members of SEM

The Society for Experimental Mechanics gratefully acknowledges the following individuals who have been members of the Society for 25 and 50 consecutive years. Each will receive a special certificate commemorating their dedicated support to SEM over the past quarter or half century.

Gold (50 Year) SEM Members

Rathindra K. Bhatacharya
Wilmott G. Brown
Clarence Chambers
Kenneth McConnell
Reginald Robinson, Jr.
Robert F. Sullivan

Silver (25 Year) SEM Members

Tim Foley
Motoharu Fujigaki
Cosme Furlong
Michel Grediac
Edward Johnson
Jian Lu
Charlie Pickrel
Michael Prime
Ralph Rietz
Daniel Rittel
Ares Rosakis
Satoru Yoneyama

Fellow Awards

In 1975, the Honors Committee recommended a bylaws change which enabled a Fellow grade of membership to be established. The recommendation, which was approved, changed Article IV, Section 3 to read: "A Fellow shall be an individual who has distinguished himself/herself in some field in which the Society has interest, who has been a member of the Society for at least ten consecutive years, and whose contributions to the Society and the technical community have justified this honor. The number and manner of election of Fellows shall be as specified by the Executive Committee."

The Fellows Committee has prepared a nomination form which details all pertinent information required to have someone's name placed for nomination. A copy of the form can be found on the Society website.

2020 Recipients

Ioannis Chasiotis
Phillip L. Reu
Satoru Yoneyama
Kristin Zimmerman
In recognition of distinguished contributions to the field of experimental mechanics, and service to that field through the Society.

Ioannis Chasiotis is Professor of Aerospace Engineering at the University of Illinois, Urbana-Champaign. 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 1996. His research focuses on mechanics of materials at small length scales. He is the editor-in-chief of the journal Experimental Mechanics, a recipient of the NSF Presidential Early Career Award for Scientists and Engineers (PECASE), the Society of Engineering Science Young Investigator Medal, the ASME Thomas J.R. Hughes Young Investigator award, the Society for Experimental Mechanics A.J. Durelli award, etc.

Phillip L. Reu is a Distinguished Member of Technical Staff at Sandia National Laboratories. He has received an MS in biomedical engineering from Rensselaer Polytechnic Institute and an MS and PhD in mechanical engineering from the University of Wisconsin – Madison (2002). Phillip specializes in developing novel full-field measurement techniques in previously un-measurable regimes often using digital

image correlation (DIC) or coherent optical measurement techniques. He was awarded the Brewer award for outstanding experimentalist from SEM in 2016. Current research efforts in DIC are focused on uncertainty quantification. Phillip is the author of the "Art and Application of DIC" article series in the journal of Experimental Techniques, international instructor in DIC techniques for "Metrology beyond colors", chair of the DIC Challenge, president of the international digital image correlation society (iDICs), author of more than 30 peer reviewed journal articles, and pater familias to 6 kids.

Dr. Phillip L. Reu earned a Master's of Science in biomedical engineering from Rensselaer Polytechnic Institute and a Master's of Science and a PhD in mechanical engineering from the University of Wisconsin – Madison. Phil specializes in developing novel full-field measurement techniques in previously un-measurable regimes often using digital image correlation (DIC) or coherent optical measurement techniques. He has been instrumental in the popularization and wide-spread adoption of full-field and optical measurement techniques both at Sandia and globally. Phillip is the founding Vice President & current President of the International Digital Image Correlation Society (iDICs), and an international instructor in DIC techniques and best practices, training over 90 Sandians as well as researchers at LANL, AWE and the DoD. Phil's leadership and technical contributions in developing and deploying these techniques, have been critical in proving that digital high-speed cameras can be used to make quantitative measurements with an understanding of the uncertainty, enabling their widespread use at the labs today.

Satoru Yoneyama is a Professor of Mechanical Engineering at Aoyama Gakuin University, Japan. He received his B.S. and M.S. degrees in Mechanical Engineering from Aoyama Gakuin University in 1995 and 1997 respectively and Ph.D. degree from Tokyo Institute of Technology in 2000. After several years of research assistant work, he joined the faculty of Osaka Prefecture University in 2004 and returned to Aoyama Gakuin University in 2007 where he has been ever since. He was a Visiting Associate Professor at the University of Florida from 2013 to 2014 and a Visiting Professor at the Japan Aerospace Exploration Agency from 2015 to 2017. He received several awards from professional societies including the R.E. Peterson Award in 2002 and A.J. Durreli Award in 2014. He was an Executive Board Member of SEM from 2014 to 2016. He has served as an Associate Technical Editor of SEM's Journal of Experimental Mechanics.

Kristin Zimmerman became a member of the Society for Experimental Mechanics (SEM) in 1988. She was the inaugural Student Paper Competition Winner under the guidance of Professor Gary Cloud at Michigan State University in 1990; Chair of the Education Committee from 1991-2007; Associate Editor of Experimental Techniques from 1996-today, and Senior Editor from 2000-2007; President from 2008-2009; Assistant Treasurer 2012-2013 and appointed Treasurer in 2014. She was awarded the Tatnall award in 2014.

Dr. Zimmerman's professional career began with the General Motors (GM) Research and Development (R&D) Center in 1993 – 1997 where she created GM's Academic Partnerships program of over 100 Research Laboratories across the globe. From 1997-99, Zimmerman worked in the areas of advanced engineering and design and in 1999/2000, she received a Fellowship to the National Academy of Engineering to work on STEM policy. From 2000-09, Zimmerman worked in energy and environmental policy including an assignment in Beijing, China (2008-09) managing GM China's Automotive Energy Research Center (CAERC) at Tsinghua University. She continued her energy and environmental policy work on the Chevy Volt Team, 2006-12.

Dr. Zimmerman is currently consulting full time as the President of MedFor: Inc., a translational sciences consulting firm spanning forensic medicine and engineering mechanics - founded with her husband in 1999.

Dr. Zimmerman's educational background includes: Physics, Mechanical Engineering, and Engineering Mechanics. She holds a Ph.D. in Engineering Mechanics from Michigan State University.

William M. Murray Lecture

The William M. Murray Lecture was initiated in 1952 as the Society's prestige lecture. It is presented each year, at the SEM Annual Conference, as a continuing honor to Dr. William MacGregor Murray, first president and long-time secretary-treasurer, for his many contributions to SEM.

2020 Recipient

Janice Dulieu-Barton

For pioneering contribution to the development of Thermoelastic Stress Analysis (TSA).

Janice Dulieu-Barton was appointed in May 2019 as a full Professor of Experimental Mechanics in the Bristol Composites Institute at the University of Bristol in the UK. Prior to this she worked at the University of Southampton for 20 years in the School of Engineering. She received her PhD from the University of Manchester in 1993 where she started her research on the topic now known as 'Thermoelastic stress analysis'. She has published around 320 papers with 120 in archival journals, edited 11 conference proceedings and produced 8 book chapters. Janice's expertise is in imaging for data rich materials characterisations and assessments of structural performance, with a focus on lightweight structural design particularly composite structures. She has won numerous grants that have allowed her to develop novel approaches in experimental mechanics, with as special focus on the development of infra-red imaging. Janice has been a member of SEM since 1994, she was awarded a fellowship of SEM in 2016 and received her silver certificate for 25 years of membership in 2019. She was chairman of the fellows committee and the Thermomechanics and Infra-red Imaging TD, as well as an

Associate Editor of Experimental Mechanics. Janice has been very active in the European Experimental Mechanics community, notably chairing the British Society for Strain Measurement and serving on their National Council for 14 years, chairing and organising many conferences and technical seminars, including the 16th International Conference on Experimental Mechanics in Cambridge, attended by over 500 delegates. Janice is also active in training and mentoring early career researchers; she has supervised over 30 successful PhDs and her 5-day annual workshop on Experimental Mechanics for postgraduate students has run annually for the past 10 years and attracts around 25-30 delegates internationally.

Springer/Nature Publishing Young Investigator Lecture

Sponsored by Springer/Nature Publishing

The Society has a number of awards which, by their nature, are intended to recognize senior members of the Society for their work in Experimental Mechanics. However, it is also important that the Society recognize members early in their career whose work demonstrates considerable potential in the field of Experimental Mechanics. That is the focus of this new lecture.

As with all SEM awards, we strongly solicit nominations from the members of the Society for this lecture. The nominee should be recognized for the potential of work early in his/her career, and should be a member of the Society. On the academic side, this could be someone at the Assistant or Associate Professor level. On the industrial or Government Lab side, it could be someone up to 10 years after hire. These are only guidelines and not absolute rules.

2020 Recipient

Jacob Notbohm

In recognition of outstanding mid-career contributions to experimental mechanics.

Jacob Notbohm is a Harvey D. Spangler Assistant Professor in the Department of Engineering Physics at the University of Wisconsin-Madison. After receiving his Ph.D. from the California Institute of Technology in Mechanical Engineering in 2013 with Prof. G. Ravi Ravichandran, he worked as a postdoctoral researcher with Prof. Jeff Fredberg at the Harvard Chan School of Public Health. Notbohm studies mechanical properties of biological materials and how physical interactions between cells and their surroundings control cell contraction and migration. The focus of this research is on mechanics with an emphasis on experiments. Notbohm has received multiple awards, including a 3M Non-Tenured Faculty Award and an NSF CAREER Award.

Sage Publishing Young Engineer Lecture

Sponsored by Sage Publications Limited

The Society has a number of awards which, by their nature, are intended to recognize senior members of the Society for their work in Experimental Mechanics. However, it is also important that the Society recognize members early in their career whose work demonstrates considerable potential in the field of Experimental Mechanics. This is the focus of this new lecture given at IMAC.

As with all SEM awards, we strongly solicit nominations from the members of the Society for this lecture. The nominee should be recognized for the potential of work early in his/her career, and should be a member of the Society. On the academic side, this could be someone at the Assistant or Associate Professor level. On the industrial or Government Lab side, it could be someone up to 10 years after hire. These are only guidelines and not absolute rules.

2020 Recipient

Joe Schoneman

In recognition of outstanding early-career contributions to experimental mechanics.

Joe Schoneman received his B.S. and M.S. in Engineering Mechanics from the University of Wisconsin. In 2016, he joined ATA Engineering's southeastern regional office in Huntsville, AL, where he supports and manages projects related to the structural dynamics, aeroelasticity, and flight mechanics of launch vehicles and high-speed aircraft. His research interests include nonlinear structural dynamics, dynamics and stability of structures exposed to extreme aerothermal environments, and flight mechanics of novel high-speed concepts. Mr. Schoneman is a United States Marine Corps veteran and 2014 recipient of a National Science Foundation Graduate Research Fellowship. He has been attending and presenting at IMAC since 2016.

G.A. Brewer Award

In memory of Given A. Brewer, Teledyne Engineering Services, located in Waltham, Massachusetts, established the Brewer Teledyne Award in 1989 (now called the G.A. Brewer Award). Mr. Brewer created Brewer Engineering Laboratories. As its director, Mr. Brewer carried out over 700 projects using experimental and theoretical techniques. His business was later sold to Teledyne, and he became a consultant to the company. Mr. Brewer was a valued member of SEM and was active in both leadership and technical activities.

The annual award will consist of an award plaque in the recipient's name. The criteria for the award stipulates that it be given to "an outstanding practicing experimentalist" chosen by the Honors Committee. The award is intended as recognition of skill in the

practical application of experimental mechanics techniques. A person whose primary affiliation is with a university would be eligible if substantial amounts of consulting work involved hands-on experimental analysis.

The first Brewer-Teledyne award was presented in June, 1989, to Mrs. Heidi Brewer in her husband's memory.

2020 Recipient

Daniel Casem

In recognition of contributions as an outstanding practicing experimentalist.

Daniel Casem received his B.S. in mechanical engineering from the University of Maryland, College Park in 1993. After a brief time doing manufacturing support and structural analysis at General Dynamics Electric Boat Division he returned to the University of Maryland and obtained both M.S. (1998) and Ph.D. (2000) degrees in mechanical engineering. In 2001 he started at the US Army Research Laboratory as a National Research Council Post-Doctoral Fellow for one year and has been there as a federal employee ever since. His research focusses on high rate experimental solid mechanics and shock.

Gary L. Cloud Scholarship Award

Distinguished Professor Gary L. Cloud is a recognized leader in the field of experimental mechanics. Professor Cloud's research interests involve bringing together optical and electronic techniques to solve interesting problems in geomechanics, biomechanics, composites, fracture mechanics, fastening, and nondestructive evaluation. His book, Optical Methods of Engineering Analysis was published by Cambridge University Press in 1995 (revised om 1998, second printing).

Reference contributions include chapters in the Handbook of Experimental Mechanics (2008) and the Marks Mechanical Engineering Handbook (2007). He has delivered many oral presentations to technical and lay groups. More than 50 research contracts have been completed under his direction. Dr. Cloud has served as a consultant to approximately 60 firms and agencies in product design, measurements, and liability. He holds 2 patents and has another patent application in process with specialties in the area of Optical Metrology. He was elected as SEM Fellow in 2001, and has made a significant contribution to SEM through his Back to Basics – Optical Methods series published in Experimental Techniques.

The purpose of this award is to celebrate professor Cloud's many years of contributions to the field of experimental mechanics by recognizing a unique individual and his/her aspirations to pursue a graduate degree in experimental mechanics and to create new knowledge that leads to sustainable improvements in the human condition.

2020 Recipient

Carter Barkley

Carter Barkley is currently a M.S. student in Mechanical Engineering at the South Dakota School of Mines and Technology (SDSM&T) where he also received his B.S. in 2019. Carter has been involved with the Composites and Polymers Engineering (CAPE) lab at SDSM&T where he assisted with the manufacturing of continuous fiber reinforced thermoplastic prepreg production machines. In addition to projects at the CAPE lab, Carter's masters research investigates the response of thermoplastic matrix composite joints to various loading conditions. The research project also aims to compare experimental techniques such as digital image correlation (DIC) with numerical models.

James W. Dally Young Investigator Award

James W. Dally, P.E., Ph.D., has been internationally recognized for seminal contributions to the development of experimental methods for studying dynamic fracture mechanics and stress wave propagation problems; for academic leadership; and for developing innovative teaching materials and textbooks for undergraduate and graduate education.

Since his retirement from active teaching and research at the University of Maryland, College Park, Jim serves as an engineering consultant for the Defense Threat Reduction Agency and manages College House Enterprises, LLC (Knoxville, TN), a niche publisher of engineering textbooks.

Previously, Jim taught at Cornell University (Ithaca, NY); the Illinois Institute of Technology, Chicago; and the U.S. Air Force Academy (Colorado Springs, CO); and he served as dean of engineering at the University of Rhode Island, Kingston. He also held positions at the Mesta Machine Co. (Homestead, PA); IIT Research Institute, Chicago; and IBM (Manassas, VA).

An ASME Fellow, Jim is also a Fellow and Past President of the Society for Experimental Mechanics (SEM) and the American Academy of Mechanics, and a member of American Society for Engineering Education and the National Defense Industrial Association.

Among his distinguished honors, he was elected to the National Academy of Engineering (1984); was selected by his peers to receive the Senior Faculty Outstanding Teaching Award in the College of Engineering (1991) and the Distinguished Scholar Teacher Award (1993) at the University of Maryland. He was a member of the University of Maryland team that received the Outstanding Educator Award sponsored by the Boeing Co. (1996), and more recently, he received an Outstanding Alumni Award (2009) from the Illinois Institute of Technology's mechanical engineering department, the 2012 Daniel C. Drucker Medal from ASME and the

Archie Higdon Distinguished Educator Award from the Mechanics Division of ASEE in 2013.

Jim earned his bachelor's and master's degrees in mechanical engineering from Carnegie Institute of Technology, Pittsburgh, in 1951 and 1953, respectively. He earned his Ph.D. in mechanics from the Illinois Institute of Technology in 1958.

2020 Recipient

Alper Erturk

For landmark work in the area of vibration- based energy harvesting using piezoelectric materials.

Dr. Alper Erturk is the Woodruff Professor of Mechanical Engineering at Georgia Institute of Technology. His theoretical and experimental research interests are at the intersection of smart structures and dynamical systems. He is a recipient of various awards including the ASME C.D. Mote Jr. Early Career Award for "demonstrated research excellence in the field of vibration and acoustics," ASME Gary Anderson Early Achievement Award for "notable contributions to the field of adaptive structures and material systems," and an NSF CAREER Award. Dr. Erturk received his PhD in Engineering Mechanics from Virginia Tech in 2009. He is a Fellow of ASME.

Dominick J. DeMichele Award

This award, established in 1990 in honor of Dominick J. DeMichele, recognizes an individual who has demonstrated "exemplary service and support of promoting the science and educational aspects of modal analysis technology." This award is presented at the annual IMAC Conference & Exposition on Structural Dynamics.

Dominick J. DeMichele (1916-2000) was the past director of the International Modal Analysis Conference (IMAC), having directed 13 annual IMACs, and was founder and president of Instrumentation and Measurement Technology Services. He held a B.S.M.E. from Rensselaer and was also a graduate of the New York Diesel Institute. He joined the mechanical engineering department of the general engineering laboratory at the General Electric Company, Schenectady, NY, in 1940 as a project engineer and retired from GE in 1979. He received the coveted Charles E. Coffin Award, the company's highest award to its employees, for his contribution in the field of solid mechanics (vibration, shock, stress-strain, and acoustics). While at GE, Mr. DeMichele was awarded four patents: High Temperature Strain Gages; Strain Gages; Method for Making Resistance Strain Gages; and Strain Gage Pressure Transducer.

Mr. DeMichele was a 42-year member and a Fellow of SEM. He was also recognized by the Society as an Honorary Member. One of his last positions with the Society was Chair of the Fellows Committee. He was chair of two national meetings, a member of the Executive Board, a member of the Technical Papers Committee, chair of the national technical session on high temperature strain gages, and organizer and first chairman of the New York-Hudson Section of the Society. He was a senior member of the Instrument Society of America and of the American Society for Nondestructive Testing. He served as a member of the National Academy of Sciences Instrumentation Committee for the American Association of Highway Officials Road Test. Mr. DeMichele was appointed a member of the National Commission on Technical Education of the National Science Foundation. He had published numerous technical papers and in-house reports covering the development of high-temperature strain gages, special projects in strain gage applications, vibration, acoustics and other measurement programs.

2020 Recipient

Scott Cogan

In recognition of the quality and breadth of his technical contributions, his outstanding commitment to education and his continuous support to the IMAC community.

Scott Cogan has been a research fellow with the French National Center for Scientific Research (CNRS) since 1991 and is currently director of the Model Validation and Uncertainty Quantification group at the Department of Applied Mechanics of University of Franche-Comté, FEMTO-ST Institute. His research interests focus on experimental model validation and robust decision-making under lack of knowledge. He has co-advised 32 PhDs and lead over 40 research projects with industrial partners including PSA, Renault, EDF, SAFRAN, ARIANE GROUP, ALSTOM, CNES, and the Paris Philharmonique. He has coauthored 40 articles in pier-reviewed journals and over 200 technical articles and reports. Scott also develops dedicated MATLAB-based software tools for use in an industrial environment with commercial simulation codes.

Scott received his Bachelor's and Master's degrees in Mechanical Engineering from the University of Michigan in 1984 and 1985. He went on to obtain his PhD in 1990 from the University of Franche-Comté in Besançon, France under the direction of Professor Gérard Lallement. Scott is a long-time participant at IMAC and served on the advisory board from 2014 to 2017.

D.J. DeMichele Scholarship

Dick DeMichele worked very hard to make the International Modal Analysis Conference (IMAC) accessible to everyone. He understood the importance of the discussion and sharing of new ideas in a conference setting. He felt it was especially important to get students in the experimental mechanics field involved in IMAC.

The purpose of this award is to honor and memorialize the generous spirit of Dick DeMichele by providing financial assistance to students traveling to present papers at an IMAC.

All materials specified in Award Guidelines are due at the time of paper submission as outlined in the Call for Papers and on the SEM website.

2020 Recipient
Andrea Lupini

Andrea Lupini is a Ph.D. candidate in the Department of Mechanical Engineering at the University of Michigan. His research blends state-of-the-art computational tools and novel damping concepts for the characterization and reduction of vibration in turbomachinery blisks. The computational methods he developed can be implemented by aircraft engine manufacturers to ensure the reliability of bisks during the design phase, in particular addressing the issue of repairs, or blends. His current focus is on the design and improvement of novel nonlinear vibration damping concepts applied to turbomachinery blisks.

In the past, he collaborated with the sports car manufacturer Ferrari and electric vehicle producer Tesla, working on durability and vibrations. Andrea holds a Bachelor's degree and a Master's degree in Mechanical Engineering from the University of Parma, and a classical guitar diploma from the Conservatory of Parma.

A.J. Durelli Award

This award was established in 2004 in honor of A.J. Durelli. Mr. Durelli was one of the most outstanding experimental stress analysts in the world during the second half of the twentieth century. Known primarily for his work in brittle lacquer techniques, photoelasticity, and moiré methods, throughout his career, Dr. Durelli consistently sought out new methods to solve problems rather than to solve new problems with existing methods. He often challenged his students and colleagues to view the world from a different perspective, and bestowed on our Society some of its greatest gifts—productive, caring, and competent people.

The award in question is designed to recognize a relatively young individual for distinguished, innovative work in experimental mechanics; one of the qualities that A.J. recognized and instilled so well in others. The individual should be a young professional who has introduced, or helped to introduce, an innovative approach and/or method into the field of experimental mechanics. The individual's contribution shall be distinguished in that it departs from the norm and/or challenges the existing train of thought in the Society. The recipient should be a member of SEM, but need not have held any prior leadership position in the Society.

The Society is actively soliciting nominations for this award.

2020 Recipient
Piervincenzo Rizzo

For outstanding NDE and structural health monitoring innovations and contributions to the field of experimental mechanics.

Dr. Rizzo received a Laurea (M.S. equivalent) in Aeronautical Engineering at the University of Palermo, Italy, and a M.S. and a Ph.D. (2004) in Structural Engineering both from the University of California, San Diego. Currently, he is a Professor in the Department of Civil and Environmental Engineering at the University of Pittsburgh. Dr. Rizzo's main research interests are in the area of nondestructive evaluation and structural health monitoring (SHM). His research has been supported by the NSF, FRA, PennDOT, TRB and the ASNT. To date, he published about 100 referred papers, 8 book chapters, over 160 conference proceedings and rep orts, and 2 patents. Click here for more information.

M.M. Frocht Award

Dr. Max Mark Frocht was honored for his accomplishments by the 1967 initiation of the M.M. Frocht Award. The award recognizes "outstanding achievement as an educator in the field of experimental mechanics," and is presented annually to the "Educator of the Year." Dr. Frocht's work involved research in photoelasticity, stress concentration factors, and 3-D techniques. His two-volume treatise on photoelasticity is considered a classic and has been translated into Russian, Spanish, and Chinese. Its publication was credited with revitalizing photoelastic research in England and the laboratories of the eminent photoelastician,Dr.Filon.

Dr. Frocht was a student of Steven Timoshenko and many of his own students have made important contributions to the field of experimental mechanics. He has presented papers and lectures on photoelasticity and experimental stress analysis in all parts of the world.

2020 Recipient
Junlan Wang

In recognition of outstanding achievements as an educator in the field of experimental mechanics.

Junlan Wang is a Professor of Mechanical Engineering at the University of Washington. She received her B.S. (1994) and M.S. (1997) in Mechanics and Mechanical Engineering from the University of Science and Technology of China, and Ph.D. (2002) in Theoretical and Applied Mechanics from the University of Illinois at Urbana-Champaign. After a year of postdoctoral research at Brown University, she joined the Mechanical Engineering department of University of California, Riverside in 2003 as an Assistant Professor (later promoted to Associate Professor) and moved to UW in December 2008.

Her research focuses on mechanics of thin films/multilayers, biological and bioinspired materials, high strain rate phenomena,

and additively manufactured materials. She has received several awards on research and teaching, including an NSF CAREER Award (2008), SEM Hetenyi (2004) and Durelli (2016) Awards, ASEE Beer and Johnston Outstanding New Mechanics Educator Award (2007), and Bourns College of Engineering Teaching Excellence Award (2007).

D.R.Harting Award

(The Experimental Techniques "Outstanding Paper" Award)

Darrell R. Harting, a 37-year SEM member and one of Experimental Techniques founders, passed away in 1996. In recognition of his considerable contributions to SEM as a member, as its President in 1977-1978, as Fellow in 1983, and as an early proponent of Experimental Techniques, the SEM Honors Committee recommended, and the Executive Board approved, that the ET Outstanding Paper Award be renamed the D.R. Harting Award.

This award was formally established in 1987 by the Executive Board. However, the award was first presented in 1981, when Experimental Techniques started publication on a regular basis. The award, consisting of a plaque, is presented at SEM's Annual Conference. Candidates are nominated by ET reviewers who cite papers they consider worthy of "Outstanding Paper" status. In January of the year, the ET Senior Technical Editor prepares a list of nominated papers. Subsequently, all pertinent information is submitted to the Honors Committee for the final selection.

2020 Recipients

Maren Scheel
Mlanden Gibanica
Anders Nord
For the outstanding paper entitled "State-Space Dynamic Substructuring with the Transmission Simulator Method" published in Experimental Techniques 43, 325–340 (2019)

Maren Scheel is a research associate and PhD student at the University of Stuttgart, Germany. Her research interests include nonlinear modal analysis, nonlinear system identification and dynamic substructuring.

Dr. Mladen Gibanica is a First CAE Engineer at the Driving Dynamics and NVH department within Volvo Car Group. He recently finished his PhD in uncertainty propagation of synthesised components at Chalmers University of Technology and Volvo Car Group in Gothenburg, Sweden. His research interests include uncertainty quantification, system identification and dynamic substructuring.

Dr. Anders Nord is the current acting global feature leader for durability within Volvo Group Trucks Technology, situated in Gothenburg, Sweden. He has been with the Volvo group for three years. Prior to that, he was an Assistant Professor at Chalmers University of Technology in Gothenburg. His research interests include model calibration, dynamic substructuring and system identification.

M. Hetényi Award

(The Experimental Mechanics "Outstanding Paper" Award)

This award was established in 1967 for the best research paper published in Experimental Mechanics. It was named in honor of Dr. Miklos Hetényi. A brief biography and an abridged list of Dr. Hetényi's professional accomplishments follow:

Education: University of Technical Sciences, Budapest, Hungary, 1924-30; Diploma in Civil Engineering, 1931; Graduate work with H.M. Westerguard, University of Illinois, 1934-35 and with S.P. Timoshenko, University of Michigan, 1935-36; Ph.D. in Engineering Mechanics, 1936.

Publications: Author of over 70 scientific papers on analytical and experimental mechanics and on the theory of structures; Beams on Elastic Foundations, University of Michigan, 1946; Coeditor of Proceedings of the Tenth International Congress on Applied Mechanics, Springer Ed., 1969.

Contributions to SEM: 1 of 4 founders, 1943; Vice President, 1943-44; 2nd President, 1944-45; Editor, Handbook of Experimental Stress Analysis, 1950.

General Contributions: Development and Application of Three-Dimensional Photoelasticity; Development of a "Reduction Method" for the Analysis of Continuous Frames; Development of a "Method of Initial Parameters" for the Analysis of beams, beam-grillages, and beams in elastic foundations; Solution for Axi-Symmetrical Deformation of Spherical Shells and Related Structures.

2020 Recipients

Vito Rubino; Ares J. Rosakis; Nadia Lapusta
For the outstanding paper entitled "Full-field Ultrahigh-speed Quantification of Dynamic Shear Ruptures Using Digital Image Correlation" published in Experimental Mechanics 59, 551–582 (2019)

Vito Rubino is a Research Scientist at the California Institute of Technology in the Department of Aerospace (GALCIT). He holds a Ph.D. in Engineering from the University of Cambridge, UK, and a M.Sc. in Mechanical Engineering from Politecnico di Torino, Italy. Being a solid mechanician by training, he works at the interface between solid mechanics and Earth science disciplines, using experimental and computational mechanics to study dynamic fracture of frictional

interfaces and faults. His recent work on dynamic shear ruptures, using ultrahigh-speed digital image correlation, has significantly contributed to advance the study of dynamic friction with implications for earthquake physics.

Wolfgang Knauss Young Investigator Award

This new award has recently been approved by the Society of Experimental Mechanics (SEM) with the support of its Time Dependent Materials Technical Committee and the Mechanics of Time Dependent Materials Journal and Conference. The award is a special achievement award for young investigators and has been named in honor of Professor Wolfgang G. Knauss, Theodore von Karman Professor of Aeronautics (Emeritus), California Institute of Technology.

The award will be given every other year by the SEM in recognition of an individual who has made significant research contributions to the broad field of experimental mechanics, with a focus on time dependent materials. For the purpose of this award, the broad field will encompass all areas of Mechanics (solid as well as fluid) and all fields of engineering and applied science that involve mechanics. Nominees for this award must not have reached their 40th birthday at the time of selection by the Award Committee. The award will be given at the biannual Mechanics of Time-Dependent Materials Conference and the awardee(s) will present (a) special lecture(s) at the conference.

2020 Recipient

Meredith Silberstein

Meredith Silberstein is an Associate Professor in the Sibley School of Mechanical & Aerospace Engineering at Cornell University. She received her PhD in June 2011 from the MIT Department of Mechanical Engineering with a major in solid mechanics and a minor in energy. Afterward, she served as a postdoctoral fellow at the Beckman Institute at the University of Illinois Urbana-Champaign, investigating mechanochemically active materials. She has received both the NSF (2017) and DOE (2018) CAREER awards. Meredith Silberstein's Mechanics for Materials Design (MMD) Lab is devoted to using mechanical experiments and modeling methods in material design, with particular focus on multifunctional, active, and polymeric materials.

B.J. Lazan Award

This award was established in 1967 to recognize individuals who have made outstanding original technical contributions to experimental mechanics. In 1973 this award was named in honor of Dr. Benjamin J. Lazan, a pioneer in his field who achieved recognition in dynamic testing, vibration, materials damping, and fatigue.

The award honors inventors, developers, or contributors to the introduction of new devices or methods.

2020 Recipient

Herzl Chai

For his discovery of compressive delamination in thin films and development of models accounting for related mixed-mode fracture effects.

Herzl Chai earned his Ph.D. in aeronautical engineering from Caltech in 1982. He was a visiting scientist at the US Air force's Materials Laboratory from 1982 to 1988 before joining the Polymers Division at NIST/MD as tenured research engineer. In 1992 he joined the faculty of the School of Mechanical Engineering at Tel-Aviv University. Along with collaborators, Prof. Chai has published over 90 papers dealing with delamination and debonding in composites and adhesive joints, structural instability and crashworthiness, contact buckling, and fracture of dental teeth and its relationship to human evolution. Dr. Chai serves as a member of the editorial board of IJSS.

R.E. Peterson Award

(The Journal of Dynamic Behavior of Materials "Outstanding Paper" Award)

This award recognizes the best paper published in the Journal of Dynamic Behavior of Materials in a given year. This award is given annually starting with volume 1 of the Journal of Dynamic Behavior of Materials published in 2015. This award was originally established in 1970 to recognize the best applications paper published in Experimental Mechanics over a two-year period, with the final award for an applications paper in Experimental Mechanics being given in 2014. In 1973 the award was named in honor of Rudolph Earl Peterson.

Affiliation: Westinghouse Electric Corp.: 1926 with J.M. Lessells in mechanics dept.; 1931-manager, mechanics dept.; 1965-Consultant.

Publications: (primarily in stress analysis, strength of materials & design). More than 60 papers; chapters in 6 handbooks; Book: Stress Concentration Design Factors (Wiley, 1953).

Professional Society Service: SEM: Executive Committee, 1946-47; Vice President, 1947-48; President, 1948-49; ASTM: Fatigue Committee Chairman, 1946-59; Administrative Committee on Simulated Service Testing, 1962; Board of Directors, 1957-60; Executive Committee, Materials Science Division, 1962; ASME: Fellow; Chairman.

2020 Recipients

Georg C. Ganzenmüller; Sankalp Patil; Michael Maurer; Martin Sauer; Markus Jung; Stefan Hiermaier

For the outstanding paper entitled Simple Glassy Polymer Model" published in the Journal of Dynamic Behavior of Materials 5, 331–343 (2019)

Georg C. Ganzenmüller is a Physical Chemist by training (Univ. Freiburg, Germany) and holds a Ph.D. in Statistical Mechanics from the University of Edinburgh, Scotland. Following his education in physics relevant at microscopic length scales, Georg has taken more interest in engineering sciences and continuum mechanics. His current research focuses on testing at elevated rates of strain using Split-Hopkinson Methods and numerical methods for severe deformations using meshfree discretization approaches. He works as research group leader both at the Fraunhofer Ernst-Mach Institute for High-Speed Dynamics as well as at the University of Freiburg, Germany.

Sankalp Patil is pursuing his master's degree in Sustainable Systems Engineering - INATECH, at the University of Freiburg, Germany with specializations in Sustainable Materials and Resilience Engineering. He obtained his bachelor's degree in Mechanical Engineering from KLE Technological University, India. His research interest lies in realizing the mechanics of materials and structures under dynamic deformation by experimental and computational methods in the pursuit of contributing towards sustainable development.

Mr. **Michael Maurer** is a certified toolmaker. He operates and further develops acceleration facilities for high-speed impact at the Fraunhofer Ernst-Mach Institute for High-Speed Dynamics, Freiburg, Germany. His work includes material characterization tests using gas guns.

Dr. **Martin Sauer** received his diploma in civil engineering at the Technical University Darmstadt, Germany. He holds a Ph.D. on the topic "Adaptive coupling of the mesh-free Smoothed Particle Hydrodynamics method with Finite Elements for the simulation of impact Problems" from the University of the Federal Armed Forces, Munich. Martin has worked at the Fraunhofer Ernst-Mach Institute for High-Speed Dynamics, Freiburg in multiple senior positions, leading computational material research groups and developing numerical methods for continuum mechanics applications with severe deformations. In recent years, his worked focus shifted to experimental methods and he now leads the Planar Plate Impact and Taylor Test group at Fraunhofer EMI. Martin also lectures on "Finite Methods and Material Characterization for High-Speed Dynamics" at the Federal Armed Forces University in Munich

Mr. **Markus Jung** holds a Master's degree in Mechanical Engineering from the University of Applied Sciences in Offenburg, Germany. He has worked for a number of years in quasi-static and dynamic material characterization. Today, he is responsible for the entire technical infrastructure at the Fraunhofer Ernst-Mach Institute for High-Speed Dynamics, Freiburg, Germany.

Prof. Dr.-Ing. habil. **Stefan Hiermaier** studied Aerospace Engineering at the University of German Armed Forces in Munich and obtained his doctorate from the Faculty of Civil Engineering. His habilitation on high-speed dynamics of materials dates from 2002. Stefan Hiermaier was appointed the first Professor in the field of high-speed dynamics in Germany in 2008.

In 2015 Hiermaier was appointed Professor for Sustainable Systems Engineering at the Albert-Ludwigs-University Freiburg. He is both Director of the Fraunhofer Institute for High-Speed Dynamics and Director of the Department of Sustainable Systems Engineering at the Faculty of Engineering at the Albert-Ludwigs-University of Freiburg. He is also vice-dean of the faculty and co-coordinator of the Sustainability Center Freiburg, a co-operation of the five Fraunhofer Institutes in Freiburg and the Albert-Ludwigs-University.

Stefan Hiermaier's major research interest is Resilient Dynamics, i.e. resilience of complex critical infrastructure. One focus is the dynamic behavior and shock wave physics of materials and structures integrating experimental and numerical methods. Major issues are discretization methods and constitutive equations for materials under crash and impact loads. Design of Critical Infrastructure towards more resilience with respect to disruptive events and related uncertainties is the research Stefan Hiermaier pursues entitled as Resilience Engineering.

Stefan Hiermaier has written numerous publications on these topics. His book "Structures Under Crash and Impact" was published by Springer in 2008. Stefan Hiermaier has been president of the DYMAT association (European association for the promotion of research into the dynamic behaviour of materials and its applications) since 2012.

F. Zandman Award

The award honors individuals who have made significant contributions to the development of measurements or applications utilizing photoelastic coatings or strain measurement techniques. The selection will be based upon the best paper published by SEM or any other recognized journal which publishes photoelastic coatings or strain measurement techniques papers. Alternatively, a person who may not have published an outstanding paper, but has distinguished him or herself in other ways in the use of photoelastic coatings or strain measurement techniques may also be nominated. The first recipient to be recognized in 1990 was Alex S. Redner.

2020 Recipient

Veronica Eliasson

For positively influencing the future of experimental mechanics by providing the next generation of caring, competent researchers.

Veronica Eliasson is an Associate Professor in the Structural Engineering Department at University of California San Diego. Prof. Eliasson obtained an MSc Degree in Vehicle Engineering and a PhD in Mechanics from the Royal Institute of Technology, Stockholm, Sweden. Prof. Eliasson's research interests are multi-disciplinary and range from shock wave dynamics to fracture mechanics — all explored relying on a strong foundation of experimental mechanics coupled with different types of ultra high-speed photography techniques. Prof. Eliasson works hard to promote research experiences for a diverse group of high school students, undergraduate students and graduate students through participation in laboratory experiments.

Michael A. Sutton International Student Paper Competition Awards

Sponsored by Correlated Solutions, Inc.

The Student Paper Competitions were originated to encourage excellence in technical communication in the experimental mechanics field. A regional paper competition was initiated in 1984 in a joint effort by SEM's Milwaukee Local Section and SEM's Student Chapter of Michigan Technological University. Since that time, students from the University of Wisconsin-Madison, University of Wisconsin-Milwaukee, and Michigan Technological University have participated in the regional competition held each spring in Milwaukee at one of the regular local section meetings.

The first national competition was held during the 1991 SEM Annual Conference. The competition was sponsored by SEM's Milwaukee Local Section along with the Education and Local Sections Committees of SEM. Twelve students from nine different schools participated in the competition.

Beginning with the VIII International Congress in 1996, the Competition was sponsored by the SEM Education Foundation and expanded to include students from around the world. In 2009, Correlated Solutions, Inc. began sponsoring the Competition. The title of the competition changed to the Michael A. Sutton International Student Paper Competition in 2018.

The presentations are judged on the basis of technical content, organization of material, effectiveness of delivery, adherence to allotted presentation time, and response to questions.

Winner To Be Decided at Virtual Conference

Technical Division Best Paper Awards

Dynamic Behavior of Materials

"Strain-Rate Effect on the Deformation Mechanisms of Agglomerated Cork"

L. Le Barbenchon–Arts et Métiers ParisTech; J. Kopp–Arts et Métiers ParisTech; J. Girardot–Arts et Métiers ParisTech; P. Viot–Arts et Métiers ParisTech

Optical Techniques & Computer Vision

"Visio-Acoustic Data Fusion for Structural Health Monitoring Applications"

Chad R. Samuelson, Brigham Young University; Caitrin A. Duffy-Deno, University of California San Diego; Christopher B. Whitworth, The University of Texas at Dallas; David D.L. Mascareñas, Jeffery D. Tippmann, Alessandro Cattaneo, Los Alamos National Laboratory

Model Validation and Uncertainty Quantification

"Bayesian Nonlinear Finite Element Model Updating of a Full-Scale Bridge-Column using Sequential Monte Carlo"

Mukesh K. Ramancha, University of California, San Diego; Rodrigo Astroza, Universidad de los Andes; Joel P. Conte, Jose I. Restrepo, Michael D. Todd, University of California, San Diego

Dynamics of Civil Structures

"Vibration-based Damage Detection Using Input-output and Output-only Environmental Models: A Comparison"

Pernille Lysgaard, Sandro D.R. Amador, Technical University of Denmark; Silja Tea Nielsen, Ramboll Group A/S; Evangelos Katsanos, Rune Brincker, Technical University of Denmark ■

State of the Journals

EXPERIMENTAL MECHANICS

Ioannis Chassiotis, University of Illinois, Urbana-Champaign, Editor in Chief

EXPERIMENTAL MECHANICS IS THE official journal of the Society for Experimental Mechanics, publishing papers in all areas of the field, including its theoretical and computational analysis. The journal addresses research in design and implementation of novel or enhanced experiments to characterize materials, structures, and systems. Readers will also find articles extending the frontiers of experimental mechanics at both large and small scales.

This journal's coverage extends from research in solid and fluid mechanics to fields at the intersection of disciplines such as physics, chemistry, and biology. The development of new devices and technologies for metrology applications in a wide range of industrial sectors is also covered.

In addition to primary research articles, Experimental Mechanics publishes review articles, brief technical notes, and applications articles that discuss important emerging technologies.

- Explores experimental mechanics, including its theoretical and computational analysis
- Addresses research in design and implementation of novel or enhanced experiments to characterize materials, structures, and systems
- Spans research in solid and fluid mechanics to fields at the intersection of disciplines such as physics, chemistry, and biology
- Extends the frontiers of experimental mechanics at both large and small scales
- 94% of authors who answered a survey reported that they would definitely publish or probably publish in the journal again.

EM International Advisory Board (IAB) members:

Hareesh Tippur (Chair), Auburn University, USA
Ghatu Subhash (Secretary), University of Florida – Gainesville, USA
Randall Alamang, University of Cincinnati, USA
Hugh Bruck, University of Maryland, USA
Isaac Daniel, Northwestern University, USA
Horacio Espinosa, Northwestern University, USA
C.T. Lim, National Univ. of Singapore, Singapore
Eann Patterson, Univ. of Liverpool, UK
Guruswami Ravichandran, Caltech, USA
Nancy Sottos, University of Illinois-Urbana Champaign, USA
Xioaping Wu, Univ. of Science and Technology, China
Timothy C. Miller, US Air Force Research Laboratory, USA

News:

- Alan Zehnder, Cornell University, will transition to the role of Editor in Chief of EM in January 2021.
- In late June, EM was assigned its new impact factor of 2.496 (up from 2.256). This is the highest impact factor ever for the journal thanks to the very hard work of the Editor in Chief, Ioannis Chasiotis, his editors and to the successful implementation of his strategic plan. Congratulations!

EXPERIMENTAL TECHNIQUES

Bonnie Antoun, Sandia National Laboratories, Editor in Chief

EXPERIMENTAL TECHNIQUES IS AN interdisciplinary publication of the Society for Experimental Mechanics focusing on state-of-the-art technical innovations, sophisticated applications and developments in experimental mechanics and dynamics.

- Presents articles advancing the state-of-the-art in measurement and experimental data analysis technologies in structural mechanics and dynamics.
- Furthers understanding of static and dynamic behavior of materials, structures and systems.
- Presents developments and applications of hybrid experimental-analytical methods in structural mechanics and dynamics.
- Provides physical observations necessary to improve and assess new analytical and computational approaches.
- Presents innovative methodologies for experimental mechanics and dynamics.

This journal covers new and important experimental mechanics techniques, with articles on practical applications of experimental mechanics and innovative techniques for creating engineering solutions. It is an official journal of the Society for Experimental Mechanics.

Experimental Techniques publishes outstanding, original research articles in areas including, but not limited to, the following: acoustics, biological materials and systems, composite materials, computer vision/digital image correlation, sensors and data acquisition, dynamic testing and data analysis, signal processing and modal parameter estimation, fatigue, fluid mechanics, fracture mechanics, holography, impact/shock analysis, joints and connections, material behaviors, non-destructive testing, optical methods, residual stresses, statistical analysis, in-situ testing and monitoring, thermal methods, uncertainty quantification.

- Presents articles advancing the state-of-the-art in measurement and experimental data analysis technologies in structural mechanics and dynamics.
- Furthers understanding of static and dynamic behavior of materials, structures and systems.
- Presents developments and applications of hybrid experimental-analytical methods in structural mechanics and dynamics.
- Provides physical observations necessary to improve and assess new analytical and computational approaches.
- Presents innovative methodologies for experimental mechanics and dynamics.

ET International Advisory Board (IAB):

Kristin B. Zimmerman Chair, MedFor: Inc., USA (2021)
Jonathan D. Rogers, Sandia National Laboratory, USA (2021)
José Freire, Pontifical Catholic University of Rio de Janeiro. PUC-Rio (2021)
Paul Reynolds, University of Exeter, UK (2021)
Nancy Sottos, University of Illinois, Urbana-Champaign, USA, (2021)
Jeff Helm, Lafayette College, USA (2021)
Raman Singh, Oklahoma State University, USA (2021)
Wei-Chung Wang, National Tsing Hua University, Taiwan (2021)
Wayne Chen, Purdue University, USA (2023)
Sven Bossuyt, Aalto University, Finland, (2023)

News:

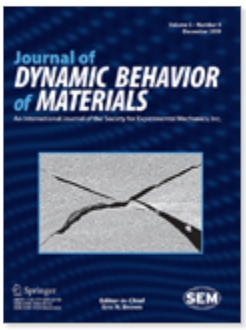
- Paul Reynolds transitioned his role as Editor in Chief of ET in June. SEM is extremely grateful to Paul for his leadership and for his success in implementing his strategic plan. The growth and stature of ET is largely due to Paul and his editors leadership.

ET welcomes two new IAB members:

- **Sven Bossuyt**, Aalto University, Finland. Sven's areas of expertise aligned with SEM TDs and Focus Groups are, advanced manufacturing, inverse problem methodologies, and optical methods.
- **Wayne Chen**, Purdue University, USA. Wayne's areas of expertise aligned with SEM TDs and Focus Groups are, Fracture and Fatigue, Dynamic Behavior of Materials and Composites.
- In late June, ET was assigned its new impact factor of 1.058 (up from 0.779). This is the highest impact factor ever for the journal. Congratulations to Paul and his team!

JOURNAL OF DYNAMIC BEHAVIOUR OF MATERIALS

Jennifer Jordan, Los Alamos National Laboratory, Editor in Chief



JOURNAL OF THE DYNAMIC BEHAVIOR of Materials is SEM's peer reviewed archival journal on the science and engineering of material and structural response to dynamic loading emphasizing high strain-rate, impact, blast, penetration, and shock response. The journal publishes experimental, theoretical, modeling and simulation, and interdisciplinary work focused both on advancement of new techniques and application of techniques to new materials and structures. Experimental techniques will include, but not be limited to, small-scale tests for constitutive response of material such as Split Hopkinson Pressure Bar, Kolsky Pressure Bar, gas-gun and powder-gun driven plate impact, direct and flier plate drive high-explosive experiments, direct and flier plate drive laser experiments, and drop tower; small-scale integrated tests for validation of material constitutive models such as Taylor Anvil, Dynamic-Tensile-Extrusion, high-explosive driven perturbed plate experiments, shock tube loading; and integrated structure level experiments as blast, impact, crash, and penetration mechanics. The journal also covers diagnostics for dynamics experiments to include but not be limited to high-speed photography, dynamic radiography, velocimetry (PDV, mPDV, VISAR, lineVISAR, etc), gages, pins, etc. Hybrid experimental-computational papers are also encouraged. In addition to primary research articles, The Journal of Dynamic Behavior of Materials publishes review articles, brief technical notes, and applications articles that discuss important emerging technologies.

JDBM International Advisory Board (IAB) Members

Eric Brown, Los Alamos National Laboratory, USA (Chair)
Dana Dattelbaum, Los Alamos National Laboratory, USA
William Fourney, University of Maryland, USA
Yogendra Gupta, Washington State University, USA
K. T. Ramesh, Johns Hopkins University, USA
Naresh Thadhani, Georgia Institute of Technology, USA
Hareesh Tippur, Auburn University, USA

News:

- Review papers are cited very well for all journals. A few that are in process now include:
- Leslie Lamberson, Veronica Eliasson and Hareesh Tippur - Review of full-field methods in dynamic fracture paper
- Stephen Walley and David Chapman – Review of Taylor impact method
- Stephen Walley - Review of the history of high strain rate testing

- **Springer/Nature Publishing informed SEM in July that the Journal of Dynamic Behavior of Materials was accepted into Clarivate's Emerging Sources Citation Index (ESCI). The ESCI does not provide scores, but inclusion within the index is widely respected across global academic institutions and may help towards increasing submissions. Equally important, the ESCI is also a precursor to the Science Citation Index-Expanded (SCIE), where every journal is assigned an Impact Factor. Congratulations to Eric Brown and his team for their excellent work!** ■

Virtual 2020 SEM XIV International Congress

Overview

The SEM XIV International Congress will be held in a virtual format. This format may include live and on-demand lectures and/or presentations, synchronous and asynchronous question and answer sessions facilitated by SEM, discussion and interaction through our app platform and other details that are currently being finalized. As with our typical conference, all authors/presenters will have access to each others submissions.

Virtual attendees will have access to recorded presentations preceeding the conference dates and Q&A periods will be held during the week of September 14-17, 2020. The prestigious Murray Lecture, the Springer/Nature Publishing Young Investigator Lecture and session keynote lectures will also be available.

The Michael Sutton International Student Paper Competition will be using the SEM GoTo platform. A live Q&A session will be held the week of September 14-17, 2020. SEM will reach out to the participants with details.

If you decide not to participate, we hope that you will consider submitting your work to the SEM Annual Conference 2021 in Albuquerque, New Mexico. We welcome extensions of the same work submitted to Annual 2020.

Details

To participate, all presenting author(s) must register and prepare a recording of your presentation(s). At registration, you will need to give SEM permission to post your presentation. SEM will only allow access to anyone who has registered and this will not be available to the general public.

You may choose one of the options below for your presentation.

A. Presentation slides with audio voice-over
B. Video recording presenting your work
C. Combination of A and B

CLICK HERE TO REGISTER FOR THE CONFERENCE

Guidelines

Presentation recordings should adhere to the following guidelines:

Format:
.mp4 video format

Time limit on recording:
- Technical session presentations* limited to 10 minutes
- Session Keynote Lectures limited to 20 minutes

DOWNLOAD LINK TO VIDEO FILE MUST BE PROVIDED BY AUGUST 15, 2020 TO DIRECTOR@SEM.ORG

First slide of the recording must include:
- Submission number
- Submission title
- Author name(s)
- Conference title "SEM XIV International Congress"

Filename must be Submission number_First 3 letters of your last name (1234_Pro.mp4)

** Includes participation by all interested exhibitors*

For best results, please ensure you speak clearly and have no background noise that could be distracting. For option B., video recordings should show yourself and your presentation so that figures and text are legible when viewed.

Interactive/Q&A

Virtual attendees will be able to submit questions to submission authors ahead of scheduled question and answer periods. The technical program schedule will be posted on the app where you may also interact with fellow participants. Scheduled Q&A sessions will be between 20-30 minutes in duration.

Whova

Whova has been selected as the platform for distribution of the technical program and recorded presentations. It includes a web and mobile application which will allow participants to see videos directly in the app or web and ask questions of author(s) and presenter(s).

The platform will be available on, or around, September 1, 2020 for all those participating in the Virtual Conference. It will provide a venue for discussion and interaction. We look forward to "seeing" you there. ■

SEM NEWS

SEM STRATEGIC PLAN

SEM PRESIDENT John Lambros tasked the SEM Strategic Planning Ad-Hoc Committee to develop a series of bullet points, preferably prioritized by importance, with brief explanations/ descriptions for each one, within each of three categories:

High level strategic objectives: Where do we want the society to be in a 5- to 10-year time frame?

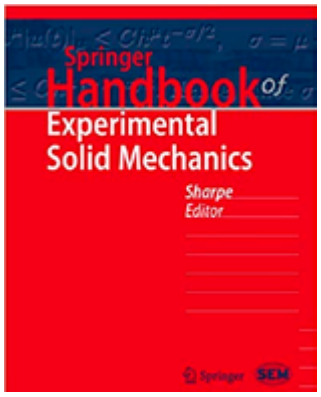
What obstacles exist for us to achieve these objectives? What opportunities are there to be had from/by overcoming these obstacles?

Action items needed to overcome these obstacles and reach our objectives: these could be simpler, short term, low hanging fruit type, or more complex and more long-term action items.

For more information, click here. ■

SEM SOLID MECHANICS HANDBOOK

THE 2008 SEM HANDBOOK ON Solid Mechanics, edited by William Sharpe, will be updated using the Morgan and Claypool digital publishing platform. SEM is pleased to announce that past President, Wendy Crone, and President-Elect Eric Brown, have agreed to take on the role as co-Editors in Chief.



Over the next few weeks we will be reaching out to our Technical Division (TD) leadership to brief you on the plan for publishing short books that will evolve into a digital serial handbook containing the exciting areas represented by the TD's highlighted at SEM's Annual Conference.

Note: SEM's Handbook on Structural Dynamics, representing those TD's highlighted at IMAC, is in publication mode thanks to the hard work of co-editors, Pete Avitabile and Randy Allemang.

Stay tuned for more information as we develop our plan forward. ■

SEM.COM NEWS SECTION

SEM HAS A NEWLY DESIGNED News home. Articles will be available on a variety of topics pertinent to the Society, it's members, affiliates and partners and journals and publications.

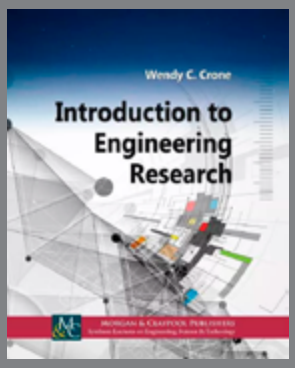
It is our aim to disseminate useful and practical information to all those with whom we interact. Please visit sem.org and click News to access.

If you have news you would like to share with the broader SEM community, please contact the Director. ■

MEMBER NEWS

INTRODUCTION TO ENGINEERING RESEARCH BOOK

by Wendy C. Crone-University of Wisconsin-Madison



PAST-PRESIDENT, WENDY CRONE has recently published a new book for engineering students. Undergraduate and first-year graduate students engaging in engineering research need more than technical skills and tools to be successful. From finding a research position and funding, to getting the mentoring needed to be successful while conducting research responsibly, to learning how to do the other aspects of research associated with project management and communication, this book provides novice researchers with the guidance they need to begin developing mastery. Being prepared for what's to come and knowing the questions to ask along the way allows those entering research to become more comfortable engaging with not only the research itself but also their colleagues and mentors. ■

NEW TOOL FOR ASSESSING HEART MUSCLE CELLS HELPS UNLOCK THEIR POTENTIAL

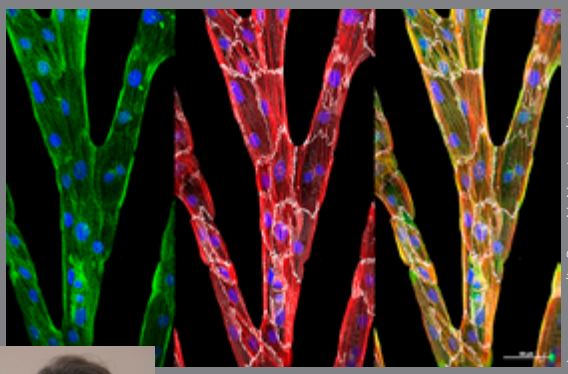


Image credit: Brett N. Napiwocki.

WENDY CRONE LEADS TEAM of researchers in creating a new tool for assessing heart muscle cells that helps unlock their potential. Click here for full article by author Adam Malecek. ■

Upcoming Events

2020

Virtual 2020 SEM XIV International Congress | September 14-17, 2020
** Please check sem.org for updates on the conference*

2021

IMAC-XXXIX | February 8–11, 2021
Rozen Plaza Hotel
Orlando, FL USA

2021 SEM Annual | June 14-17, 2021
Hyatt Regency Albuquerque
Albuquerque, NM USA

iDICs Conference | postponed to Oct 25-27, 2021
La Cité Nantes Events Center
Nantes, France