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Inside MAE

MID-AMERICA EARTHQUAKE CENTER

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HEADQUARTERED AT THE UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Amr S. Elnashai New MAE Center Director

Amr S. Elnashai has been named the new Director of the Mid-America Earthquake Center. He succeeds Dan Abrams who stepped down as Director after almost seven years.

Dan Abrams was the leader of the winning proposal that established the MAE Center in 1997. He has worked ever since to build the Center academically and administratively. His dedicated leadership, energy, and vision have made the MAE Center a successful international organization that is a leader in the field of earthquake engineering.

A leading expert on earthquake response of structures, Dr. Elnashai has over 200 publications in the field of earthquake engineering. His papers on high-rise high-strength buildings and on Force Reduction Factors for RC Buildings won the best paper awards of the *Journal of Structural Design of Tall Buildings* in 2000 and 2002, respectively. He has supervised 22 successful PhD and more than 100 MSc theses. Formerly Professor of Earthquake Engineering and Head of the Engineering Seismology and Earthquake Engineering Section at Imperial College (London, UK), he joined the University of Illinois in 2001 as professor in Civil and Environmental Engineering, assuming the title of Associate Director of the Mid-America Earthquake Center at the same time. He has served as Acting Director of the MAE Center since August 2003. In addition, he is the Director for the Network for Earthquake Engineering Simulation (NEES) Multi-Axial Full-Scale Sub-Structured Testing and Simulation (MUST-SIM) Facility at the University of Illinois. He holds a Donald Biggar Willett professorship in Engineering at UIUC.

A graduate of Cairo University (BSc, 1977) and Imperial College London (MSc 1980; PhD, 1984), Amr is a Fellow of the Royal Academy of Engineering (UK), a Fellow of the American Society of Civil Engineers and the Institution of Structural Engineers (UK). He is still a member of the drafting panel of the European seismic design code, Eurocode 8, the technical expert for the Council of Ministers with the Ministry of Civil Defense (Italy), a member of the code drafting committee for the Ministry of Housing and Construction (Egypt), and is a corresponding member of the International Standards Organization (ISO). He is founder and co-editor of the *Journal of Earthquake Engineering,* has served as a special issue editor for the *Journal of Constructional Steel Research,* serves on the editorial panel of *The Structural Design of Tall Buildings,* and editor of numerous conference proceedings. He was chairman of the Society for Earthquake and Civil Engineering Dynamics (UK branch of the European and International Association of Earthquake Engineering) and a Senior Vice-President of the European Association of Earthquake Engineering. Amr also participated in many earthquake design, construction and retrofitting projects in Europe, Japan and the Middle and Far East.

Amr's work on seismic resistance of composite structures won the Oscar Faber Medal for best paper published by the Institution of Structural Engineers (UK), and was referred to in his Royal Academy of Engineering citation. He was awarded the Unwin Prize for the best Ph.D. thesis in Civil and Mechanical Engineering at Imperial College, London. ■

MAE Director Named Donald Biggar Willet Professor of Engineering

Bill Spencer, Neumark Endowed Chair, in Civil Engineering, Introduced Amr Elnashai at the Investiture Ceremony


Bill Spencer

Amr Elnashai's impact on the field is evidenced in many ways. He was the pioneer of pseudo-dynamic testing in Europe, and the *Journal of Earthquake Engineering*, which he founded in 1996, has quickly become one of the most important in the field. His achievements have resulted in his election as a fellow of the Royal Academy of Engineering, the Institution of Structural Engineers, and, in the US, the American Society of Civil Engineers. Amr is a noted, and much sought after, consultant in many countries throughout the world, including the UK, Saudi Arabia, The Netherlands, France, Egypt, Morocco, Lebanon, Greece, Japan, and the USA.

Shortly after arriving at the University of Illinois at Urbana-Champaign, Amr took a leading role in facilitating the renewal of the Mid-America Earthquake Center, which is extremely important for the department and to the college, and he is currently leading the year 7 renewal of the Center. More recently, Amr led the way in establishing the MUST-SIM facility at UIUC as one of the 15 nodes in NSF's George E. Brown Network for Earthquake Engineering Simulation. Amr is truly a visionary, and in just a few short years he has had a tremendous impact on the department.

While I wasn't personally involved in Amr's recruitment to the University of Illinois, I can tell you some of the factors that led to the decision to bring him here. In his 15 and a half years at Imperial College in the UK, Amr compiled an amazing record. He taught a vast array of courses, including earthquake engineering, advanced finite element and numerical analysis, experimental structural dynamics, and engineering drawing. Amr supervised the thesis research of more than 150 MS and 22 Ph.D. students, and in the process published over 200 articles and reports. Indeed, he was instrumental in the development of arguably the most successful earthquake engineering program in Europe, earning the admiration of his former colleagues, who recently tried, unsuccessfully I'm glad to report, to woo him back to the UK as the dean of engineering at the University of Surrey.

More seriously, Amr is truly a great colleague and a good friend. I am absolutely delighted to represent the department and the college in recognizing his achievements today. I congratulate Amr and his wife Noha and wish them all the best on this important day.

Amr Elnashai's Remarks on Being Invested as a Willett Professor


Amr Elnashai

I am thrilled and thankful that I have been given the honor of a Willett professorship. As researchers who are accustomed to report to a funding agency will appreciate, I intend to use the Willett funds for purely speculative research.

I wish I could have stood here and said 'I did it my way,' and 'academic success is a personal achievement.' Perhaps it is; but not in my case. My career is built on making the most out of opportunities offered to me by significant and generous people along the way. This started with my father, a simple Egyptian army officer, who had the vision and determination to push all three of his sons to pursue academic careers overseas, when traveling from Cairo to Alexandria, a mere 150 miles journey, was considered an adventure! My brother Mohammed studied at Hanover University in Germany for his MS and at University College London for his PhD, and my brother Saiid studied for his MS in Waterloo, Canada, and for his PhD at Edinburgh University, UK. Perhaps my first degree at the University of Cairo was one of the few uneventful steps in my career; I graduated from there with a first class honors degree in July 1977.

As an immigrant from Cairo I had a tough time adjusting to sunny London, and I struggled with a persistent flu all winter. By the end of my Master's course at Imperial College, University of London, I met the man who would have a most profound effect on my career. He was Head of the Structures Section and British Steel Chair in the Civil Engineering Department at Imperial College, Patrick J. Dowling, who became my PhD advisor by coincidence, when my assigned advisor had a nervous breakdown. I dispute any suggestion

that his nervous breakdown had anything to do with our weekly meetings! As one of the top consultants in the business, meeting Patrick was significantly more challenging than executing the research tasks asked of me. Patrick's vision and decisive leadership led to my completing my doctoral studies in 1984, in spite of the fact that I met him every few months, at best.

After two years working as a senior engineer with an offshore construction company in London, I returned to Imperial College as a faculty member, again appointed by Patrick Dowling, who became Head of Department a few months earlier, following the sudden death of Professor John Munro, who was my MS advisor. A few years later, I was appointed the Chair of Earthquake Engineering and became Engineering Seismology and Earthquake Engineering Section Head. I was fortunate to work with and succeed as Section Head a brilliant and exceptionally tough man, Nick Ambraseys, the father of modern European engineering seismology (and a post-doc of Nathan Newmark), who insisted that, contrary to common belief, earthquake strong-ground motion is more important than structural response. I concluded that neither he, nor the structural engineering community I belonged to, is right, and that success in earthquake engineering research necessitates a full appreciation of both, an opinion I still hold dearly. I retain exceptionally good memories from Imperial College mainly because of my friendship with Marios Chryssanthopoulos, with whom I shared many happy and sad events in both our lives, and Bassam Burgan, currently Deputy Director of the Steel Construction Institute, UK. Marios's departure from Imperial College to Surrey University to take a chair in Structural Engineering was one of the main unsettling factors that led to my eventual departure from Imperial College to the University of Illinois.

I consider that my main contribution is the students whom I have advised or somehow influenced. I have had exceptional students throughout my academic career. With some 150 MS and 22 PhD degrees, they are too many to mention. I wish them all further success in their careers and thank them for their share in creating a most rewarding research environment in South Kensington and more recently in Urbana.

Amr S. Elnashai invested as Willett Professor.

There is an interesting European dimension to my career. In 1990, an era of great cooperation and close technical synergy as well as camaraderie started amongst five relatively young professors from four countries. We became known as the Young Turks (aka the "Usual Suspects"), and among us we had the Chair of the Seismic Design Code, the Presidency of the European Association, three of the largest laboratories in Europe, the Editorship of a leading journal amongst many other high-influence positions. My friendship with Paolo Pinto (Università di Roma, Italy), Michele Calvi (Università di Pavia, Italy), Michalis Fardis (University of Patras, Greece) and Edoardo Carvalho (National Civil Engineering Laboratories, Portugal) has luckily outlived my residence in Europe. There is also a Japanese dimension.
I was trained in pseudo-dynamic testing by its absolute pioneer, Professor Koichi Takanashi of the Institute of Industrial Science, Tokyo. He was extremely generous with his knowledge and his advice led to the development of a high precision facility at Imperial College that preceded all other European developments in pseudo-dynamic testing. In spite of the age difference, Takanashi-san and I developed a very close friendship, and I spent several springs working in his laboratory in Nishi-Chiba during Sakura time.

Dan Abrams first contacted me by email in Decem-ber 1999 regarding the possibility of joining UIUC. I decided to give it a try and I visited in March 2000. By the end of the two-day visit, I had almost made up my mind to move! This is to the credit of David Daniel first, Dan Abrams and Bob Dodds second, and the excellent group of professors whom I met during my visit. My very disruptive move was much eased by the warmth and friendship I have enjoyed with Bob and Deana Dodds who continue to be amongst my closest friends in Champaign-Urbana. The support that I have enjoyed from my UIUC colleagues has been tremendous; they include Neil Hawkins, Jamshid Ghaboussi, Keith Hjelmstad, Dan Abrams, Glaucio Paulino, Dan Kuchma, Youssef Hashash and Khaled Elrayes. I owe the Willett Professorship nomination to Nick Jones with whom I have had many tough but usually fruitful negotiations. His sense of humor makes up for his toughness. I also owe a great deal to the administrative staff in the Department and the Earthquake Center; at the forefront are Sue Dotson, Cheryl Gantz, Steve Daley and Jack Kuehn. I have also enjoyed

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W. Gene Corley Receives ASCE's President's Award

W. Gene Corley, Senior Vice President of Construction Technology Laboratories, Inc., in Skokie, Illinois, and member of the MAE Center's Executive Advisory Board, has received the ASCE's President's Award for his distinguished leadership and service to the United States. Established in the nation's bicentennial year to honor George Washington, the President's Award is presented annually. Corley's award was presented in recognition of his service as the ASCE representative on the building performance assessment teams organized to investigate the responses of the Alfred P. Murrah Federal Building to the 1995 bombing and of the World Trade Center to terrorist attacks in 2001. Corley is a member of the National Academy of Engineering.

Anne S. Kiremidjian Presented ASCE's Charles Martin Duke Lifeline Earthquake Engineering Award

Anne S. Kiremidjian, Professor of Civil and Environmental Engineering at Stanford University and member of the MAE Center's Executive Advisory Board, has received the 2003 Charles Martin Duke Lifeline Earthquake Engineering Award. Presented annually by the American Society of Civil Engineers, the Duke Award is given in recognition of outstanding contributions which have served to advance the art, science, and technology of lifeline earthquake engineering.

ATC-29-2 Report Available

The Applied Technology Council (ATC) has announced the publication of a report titled *Proceedings of the Seminar on Seismic Design, Performance, and Retrofit of Nonstructural Components in Critical Facilities*. The 574-page report documents the technical presentations made at the ATC-29-2 Seminar on Nonstructural Components held in October 2003.

The purpose of the seminar was to present current research, practice, and informed thinking pertinent to seismic design, retrofit, and performance of nonstructural components, with a special emphasis on critical facilities (computer centers, hospitals, manufacturing plants with hazardous materials, museums with fragile and valuable collection items). The seminar focused on supports and bracing for elevator systems, ceilings, partitions, cladding, glazing, contents, water piping systems, and mechanical and electrical equipment. The ATC-29-2 seminar technical program was developed for design professionals, regulators, researchers, manufacturers, contractors, insurers, owners, and facility managers. Funding for the seminar was provided by MCEER and the National Science Foundation.

Available in either hard copy ($65 plus shipping and sales tax) or CD-ROM ($35 plus shipping and sales tax), copies can be obtained from the Applied Technology Council, 201 Redwood Shores Parkway, Suite 240, Redwood City, CA 94065; 650-595-1542 (voice); ATC@ATCouncil.org (e-mail); www.ATCouncil.org (on-line stores).

Upcoming Events

2004

July 4-7: 13th International Brick/Block Masonry Conference, RAI, Amsterdam, the Netherlands. Contact: www.13-IBMaC.bwk.tue.nl

July 5-7: 2nd International Conference on Structural Engineering Mechanics and Computation (SEMC 2004), Cape Town, South Africa. Contact: A. Zingoni, chair, SEMC 2004 Organizing Committee, Dept. of Civil Engineering, University of Cape Town, Rondebosch 7701, Cape Town, South Africa; azingon@eng.uct.ac.za

July 6-9: SE'04 International Symposium on Network and Center-Based Research for Earthquake Engineering and Smart Structures Technologies, Osaka, Japan. Contact: keerc@snu.ac.kr.

July 13-16: 7th Australasian Masonry Conference, Newcastle, Australia. Contact: Dr. Mark Masia, mark.masia@newcastle.edu.au/eng/7amc

July 26-28: Joint Specialty Conference on Probabilistic Mechanics and Structural Reliability, Albuquerque, New Mexico. Contact: Steve Wojtkiewicz, sfwojtk@sandia.gov; http://www.esc.sandia.gov/PMCconferenceinfo.html

July 27-31: Geo-Trans 2004, Los Angeles, California. Sponsored by ASCE, the conference will focus on geotechnical engineering for transportation projects. Contact: conf@asce.org; http://www.asce.org/conferences/geotrans04/

August 1-6: 13th World Conference on Earthquake Engineering, Vancouver, British Columbia. Contact: www.13WCEE.com; 13wcee@venuewest.com

September 29-October 1: Annual Conference on Deep Foundations, Vancouver, British Columbia. Contact: www.dfi.org

2005

February 19-22: International Association for Bridge Structures Engineering Conference, New Delhi, India. Contact: www.iabse.org

Where Are They Now?
MAE Center Graduates

This is an interview of David Peralta (PhD, 2003, Texas A&M University) conducted by Sandra Menke, Education Program Specialist.

David Peralta

Which project did you work on while part of the MAE Center?

Project ST-8, Seismic Performance of Rehabilitated Wood Diaphragms, with Professors Joseph Bracci and Mary Beth Hueste [at Texas A&M University].

Where are you working now?

I am working for Unintech Consulting Engineers, Inc. in San Antonio, Texas.

What types of work are you doing and how does your work relate to your MAE Center research?

One of my responsibilities as a professional engineer is the design and shop drawing review of home foundations for several developers in the San Antonio area. This part of the country has some of the most challenging soil features; the foundations are required to be the strongest part of the building. For this, we design slab-on-grade reinforced and postensioned concrete foundations.

I am also participating in a special project for the city of San Antonio for the assessment of existing houses damaged during the flood of October 1998 for their relocation and/or rehabilitation. This project requires making on-site investigations of the foundation to determine its type and geometric configuration. My research experience with wood floors at the MAE Center helps me identify critical field data in a timely manner. Because of the difficulty in accessing the foundations, a rapid response is necessary.

Do you feel that your experiences with the MAE Center helped you find a job?

Yes, my experience with wood structures at the MAE Center was a desirable qualification for the job at Unintech. My direct experience with wood construction and design during the experimental and analytical phases of the research gave me the confidence to accept the job.

Any suggestions on how the MAE Center could improve to make research more relevant to real-life practice?

In order to offer communication between the MAE RAs and the professional world, I would suggest including interested engineering firms on each of the research projects. This would provide an opportunity for the RAs to find the company that is best suited for their experience at the MAE Center. By facilitating this kind of communication, the RAs will have the opportunity to make an enduring impact on the industry.

What was your most memorable moment with the MAE Center?

At one of the MAE Center Annual meetings in Illinois, I had the fortune to meet Dr. Gene Corley [vice president of Construction Technology Laboratories, Inc., and member of the MAE Center's Executive Advisory Board]. As an undergraduate student in Peru, I read about his significant work in a reinforced concrete textbook. I could have never imagined having lunch and meeting him personally! Having opportunities to meet notable people of the profession has been a motivating factor for my research.

Would you recommend the MAE Center to students as a place for research?

Yes, the MAE Center provides a strong foundation for in-depth, critical learning and research. I believe my time and work at the MAE Center become even more valuable as I grow in my professional career.

Social Impact Seminars

A broad collection of social science, public policy, economics, and urban planning seminars are being offered through a new social impact series initiated on May 6 with Tschangho John Kim, UIUC Endowed Professor of Urban and Regional Systems, discussing "Network Economic Assessment under Unscheduled Events." This seminar will be followed by Robert Olshansky, UIUC Associate Department Head and Associate Professor of Urban and Regional Planning, presenting "Rebuilding Communities Following Disaster: Lessons from Kobe and Los Angeles" on May 19 and Mary C. Comerio, Professor of Architecture, University of California Berkeley, speaking on "The Influence of Loss Modeling on Risk Management Decision on May 25. All the seminars are broadcast live on the Internet at http://maelive.cee.uiuc.edu.

Sandra Menke Gives Presentation in Florida

Sandra Menke, MAE Center Education Program Specialist, discussed impacting collegiate curriculum through partnerships at the 2004 NSF Research Centers Educators Network meeting, March 4-6, Gainesville, Florida. Speakers talked about the unique challenges and solutions in Center graduate and undergraduate education existing outside and across traditional disciplinary boundaries. Information about MAE Center curriculum programs, collaborations, and framework was introduced, followed by a question and answer session. This action-oriented meeting included a final report to NSF detailing concerns, suggestions and action items recommended by Center education program coordinators.

Student Leadership Council Visits Classrooms

As part of the Student Leadership Council classroom visitation program, MAE Center students across core institutions have been busy introducing K-12 students and teachers to safety measures for mitigating effects of earthquakes in the central and eastern US. MAE Center graduate students Jamie Padgett, Bryant Nielson, and Leonardo Dueñas-Osorio, accompanied by EERI members Jason McCormick and Monique Hite, presented a program on earthquake preparedness and safety to an eighth grade earth science class at Crawford Long Middle School, Atlanta, on January 13, and to a second grade discovery class at Sagamore Hills School, Atlanta, on February 13. On January 13, Washington University graduate student Sungsook Cho increased awareness of hazards that exist during an earthquake to fifth grade students at Forsyth School in St. Louis. Tracy Smith and Oh Sung Kwon of the University of Illinois explored school disaster plans and talked about what to do before, during, and after an earthquake to 105 fifth grade students at Ridge Farm Elementary School, Ridge Farm, IL, on April 1. Kindergarten and first-grade students learned about earthquakes from Tracy Smith and Education Program Specialist Sandra Menke at the Yankee Ridge Elementary School "Junior Scientist Day" on April 21.

MAE Center students present earthquake safety programs to elementary students.

MAE Center Students Give Demonstration at Children's Museum

MAE Center students Jayram Ramachandran, Neda Svrakic, Can Simsir, and James Gecan presented a program on Earthquake Preparedness and Safety in the New Madrid Seismic Zone (NMSZ) at the Orpheum Children's Science Museum on Saturday, April 10, 2004, in Champaign, Illinois. Six stations were created to give children an opportunity to explore and learn about earthquakes at their own pace in an informal setting. The hands-on exhibits were designed to be fun, but also to instruct. At Station 1, children operated a self-guided interactive touch screen to explore the geology, history, natural and built environment of the NMSZ. The program introduced source mechanisms, soil amplification effects, soil failures, dynamic response of structures, and the effectiveness of retrofit on reducing damage to structures. At Station 2, a video on earthquake preparedness and safety instructed children what to do before, during, and after an earthquake. The next three stations provided children the opportunity to design and construct structures from Legos, K'NEX or peanut butter and sugar cubes. At Station 6, the performance of the building structures during an earthquake was tested on the Center's mini-shake table. ■

Future engineers at the Orpheum Childrens' Museum build a structure for testing on the miniature shake table.

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my contacts with Sandy Menke, Vicki Dixon, Chris Smith and Aubrey Wagoner in the MAE Center, and Margaret Krause, Marilyn Boland, Rhonda Powel, Heidi Craddock and Sheree Waltz in the Department. The 3CS personnel, especially Earl Liles, Josh Houston and Eric Hays, have been very supportive indeed. Patty Cutsinger, my fourth Administrative Assistant in less than three years, has made the tasks of editing the *Journal of Earthquake Engineering,* leading the MAE Center and looking after the NEES project much more manageable. In recent months, the support of Gary Gan, our NEES assistant project manager, has made a huge difference to the NEES management team. I am very lucky to enjoy the personal friendship of those I just mentioned, and many of their respective partners. To my dear friend, colleague and research partner Bill Spencer, I am ever so grateful. I dumped on him some serious tasks in the Center, and he has never failed me. Our discussions and analysis of situations and people are events to look forward to.

I want to pay tribute to my brother Mohammed—and also to complain about the timing of his accomplishments! He sent me a fax that confirms he has been nominated by several laureates for the Nobel Prize in Physics. The news rapidly circulated around the Newmark Lab, and hence my professorship seemed a little less significant than it would have otherwise. Nobel Prize nominations are major feats in their own right, but when one notes that the nominee actually has a PhD in structural engineering, the nomination takes on a whole new meaning.

I did not expect to have my wife here at this ceremony, so I asked Deana Dodds to be my date. I am the lucky man in this gathering with two dates, because my wife made it to the USA in time for the investiture. I am delighted that she is here. She patiently endured our separation for years while I was trying to get accustomed to the idea of getting married, again.

I will close by restating that my success is a story of partnership with people who have been generous with their support. I mentioned many of them above. I thank them all and hope that they feel that their confidence in me was well-placed. ■

A.S. Elnashai, Director

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For further detail on news items see the MAE Center web site at http://mae.cee.uiuc.edu