ANNUAL REPORT TO THE EMI MEMBERSHIP FOR FY 2017

The Engineering Mechanics Institute of ASCE, established on October 1, 2007, is organized under the American Society of Civil Engineers, a 501 (c) (3) non-profit association created in 1852. The purpose of this report is to present to the EMI membership a summary of the Institute's activities and progress during the period of October 1, 2015 to September 30, 2016 (FY 2016), as specified by article 9.3.1 of the EMI bylaws:

"*Additional Duties of the President*. The President, on behalf of the Board of Governors, shall prepare and distribute to the membership an Annual Report for the preceding fiscal year".

GOVERNANCE

Over the summer of 2016, EMI conducted an election for two open positions on the EMI Board of Governors, starting on October 1, 2016. Somnath Ghosh, Ph.D., F.EMI, M.ASCE (The Johns Hopkins University) and Antoinette Tordesillas, Ph.D., Aff.M.ASCE (University of Melbourne, Australia) were elected by the EMI membership to serve a three-year term. J.S. Chen (University of California San Diego), Ray Daddazio, Ph.D., F.EMI, M.ASCE (President, Thornton-Tomasetti), and Roberto Ballarini, Ph.D., F.EMI, F.ASCE (University of Houston) served a second year in FY 2017 as President, ASCE-appointed Governor, and Past President, respectively. The new EMI Board elected George Deodatis, Ph.D., F.EMI, M.ASCE (Columbia University) to serve as EMI Vice President in FY 2017 and EMI President in FY 2018, and Glaucio Paulino to serve as EMI Treasurer in FY 2017. Many thanks to outgoing EMI Governors, Muhammad Hajj, Ph.D., F.EMI, M.ASCE and Ning Lu, Ph.D., F.EMI, F.ASCE for their years of dedicated service to the Institute, and welcome to the new EMI Governors!

The EMI Board of Governors oversees the Institute's four Divisions:

Administrative Division

- Awards Committee
- Bylaws Committee
- Communications Committee
- Education Committee
- Membership Committee
- New Initiatives Committee
- Nominations Committee

Publications Division

- Editorial Board of the *Journal of Engineering Mechanics*
- Editorial Board of the *Journal of Nanomechanics and Micromechanics*
- Editorial Board of *Lecture Notes in Mechanics*

Conferences Division

Program Committee

Technical Division

Biomechanics Committee
Computational Mechanics Committee
Dynamics Committee
Elasticity Committee
Experimental Analysis & Instrumentation Committee
Fluid Dynamics Committee
Granular Materials Committee
Mechanics of Pavements Committee
Modeling Inelasticity & Multiscale Behavior Committee
Nanomechanics and Micromechanics Committee
Objective Resilience Committee
Poromechanics Committee
Probabilistic Methods Committee
Properties of Materials Committee
Stability Committee
Structural Health Monitoring & Control Committee

J.S. Chen, Ph.D., F.EMI, M.ASCE
President

José Andrade, Ph.D., M.ASCE

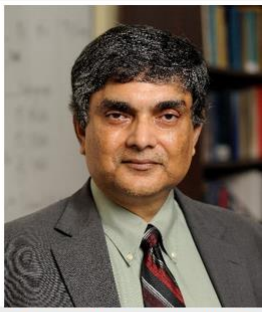
George Deodatis, Ph.D., M.ASCE
Vice-President

Roberto Ballarini, Ph.D., P.E., F.EMI, F.ASCE
Past President

Ray Daddazio, Ph.D., F.EMI, M.ASCE

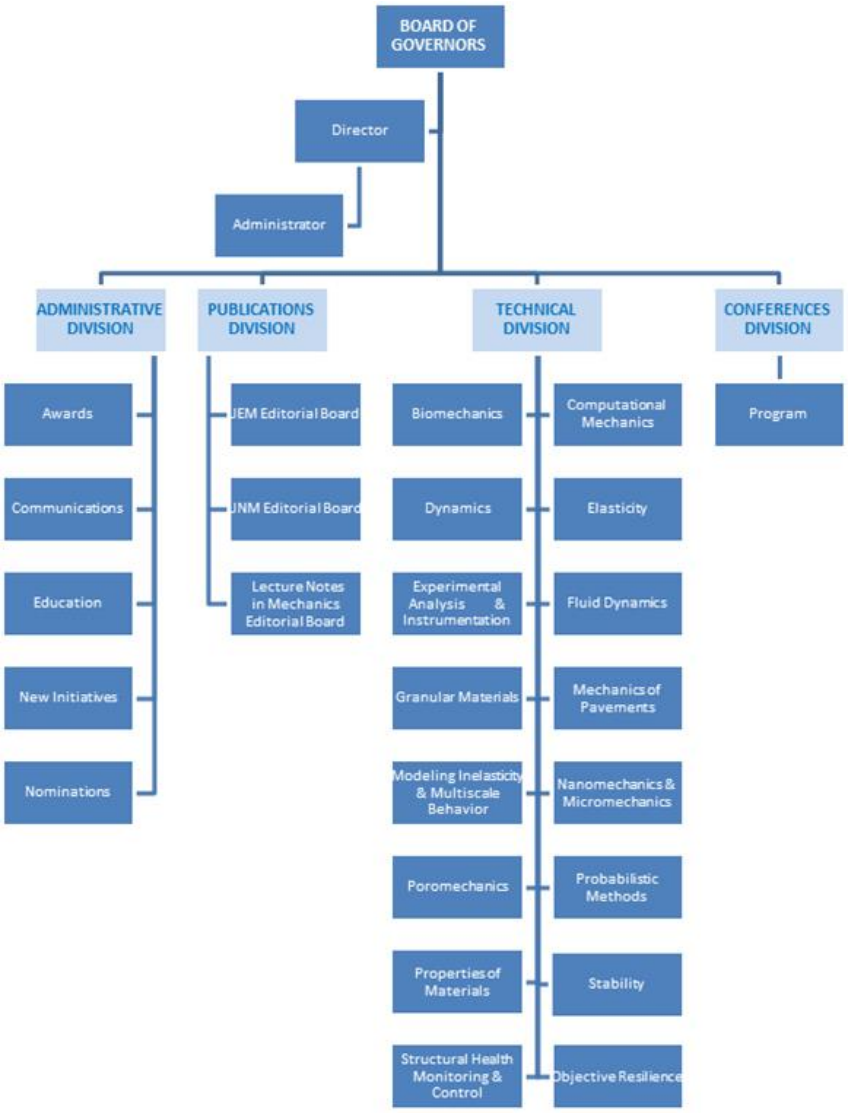
Glaucio Paulino, Ph.D., A.M.ASCE
Treasurer

Antoinette Tordesillas,Ph.D., Aff.M.ASCE



Somnath Ghosh, Ph.D. F.EMI, M.ASCE

FY 2017 EMI Board of Governors



EMI Organizational Chart

MEMBERSHIP

There are two ways of becoming an EMI member: members can join ASCE and select EMI as one of their Institutes (ASCE/EMI membership), or they may choose to be members of EMI only (EMI-only membership). EMI membership provides: member discount on EMI publications (25%), EMI journals subscriptions (75%), and EMI conference and webinar registrations; the ability to nominate members for elected positions on the EMI Board of Governors, to be a candidate and to vote in EMI elections, and to apply to join EMI technical committees; a subscription to the EMI newsletter; and access to valuable resources and information on the EMI website.

Membership dues have been kept at the same level since the start of EMI in FY 2008:

- $80 per calendar year for EMI-only members;
- $25 for EMI-only (full-time graduate) student members;

- For ASCE members, free if choosing EMI as the first Institute and $30 after the first Institute.

An annual dues discount based upon the yearly World Bank World Development Indicators is provided to members residing in certain countries. On-line membership applications are available for ASCE/EMI membership and for EMI-only membership. On-line membership renewal is now available for both types of membership.

EMI pursued its efforts to attract and retain younger members through reduced membership fees for graduate students, student competitions, and the recently established EMI Leonardo da Vinci award. EMI membership has grown to over 2,900. About 36% of the EMI members reside outside the U.S. (71 countries). Over 90% of the EMI members are in academia or research, and about 25% are students. EMI counts 17 Distinguished/Honorary Members of ASCE among its members.

PUBLICATIONS

EMI is proud of its publications which help disseminate important emerging knowledge and engage the membership of the Institute.

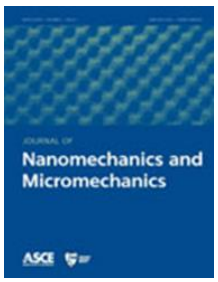
Prof. Roberto Ballarini, Ph.D., P.E., F.EMI, F.ASCE (University of Houston) has served as the Editor of the monthly *Journal of Engineering Mechanics* (JEM), the flagship journal of EMI, since the fall of 2012. JEM continues to demonstrate extraordinary progress as one of the premier mechanics journals. All the journal statistics show a marked improvement over the past five years. There has been an increase in submissions and in papers published annually, a reduction in acceptance rate, and a strong increase in impact factor with an all-time high of 1.764 for 2016, and a decrease in the time to first decision time (under 4 months). With these substantial improvements in the journal performance measures, JEM has become one of the most prestigious mechanics journals.

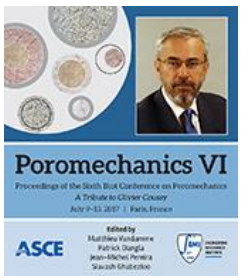
JEM celebrated its 60th anniversary with the publication of a special online collection of invited papers that reflect the depth and breadth of the research that is regularly published in JEM and that is championed by EMI. These papers can be downloaded for free during 2017 at:

http://ascelibrary.org/page/jenmdt/engineering_mechanics_60th

Roland Pellenq, Ph.D., A.M.ASCE (M.I.T.) and Christian Hellmich, Ph.D., F.EMI, M.ASCE (Vienna University of Technology) are serving as Co-Editors of the quarterly *Journal of Nanomechanics and Micromechanics* (JNM). JNM aims at bridging physics, physical-chemistry and mechanics of materials at nano- and micro-scales.

EMI also published the *Proceedings of the 6th Biot Conference on Poromechanics*.





CONFERENCES

EMI held its 2016 EMI International Conference on October 25-27, 2016 at the University of Lorraine in Metz, France, its 2017 International Conference on March 19-22, 2017 in Rio de Janeiro, Brazil, in partnership with the Pontifical Catholic University of Rio de Janeiro, and its 2017 annual conference, EMI 2017, on June 4-7, 2017 at the Omni Hotel in San Diego, in partnership with the University of California San Diego. EMI also took part in the organization of the 6th Biot Conference on Poromechanics held at Ecole des Ponts Paris Tech in Paris, France on July 9-13, 2017.

2016 EMI International conference

The 2016 EMI International Conference chaired by Prof. Mahdia Hattab (Laboratoire d'Etude des Microstructures et de Mécanique des Matériaux (LEM3) - Université de Lorraine) was held on October 25-27, 2016 at the University of Lorraine in Metz, France. There were about 400 participants from 38 countries in and near Europe, including some that are never represented at the EMI annual conference (Russia, Poland, Ukraine, Morocco, Algeria, Tunisia and Egypt). The conference technical program booklet and a 400-page book of abstracts were distributed to the attendees. The conference was configured to have the same format and the same feel as the EMI annual conference, and was an opportunity to bring the EMI conference to new audiences. The conference brought together researchers from civil engineering, mechanical engineering and materials science. Six plenary lectures were given by leading researchers:

- Damage and failure of ductile materials under dynamic conditions, Alain Molinari (Laboratoire d'Etude des Microstructures et de Mécanique des Matériaux (LEM3) CNRS UMR 7239 - Université de Lorraine)
- Tissue-engineered textile-reinforced aortic heart valves –multiscale modeling and experimental validation, Stefanie Reese (RWTH Aachen University, Germany)
- Fracture, deformation and fluid-solid coupled effects in porous quasi-brittle materials, Gilles Pijaudier-Cabot (Laboratoire des Fluides Complexes et leurs Réservoirs, UMR 5150 with CNRS and TOTAL - Université de Pau et des Pays de L'Adour, France)
- The Thick Level Set (TLS) damage model for quasi-brittle fracture : an overview, Nicolas Moës (GeM - Institut de Recherche en Génie Civil et Mécanique, UMR CNRS 6183, Ecole Centrale de Nantes, France)

- Nonlinear Dynamics of Piezoelectric Energy Harvesters of Aeroelastic and Ambient Vibrations, Muhammad R. Hajj (Virginia Tech, USA)
- Stochastic collocation methods for PDEs with random coefficients, Fabio Nobile (MATHICSE – CSQI, Ecole Polytechnique Fédérale de Lausanne, Switzerland).

The social events were held at memorable, outstanding locations: welcome reception at Eglise St-Pierre aux Nonnains, the oldest church in Europe built in 400 AD, and banquet at the historic Abbaye des Prémontrés. An extensive photo/video gallery documents the highlights of the conference is available.

Many thanks to Prof. Mahdia Hattab, the other members of the Organizing Committee (Prof. Pierre-Yves Hicher of Ecole Centrale de Nantes, Michel Potier-Ferry of Université de Lorraine, and Matthieu Vandamme of Ecole des Ponts Paris Tech) and their team for organizing and hosting a truly outstanding international conference!

Mahdia Hattab, Conference Chair at the Opening Session

Gilles Pijaudier-Cabot, Plenary Lecture Speaker

Stephanie Reese, Plenary Lecture Speaker

Matthieu Vandamme, Member of the Organizing Committee, Introduces Muhammad Hajj, Plenary Lecture Speaker

Madjid Manzari, Session Chair

Ahmer Wadee, Session Chair

Amar Chaker and Muhammad Hajj Present a Certicate to Mahdia Hattab

Banquet at the Abbaye des Prémontrés

2017 EMI International conference

EMI's 3rd International Conference (2017 EMI International Conference) chaired by Prof. Ney Dumont, was held at the J.W. Marriott Copacabana Hotel on March 19-22 in Rio de Janeiro, Brazil in partnership with the Pontifical Catholic University of Rio de Janeiro (PUC-Rio). A one-day pre-conference short course on "Nonlinear Dynamics and Instability of Structures" was given by Prof. Paolo B. Gonçalves (PUC-Rio) and Prof. Frederico M. Alves da Silva (Federal University of Goiás). The attendees were primarily Ph.D. students from Brazil and other South American countries. The six plenary lectures were outstanding:

Simulation of Ductile Fracture with Applications to Seismic Design Profile, Gregory Deierlein (Stanford University)
A Multiscale Analytical and Experimental Approach to Shape Memory Alloys, Reginald DesRoches (Georgia Institute of Technology)
Poro-Hyperelasticity: The Mechanics of Fluid-Saturated Soft Tissue, Patrick Selvadurai (McGill University)
Neuromechanics – Perspectives, Challenges, and Opportunities, Ellen Kuhl (Stanford University)
From Flapping Birds to Space Telescopes: The Modern Science of Origami, Dr. Robert Lang
On the Topology Optimization of Laminar Flow Machine Design by Emilio Silva (University of São Paulo, São Paulo, Brazil).

The presentations in the technical sessions were excellent. However, attendance was substantially lower than expected. The severe recession and budget difficulties in Brazil prevented many of the presenters from Brazil from attending the conference. In addition, the travel ban in the U.S. led several U.S.-based presenters to cancel their participation for fear that they may not be allowed to return to the U.S., should the travel ban become effective. Although the size of the attendance was disappointing, the event's main objective – presenting EMI and what it can offer to new members in South America—was reached.

Alex Cheng, FY 2011 EMI President, presents a plaque to Ney Dumont, Conference Chair

L to R: Glaucio Paulino, Ivan Menezes, Amar Chaker, Ney Dumont, Euclides Mesquita Neto, Alex Cheng, Paolo Gonçalves

EMI 2017 Conference

EMI held its EMI 2017 conference on June 4-7 at the Omni Hotel in San Diego, California. It was chaired by Prof. J.S. Chen and Prof. Yuri Bazilevs (UC San Diego). Three pre-conference short courses were offered:

"Computational Fluid-Structure Interaction" (two days), by Yuri Bazilevs (UC San Diego),Kenji Takizawa (Waseda University), and Tayfun Tezduyar (Rice University)
"Resilience-Based Design of Structures and Infrastructures During Emergencies" (one day), by Gian Paolo Cimellaro (Politecnico di Torino) and Steve Mahin (UC Berkeley)
"Bayesian Model Updating and Uncertainty Quantification" (one day) by Babak Moaveni (Tufts University) and Costas Papadimitriou (University of Thessaly, Greece).

An all-day symposium was held on Monday, June 5 to celebrate the 80th birthday of Prof. Zdeněk P. Bažant, Ph.D., S.E., NAS, NAE, Hon.M.ASCE (Northwestern University).

A total of 700 presentations in 68 mini-symposia listed in the conference final program were given in up to 18 parallel sessions over three full days. The EMI Board of Governors, all the EMI Technical Committees

and the Editorial Boards of the EMI journals met at the conference. Seven student competitions sponsored by EMI technical committees were held. Social events at the conference included an ice breaker reception, a welcome reception, and a banquet and award presentation ceremony. Tours to UCSD Englekirk Center (world's largest earthquake shaking table and blast simulator) and Charles Lee Powell Structural Engineering Laboratories have also been arranged.

The conference featured 6 plenary session lectures:

Probabilistic Mechanics of Quasibrittle Structures: Strength, Lifetime and Scaling, Zdeněk Bažant (Northwestern University)
Self-consistent clustering analysis for fast microstructure-based modeling of elastoplastic strain softening materials, Wing Kam Liu (Northwestern University)
Isogeometric Analysis: Past, Present, Future, Thomas J.R. Hughes (The University of Texas at Austin)
Space-Time Computational Analysis: It Adds Another Dimension, Tayfun E. Tezduyar (Rice University)
Hybrid Time- and Frequency-Domain Methods for Simulation of Dynamic Environments with the Goal of Understanding the Statistics and Uncertainty of the Result, Mary Baker (ATA Engineering, Inc.)
Uncertainty in the context of materials by design: key roles for stochastic mechanics, Lori Graham-Brady (Johns Hopkins University).

Zdeněk Bažant

Wing Kam Liu

Thomas J.R. Hughes

Tayfun E. Tezduyar

Mary Baker

Lori Graham-Brady

Plenary Lecture Speakers

The entire conference program was available within the Conference4me smartphone app which provides easy access to up-to-date conference data: title, author(s), time, location and abstract of each presentation and plenary keynote lecture; committee meetings; student competitions; social events; and hotel floor plans. The app has a search function and provides the capability of creating one's own agenda for the event.

Two NSF program directors, Dr. Kara Peters and Dr. Grace Hsuan, met with younger researchers at the EMI 2017 Conference during a well-attended session to talk about the direction of Mechanics of Materials and Structures (MOMS), Design of Engineering Material Systems (DEMS), and Structural and Architectural Engineering and Materials (SAEM) programs in the Civil, Mechanical and Manufacturing Innovation (CMMI) division, as well as other funding opportunities at NSF. Recommendations on developing a competitive CAREER proposal were also presented.

ASCE Publications prepared a "content slice" that included a collection of the 10 most downloaded articles from EMI journals that was available to download for free one month before the conference and one month after the conference. Courtesy of the UCSD Dept. of Structural Engineering, two lab tours of some of the unique UCSD facilities took place on Wednesday afternoon: the large scale structural testing

facility and the Caltrans lab on the UCSD campus; and the Englekirk Earthquake Center (shake table, blast simulator, etc.).

The winners of prestigious Society and Institute awards were recognized on June 6 at the banquet and award presentation ceremony of the EMI 2017 Conference. The awards were presented by J.S. Chen, F.EMI, M.ASCE, EMI President:

MAURICE A. BIOT MEDAL: Prof. Ning Lu, Ph.D. F.EMI, F. ASCE (Colorado School of Mines) “for his outstanding contributions to fundamental understanding of the mechanics of unsaturated porous materials.”

GEORGE W. HOUSNER MEDAL: Prof. James L. Beck, Ph.D., F.EMI, M.ASCE (Caltech) “for his exceptional and influential scholarship in structural monitoring and control research, and for his leadership in tackling uncertainty and model complexity through probabilistic approaches with emphasis on Bayesian methods.”

ROBERT H. SCANLAN MEDAL: Prof. Giovanni Solari, Ph.D., P.E., F.EMI, M.ASCE (University of Genova) “for his outstanding contributions to wind engineering and their applications in structural mechanics.”

MASANOBU SHINOZUKA MEDAL: Prof. Ahsan Kareem, Ph.D., F.EMI, NAE, Dist.M.ASCE (The University of Notre Dame) “for his contributions to the modeling of stochastic wind, waves, and earthquake loads, and their effects on buildings, bridges, and offshore structures.”

THEODORE VON KÁRMÁN MEDAL: Prof. Huajian Gao, Ph.D., NAE, M.EMI (Brown University) “for his ground-breaking research on the mechanical behaviors of engineering and biological systems across multiple length scales, with particular emphasis on deformation and failure mechanisms in thin films and hierarchically structured materials.”

2017 EMI LEONARDO DA VINCI AWARD: Prof. Jia-Liang Le, Ph.D., M.ASCE (University of Minnesota) “for important contributions to probabilistic mechanics of quasi-brittle structures, scaling of their failure and consequent reliability-based structural design ."

The following 2016 Award Winners Also received their awards this year:

ROBERT H. SCANLAN MEDAL: Yukio Tamura, D.Eng., F.EMI, M.ASCE (Tokyo Polytechnic University) “for fundamental contributions to mathematical modeling, quantification, and analysis of wind effects on buildings and structures”.

THEODORE VON KÁRMAN MEDAL: Ares J. Rosakis, Ph.D., NAE, M.ASCE (California Institute of Technology) "for discovering several fundamental physical phenomena in dynamic fracture of heterogeneous materials and interfaces at various length and time scales.”

Below are some pictures of the Society and EMI awards presentation ceremony.

Ning Lu, 2017 Biot Medal Recipient

James Beck, 2017 Housner Medal Recipient

Giovanni Solari, 2017 Scanlan Medal Recipient

Ahsan Kareem, 2017 Freudenthal Medal Recipient

Huajian Gao, 2017 von Kárman Medal Recipient

Jia-Liang Le, 2017 EMI Leonardo da Vinci Award Recipient

Yukio Tamura, 2016 Scanlan Medal Recipient

Ares Rosakis, 2016 von Kárman Medal Recipient

The 2017 class of EMI Fellows was recognized at the awards banquet:

Prof. C.W. Lim (City University of Hong Kong)
Prof. Glaucio Paulino (Georgia Tech)
Prof. Pizhong Qiao (Washington State University).

At the banquet and awards ceremony certificates were presented to the winners of the student competitions:

Computational Mechanics Student Poster Competition (Chair: Ertugrul Taciroglu)
Winner: Emma Lejeune, Stanford University
Runner Ups: Phillippe Alves, University of Illinois at Urbana–Champaign and Weixin Lin, Northwestern University
Granular Committee Student Paper Competition (Chairs: Anthony Rosato, Mathew Kuhn)
Winner: Siyu Zhu, Columbia University Dynamics Committee Student Paper Competition (Chair: Siu Kui Au)
Winner: Ketson Roberto Maximiano dos Santos, Columbia University
Modeling Inelasticity & Multiscale Behavior (MIMB) Committee Student Paper Competition (Chair: Çağlar Oskay)
Winner: Raja Biswas, National University of Singapore
Runner Ups: Andreas Krischok, Stanford University, and Mohammadreza Yaghoobi, Louisiana State University
Objective Resilience Student Paper Competition (Chair: Mohammed Ettouney)
1st Place: Katherine Flanigan, University of Michigan
2nd Place: Shady Salem, McMaster University
3rd Place: Xi Chen, Rutgers University
Probabilistic Methods Student Paper Competition (Chair: Alex Taflanidis)
Winner: Reza Mohammadi Ghazi, Massachusetts Institute of Technology
Structural Health Monitoring and Control Student Paper Competition (Chair: Lauren Linderman)
1st Place: Vedhus Hoskere, University of Illinois at Urbana–Champaign

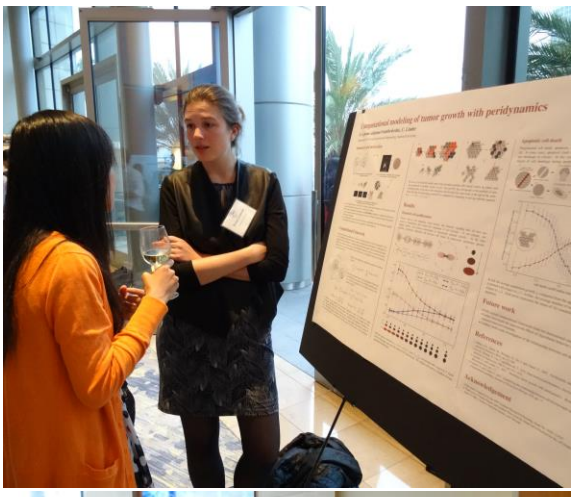
2nd Place: Murat Uzun, Massachusetts Institute of Technology
3rd Place: Xiangxiong Kong, University of Kansas.

The conference had a record attendance (over 700 attendees). The high points of the celebration of EMI's 10th year of existence were:

- The participation of six members of the National Academy of Engineering, highlighting the enhanced stature of EMI among the many mechanics associations;
- The Zdeněk P. Bažant symposium; and
- The address by Prof. Stein Sture, Ph.D., F.EMI, Hon.D.GE, Dist.M.ASCE (University of Colorado Boulder), a leading member of the first EMI Board of Governors, retracing the efforts to get EMI established.

A link to the extensive photo gallery of the EMI 2017 conference is available. Many thanks to Prof. J.S. Chen and Prof. Yuri Bazilevs (both of UC San Diego) and their team for organizing and hosting a memorable conference to celebrate EMI's 10th anniversary!

Ice Breaker Reception





Welcome Reception and Poster Competition

At the Englekirk Earthquake Center

At the Powell Lab

Stein Sture retraces how EMI was established

Banquet

EMI J.S. Chen presents a certificate to C.W. Lim, EMI Fellow

EMI Vice-President George Deodatis presents a plaque to Yuri Bazilevs, EMI 2017 Conference Co-Chair

At the banquet

6th Biot Conference on Poromechanics

EMI also took part in the organization of the 6th Biot Conference on Poromechanics chaired by Prof. Matthieu Vandamme and held at Ecole des Ponts Paris Tech (ENPC) in Paris, France on July 9-13, 2017. The conference was chaired by Matthieu Vandamme (Laboratoire Navier, ENPC), with Patrick Dangla (Laboratoire Navier, IFSTTAR), Jean-Michel Pereira (Laboratoire Navier, ENPC), and Siavash Ghabezloo (Laboratoire Navier, ENPC) as Co-chairs.

The 6th Biot conference was a tribute to Olivier Coussy, a prominent scientist and engineer who developed the fundamentals of poromechanics theory that were transformational in many applications of civil, environmental and petroleum engineering, bioengineering and sustainable development of materials and structures, and who was the first recipient of the Biot Medal. It was jointly organized by IFSTTAR (formerly known as Laboratoire Central des Ponts et Chaussées, where Olivier worked for most of his career) and by Ecole des Ponts Paris Tech (where Olivier was a Professor). See Olivier Coussy's obituary and a list of selected publications at https://biot2017.sciencesconf.org/resource/page/id/12.

The high-level research conference had about 300 attendees, including many international participants. The EMI director gave a brief presentation about EMI during the opening session. The 4-day conference

featured a rich technical program with about 250 presentations in technical sessions, a keynote lecture by Franz Ulm, and 14 plenary lectures by prominent researchers, including well-known EMI members (Patrick Selvadurai, Zdeněk Bažant, Ronaldo Borja, and Christian Hellmich).

The EMI Poromechanics Committee also organized the first Poromechanics Student Poster Competition, with prizes provided by the committee's budget. The jury composed of Dr. Chloé Arson (GeorgiaTech), Dr. Bernhard Pichler (TU Wien), and Dr. Majid Manzari (George Washington University) assessed the 16 students' posters in the competition based on: (1) the originality of the work (topic and/or approach); (2) the balance between (innovative) testing and theoretical modelling, whereby the latter shall be accomplished with a minimum of fitting, and it shall lead to a maximum of predictive capabilities; (3) the clarity of the conclusions; (4) the quality of the problem statement in the introduction; (5) the graphical aspect. After grading each poster, considering the vote by the attendees, and debating on the intellectual merit of the work presented, the jury decided to rank the first three posters as follows:

1st Place: "Is long-term autogenous shrinkage a creep phenomenon induced by capillary forces induced by desiccation?" by Abdusalam Aili (Université Paris-Est, Laboratoire Navier (UMR 8205), CNRS, Ecole des Ponts Paris-Tech, IFSTTAR)
2nd Place: "Constitutive modelling of the mechanical behavior of early-age cement paste" by Marcos Samudio (Ecole des Ponts Paris-Tech, IFSTTAR)
3rd Place: "A study on permeability and bulk modulus evolution of OPC and blended cement fresh concretes" by Sadegh Ghourchian (EMPA).

Certificates were presented to the three winners by the EMI director during the gala dinner cruise on the Seine on July 12. Congratulations to the winners!

EMI also published the proceedings of the 6th Biot Conference on Poromechanics, which include 255 papers. Congratulations to Matthieu Vandamme, Patrick Dangla, Jean-Michel Pereira, and Siavash Ghabezloo for organizing a very successful conference! The successful cooperation between EMI and the organizers on the conference strengthens the connection between the Biot Conference series, an independent event, and EMI. The next Biot Conference will be held in 2021 at M.I.T in Cambridge, Massachusetts and will be chaired by Prof. Franz Ulm.

Christian Hellmich, Plenary Session Speaker

Abdusalam Aili, 1st Place Winner of the Poromechanics Student Poster Competition, Receives a Certificate

Group Photo

Upcoming Conferences

The EMI 2018 conference will be held on May 29-June 1, 2018 at M.I.T. One hundred mini-symposia proposals have been accepted, and abstract submission is open. It is planned that the 2019 EMI annual conference will be held at Caltech, and that the 2020 EMI annual conference and the 2020 Probabilistic Mechanics Conference, will be held at Columbia University.

The 2018 EMI International Conference will be held on November 2-4, 2018 at Tongji University in Shanghai, China. Five universities in Europe have expressed an interest in hosting the 2019 EMI International Conference, and Hanyang University in Seoul, Korea has expressed an interest in hosting the 2020 EMI International Conference.

LOCAL ACTIVITIES

EMI helped establish the Engineering Mechanics Committee within the ASCE Met Section in 2011. The Engineering Mechanics Committee of the ASCE Met Section organized two major events at Columbia University: the 2016 Biot Lecture, presented on October 17, 2016 by Prof. Kimberly Kurtis, Ph.D., FAIC, FACerS (Georgia Tech), titled "21st Century Cement Technology: Addressing Sustainability Through Innovation"; and the 2017 Mindlin Lecture presented on November 1, 2016 by Prof. Franz-Joseph Ulm,

Ph.D., F.EMI, M.ASCE, (M.I.T.), titled "Urban Physics: Is New York a Liquid Or a Solid? A New Quantitative Engineering Mechanics Approach to Cities". The videos of these and other prestigious lectures have been posted on the "EMI Lecture Series" page of the EMI website.

George Deodatis Presents a Certificate to Kimberly Kurtis

George Deodatis Introduces Franz Ulm

CONTINUING EDUCATION

On the occasion of the EMI 2017 conference in San Diego, three pre-conference short courses were offered: "Computational Fluid-Structure Interaction" (two days), by Yuri Bazilevs (UC San Diego),Kenji Takizawa (Waseda University), and Tayfun Tezduyar (Rice University); "Resilience-Based Design of Structures and Infrastructures During Emergencies" (one day), by Gian Paolo Cimellaro (Politecnico di Torino) and Steve Mahin (UC Berkeley); and "Bayesian Model Updating and Uncertainty Quantification" (one day) by Babak Moaveni (Tufts University) and Costas Papadimitriou (University of Thessaly, Greece).

COMMUNICATIONS

The monthly EMI newsletter continues to provide timely information to the membership regarding activities of the Institute, upcoming events and deadlines, and other useful information such as the table of contents of the current issues of the EMI journals. The newsletter also features a Research Group Profile that highlights the work of research team. Each RGP presents the problem the team is addressing, its approach, its findings, their impact, a list of selected publications, current research team members, industry partners, and research collaborations.

The EMI website includes:

- The searchable database of a growing number of Research Group Profiles that present a snapshot of the research undertaken by EMI members.
- EMI-specific areas on books and journals, conferences and events, continuing education and jobs, membership, and awards.
- A news section.

- A searchable section on EMI committees providing automatically updated committee membership rosters and committee charges

- An EMI Lectures Series page which featuring the videos of the three most recent Biot and Mindlin Lectures and Mechanics Research Communications Elsevier Distinguished Lectures. Additional lectures in these series will be added in the coming months.

The site also includes an on-line EMI membership application and an on-line technical committee membership application. In addition to these EMI-specific areas, the integration with the ASCE site provides immediate access to other areas of general interest. Content valued by the members that was temporarily removed during the website redesign such as the RSS feed from iMechanica was restored.

COMMITTEES

The EMI committees continue their excellent work in supporting EMI activities, including reviewing papers submitted to the two EMI journals; organizing sessions at the EMI annual conference, organizing student paper or poster competitions at the annual conference, among others. All the EMI committees met at the EMI 2017 conference. Many thanks to all our committee chairs and committee members for their continued support of EMI activities!

As they come to the end of their terms, several Committee Chairs are stepping down. EMI is grateful to the outgoing committee chairs for their dedication and hard work:

Ertugrul Taciroglu (Computational Mechanics), replaced by Haim Waisman
Siu Kui Au (Dynamics), replaced by Michele Barbato
John Brigham (Elasticity), replaced by Anil Wijeyewickrema
Ali Daouadji (Granular Materials), replaced by Mahdia Hattab
Çağlar Oskay (Modeling Inelasticity and Multiscale Behavior), replaced by Chung Rak Song
Lizhi Sun (Nanomechanics and Micromechanics), replaced by Linbing Wang
Matthieu Vandamme (Poromechanics), replaced by Giuseppe Buscarnera
Erik Johnson (Probabilistic Mechanics), replaced by Lori Brady
Kalpana Katti (Properties of Materials), replaced by Stefan Scheiner
Jifeng Xu (Stability), replaced by Ahmer Wadee.

Many thanks to the outgoing Committee Chairs, and welcome to the new Committee Chairs!

FINANCES

EMI is required to operate within the financial model of the ASCE Institutes. As such, its main sources of income are membership dues, publications and journal royalties, net income from conferences and continuing education activities, and donations. Its main areas of expenses are: Board and committee operations; Institute operations; and staff salary, fringes and travel. A positive net financial result is expected for FY 2017, which be added to EMI's reserves which serve both as a "rainy day" fund and a

source of funding for new promising initiatives. Overall, EMI's financial situation is satisfactory, but additional resources are needed to increase EMI staff (currently 1.5 FTE) to adequately address the substantial increase in activity.

ASSESSING PROGRESS

Since its founding in the fall of 2007, EMI has significantly expanded its program of activities, made significant progress in several areas, enhanced its program of prestigious awards, and significantly increased its membership while keeping with the tradition of organizing excellent conferences and producing content-rich publications. EMI enhanced its stature among the many U.S.-based mechanics-related associations and increased its international visibility and influence.

EMI celebrated its 10th anniversary with successes in many areas. EMI held two international conferences in France and Brazil and a very successful EMI 2017 conference in San Diego. *JEM*'s significantly increased its impact factor and decreased its time to publication. Submissions to *JNM* have increased. EMI continued to provide financial support to the student competitions. EMI regularly provides new content on its website and keeps its members informed through its newsletter. The EMI membership elects each year new members to its Board of Governors, and can thus influence the governance of the Institute. EMI's considerable progress since its founding in the fall of 2007 is mostly due to the dedication and hard work of its volunteers and the effective support of its staff.

Despite these accomplishments, EMI still needs to improve its financial sustainability, establish better connections to industry, and enhance its continuing education program.

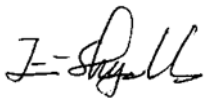
We encourage EMI members to actively engage into the Institute activities, including:

- Renewing their membership
- Giving a (tax deductible) voluntary contribution to EMI when renewing their membership
- Encouraging their graduate students and colleagues to join EMI and to remain members of EMI
- Attending the EMI conferences and contributing to their technical program
- Getting involved in EMI technical committee activities
- Being responsive to requests for reviews of EMI journal articles
- Suggesting or offering webinars and short courses
- Encouraging organizations in industry and government that are users of advanced mechanics they are familiar with to become organizational members of EMI
- Contributing articles to the EMI journals
- Submitting short articles, pictures, videos, and announcements to the EMI newsletter and the EMI website.

Thank you for all your support. Your continuous engagement and participation will allow EMI to grow and prosper. It has been my great honor to have the opportunity to serve as the President of EMI for the past two years.

Upon the completion of my term, I am very confident to report that EMI will be in the good hands of incoming President, George Deodatis, who has outstanding leadership credentials.

Respectfully submitted,



J.-S. Chen, Ph.D., F.EMI, M.ASCE
EMI President, FY 2017