

MCEER Annual Meeting Convenes Stakeholders, Partners, Students and Researchers

Inside This Issue

Outgoing SLC President Wins Best Student Article Competition 3

MCEER Establishes Electrical Utility Consortium..... 4

MCEER Delivers Seminar to OSHPD Engineers 4

New Partner: WorkSafe Technologies .. 4

MCEER SLC Members Participate in 2005 EERI Annual Meeting..... 5

Student Spotlight: Jeffrey Berman 5

Florida Team Wins First MCEER Undergraduate Seismic Design Competition 6

Recent Events..... 6

2005 UB-MCEER Quake and Shake..... 7

Four MCEER SLC Members Participate in Tri-Center Field Mission to Greece ... 7

MCEER Movers and Shakers 8

New MCEER Information Service Research Guides Online 9

New Technical Reports 10

Remote Sensing Technologies Applied Following South Asian Tsunami 10

Call for Papers: 100th Anniversary Earthquake Conference Commemorating the 1906 San Francisco Earthquake .. 12

Under the theme of “Involving Stakeholders ... Igniting Innovation ... Securing Resilience,” MCEER’s 2005 Annual Meeting reached out from California’s state capital of Sacramento, and engaged stakeholders from up and down the West Coast. The purpose was to begin a process to ignite innovation and engineer solutions that will help communities become more resilient to the threat from earthquakes and other disasters nationwide. The meeting was held in the Sacramento area at the invitation of the California Office of Statewide Health Planning and Development (OSHPD), a vital partner in MCEER’s hospital research thrust (see related story on page 4).

In all, more than 100 participants, including business, industry and government stakeholders, as well as MCEER Industry Advisory Board members, students and investigators, took part in the event. The large “practitioner” turnout made for invaluable contributions of insight and perspective to the Center’s research, education and outreach programs.

The meeting opened with an Ice-breaker reception on the evening of February 24. Hosted by OSHPD, the event was held at California’s beautiful State History Museum, which was opened exclusively to MCEER annual meeting participants. More than 60 attended, partaking in fine food, good conversation, ample networking opportunities, and a host of exhibits and interactive displays marking California’s past.

Day 1: Second Annual Practitioners Day Forum

February 25 marked the second annual *Practitioners Day Forum*, involving more than 40 practitioners and consultants from structural engineering firms; electrical and water utilities; restraint & control manufacturers and service providers; manufacturers of building equipment and nonstructural components; satellite service providers; emergency management; insurance; and government.

The day opened with an informational plenary session in which MCEER Director Michel Bruneau, and thrust area leaders Masanobu Shinozuka, Tom O’Rourke, Andre Filiatrault and Kathleen Tierney made brief presentations on the Center’s three research thrust areas:

- Seismic Evaluation and Retrofit of Lifeline Systems
- Seismic Retrofit of Acute Care Facilities
- Emergency Response and Recovery

Following these presentations, Richard Eisner, of the California Governor’s Office of Emergency Services, spoke of the changing landscape and challenges facing emergency managers in these post 9/11 times.

After lunch, practitioners and MCEER Industry Advisory Board (IAB) members joined investigators and students in breakout sessions specific to each of MCEER’s research thrust areas.

Continued on page 2



MCEER Annual Meeting

Sessions provided members of the various practicing communities with a platform to voice their perspectives on real-world challenges to improving seismic resilience. Each session included a number of practitioner presentations followed by discussions. Breakouts were led by MCEER investigators Stephanie Chang, University of British Columbia, Manos Maragakis, University of Nevada, Reno, and Ron Eguchi, ImageCat, Inc.

A plenary session featuring presentations from Center IAB members followed, adding further perspective. In all, practitioners and IAB members gave more than 24 presentations throughout the day.

An evening reception featured student posters as well as exhibits by Center industry partners. Seventeen members of MCEER's Student Leadership Council engaged industry partners and other practitioners as they presented posters on their MCEER-funded research. Student posters can be viewed online at <http://mceer.buffalo.edu/meetings/2005student/default.asp>.



Sofia Tangalos (L) talks with graduate students Anita Jacobson (C) of Cornell University and Terri Norton (R) of Florida A&M during the SLC poster presentation.



Ron Eguchi (L), ImageCat, Marshall Lew (C), Mactec Engineering, and Christopher Arnold (R), Building Systems Development, at the annual meeting banquet.

The Annual Meeting Banquet featured a presentation by MCEER investigator Ron Eguchi of ImageCat, Inc. Ron spoke on "MCEER's Remote Sensing Research following the December 26, 2004 Asian Earthquake and Tsunami." Originally developed for earthquake response, MCEER's remote-sensing capabilities hold significant promise for improving pre-event loss estimation and post-event emergency response and recovery from a variety of disasters, including tsunamis. Eguchi illustrated ImageCat's deployment of the VIEWS (Visualizing the Impacts of Earthquakes With Satellites) system to record, document and analyze field data from the disaster which claimed more than 250,000 lives in 11 countries. The system was also deployed last September on South Florida's west coast, following Hurricane Charley.

Day 2: MCEER Partners, Researchers and Students Engage in Day of Planning

On February 26, MCEER partners, students and investigators joined together for the annual meeting's Strategic Research Planning Day.

MCEER's Industry Advisory Board opened the day early with a breakfast meeting to review Center progress and discuss their recommendations for the coming year. The meeting was chaired by Ellis Stanley, Sr., Vice Chair of MCEER's IAB and Director of the City of Los Angeles Emergency Preparedness Department. Thirteen IAB members participated in the meeting. They began with a SWOT analysis on MCEER activities, to convey their thoughts on Center

Continued from page 1



MCEER investigators Bill Petak (L) and T.C. Cheng (R), both of the University of Southern California, join in conversation amidst a backdrop of exhibits at the California State History Museum.

Strengths, Weaknesses, Opportunities and Threats (SWOT) to Center management. Discussions also focused on MCEER's nonstructural components and electrical utilities research, professional and continuing education, ways to increase interaction between IAB member firms and MCEER's Student Leadership Council, and strategies for continued IAB growth and development.

The morning session opened with Andrei Reinhorn providing an overview of MCEER's Networking Program. The networking program is an advanced framework for sharing experimental and computational resources and data through electronic and computerized networks using the latest information technology tools. It links MCEER partners, investigators, students and other users to Center resources – experimental facilities, computational platforms, research projects and sub tasks, seminar webcasts, etc. – via the web. It may be accessed via mceer.buffalo.edu/research.

A review of student leadership council activities by new SLC chair, Michael Pollino, University at Buffalo, was next. The MCEER SLC is a formal organization of students who are

IAB Member Anurag Jain (L) of Weidlinger Associates shares insights on hospital retrofit challenges with MCEER Deputy Director Andre Filiatrault (R) following the Practitioner's Day Forum.



involved in performing MCEER research under the supervision of faculty advisors. Pollino reported on the progress of SLC activities, including:

- SLC retreat held at the University of Nevada, Reno
- Webcast seminar series, which features presentations by MCEER IAB members and others
- Tri-Center Field Mission, which last year took students to Japan to view areas impacted by recent earthquakes
- Attendance at meetings and conferences, such as the *EERI Annual Meeting* and the *13th World Conference on Earthquake Engineering*
- Undergraduate Seismic Design Competition
- *Student Research Accomplishments* volume, recently published by MCEER.

The OSHPD-sponsored reception provided annual meeting participants with opportunities for casual dialogue at the California State History Museum.



Outgoing SLC President Wins Best Student Article Competition

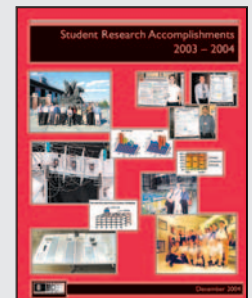
Jeffrey Berman, University at Buffalo graduate student and outgoing SLC president, won this year's Best Student Article Competition for his paper, "Testing of a Laterally Stable Eccentrically Braced Frame for Steel Bridge Piers." As the winner, Jeff made a presentation on his research at the 2005 Annual Meeting. Following his presentation, MCEER Director Michel Bruneau and Education Director S. Thevanayagam thanked Jeff for his dedication and contributions as a two-term president of MCEER's Student Leadership Council with an inscribed desk clock and pen set. Jeff is also featured in this issue's Student Spotlight on page 5.



Jeffrey Berman (C), University at Buffalo, receives his award from MCEER's Director Michel Bruneau (R) and Education Director S. Thevanayagam (L).

Upon turning the leadership reins over to new SLC President Mike Pollino, Jeff reflected, "I'd like to thank all the SLC members who helped me during my three years as chair. We have maintained and even accelerated the ambitious activities of the SLC. It is a meaningful and worthwhile organization that brings together the future leaders from many disciplines within the earthquake and hazard mitigation field. I would also like to thank the Director, Deputy Director, and Education Director of MCEER for their encouragement and support of the SLC. They are educators in the truest sense of the word and genuinely care about delivering to the students the tools they need to succeed. Additionally, the support that the SLC has received from all the MCEER staff and the investigators has been outstanding and is crucial if the SLC is to continue to function at a high level. I look forward to working with SLC members in different capacities as we embark on our careers, and I am certain I will cross paths with many of them again. Finally, I would thank the new SLC Chair, Mike Pollino. It is not an easy task to lead an organization that is this active while keeping up with the research that will lead to graduation, but I know Mike will not only handle it, but excel at it."

This year, 11 students competed for the Best Student Article award. Jeff's was selected as the winner by a panel of judges, comprising distinguished members of MCEER's Industry Advisory Board (IAB). Honorable mentions were awarded to Anita Jacobson, Cornell University and Michael Astrella, University at Buffalo. The papers are included in the 2003-2004 *Student Research Accomplishments*, available from: <http://mceer.buffalo.edu/publications/resacom/04-sp06/default.asp>.



MCEER Establishes Electrical Utility Consortium

The newly established MCEER-Electrical Utility Consortium (EUC) was created in response to the needs of electrical utilities and focuses specifically on the seismic behavior of electrical substation equipment. The EUC was established through collaboration with and matching funds from the Electrical Power Research Institute (EPRI), which regroups electrical utilities in North

America (US, Canada and Mexico). The Consortium is investigating unresolved issues related to the IEEE-693 Standard on *Recommended Practice for Seismic Design of Substations*.

Research work is being carried out at the University at Buffalo by MCEER investigators Andrei Reinhorn, Andre Filiatrault and Ph.D. student Dohwan Kong. The research focuses on shake table testing of large and potentially vulnerable substation equipment such as transformer bushings and disconnect switches. Testing of three electrical 230 kV disconnect switches has been completed to date, and more tests are planned in the near future. Also, shake table testing of a 500kV bushings is planned for Fall 2005.

A technical oversight committee, chaired by Dr. Anshel Schiff from Precision Measurement Instruments, sets overall strategy, goals and schedule for the



MCEER Investigator Andrei Reinhorn and EUC Oversight Committee Chair Anshel Schiff discuss EUC projects.

EUC research program. The committee is composed of one representative from each participating utility. Dr. Schiff is well recognized for his expertise on the seismic qualification of electrical substation equipment.

230 kV 3-phase disconnect switch being tested on the shake table at the University at Buffalo.



MCEER Delivers Seminar to OSHPD Engineers

MCEER investigators delivered a one-day seminar, *Hospital Research and Retrofit Seminar*, to over 60 engineers and decision makers primarily from the California Office of Statewide Health Planning and Development (OSHPD) in Sacramento, California. Held on February 24 as part of the activities leading up to the 2005 MCEER Annual Meeting, the seminar provided a unique opportunity for 16 MCEER researchers to transfer new knowledge on socio-economic and public policy issues, and new technologies on struc-

tural and nonstructural engineering. Many of these new technologies have reached the implementation phase and hold promise for the future.

The seminar was held at the invitation of OSHPD, a vital partner in MCEER's hospital research thrust area. It is the first of several major activities planned for years 8 to 10 of the current NSF-EERC program aimed at transferring the technology and know-how developed at MCEER in the last 10 years.



OSHPD's Manager of the California Hospital Seismic Retrofit Program, Chris Tokas, addresses over 60 attendees at the Hospital Research & Retrofit Seminar.

MCEER welcomes WorkSafe Technologies,



a worldwide leader in the nonstructural seismic mitigation industry, to its Strategic Partnerships Network. With a focus on seismic protection for business, WorkSafe Technologies' innovations, including the ISO-Base™ seismic isolation platform, which is designed to protect mission-critical and expensive electronic equipment, have been well received in seismic regions throughout the world, including the U.S., Canada, Japan, New Zealand, Taiwan, Turkey and Mexico. Expansion plans for Western Europe, Central and South America, and Southeast Asia are slated for the near future.

For more information on MCEER's Strategic Partnerships Network, contact Don Goralski at (716) 645-3391, ext. 108 or goralski@mceermail.buffalo.edu.

MCEER SLC Members Participate in 2005 EERI Annual Meeting

The 2005 EERI Annual Meeting was held in Ixtapa, Mexico on February 2-6, 2005. The theme was "20 Years After Mexico City."

Three MCEER SLC representatives attended the meeting. They were Michael Astrella and Michael Pollino (SLC Chair) of the University at Buffalo, and Marlon Hill (SLC Vice-Chair) of Florida A&M University.

Informal meetings between MCEER, MAE and PEER SLC members were held during the conference to discuss collaborative activities between the three centers. The other representatives were Nick Burdette and Ryan Hopeman from MAE, and Ana Lang from PEER. The primary activity discussed was the Undergraduate Seismic Design Competition. MCEER held their competition at UB the previous weekend (see page 6) and sent its first place team to the Tri-Center competition, held April 30, 2005 at the University of California, Berkeley and hosted by PEER. Other topics included the 2005 Tri-Center Field Mission and future meetings via video conferencing.

A student poster session was held on February 4th. Each of the MCEER students presented a poster on their research. Michael Astrella's poster was titled "The Performance-Based Design Paradigm," Michael Pollino's was titled "Seismic Retrofit of Bridge Steel Truss Piers Using a Controlled Rocking Approach," and Marlon Hill's was titled "Determination of Natural Frequencies and Mode Shapes of Multi-Degree of Freedom Structures." Michael Pollino also presented a poster on the University at Buffalo's EERI Student Chapter.



MCEER SLC members Michael Pollino (L) and Michael Astrella (C), University at Buffalo, and Marlon Hill (R), Florida A&M University, presented posters at EERI's Annual Meeting.

A banquet on Friday night featured Mexican Folkloric Dancers and a reception on Saturday night included Mariachi music.

—Submitted by Michael Pollino, University at Buffalo

Student Spotlight



Jeffrey Berman is a Ph.D. candidate in the Department of Civil, Structural and Environmental Engineering at the University at Buffalo. Under the supervision of MCEER Director Michel Bruneau, Jeff is working on a project entitled "Seismic Retrofit Strategies for Steel Truss Bridge Piers." His research area is the seismic retrofit of bridges with metallic damping devices, and he is also interested in blast resistant steel design and general structural engineering.

Jeff's interest in earthquake engineering began early in his graduate studies. "The first project I worked on was 'the seismic retrofit of hospitals with steel plate shear walls,' which piqued my interest in seismic hazard mitigation and earthquake engineering," he explains. He also credits the fact that he did his undergraduate work at UB, and asked Michel Bruneau to be his advisor when he began work on his master's degree.

After graduating in either Fall 2005 or Spring 2006, Jeff hopes to obtain a faculty position. If he doesn't find a position in academia, he plans to work in industry for a few years, and then return to teaching. While studying for his Ph.D., Jeff served as president of the MCEER Student Leadership Council from 2003 to 2005.

In July 2004, Jeff married his girlfriend of nine years, fifth-grade teacher Lisa Burdo, in their shared hometown of Plattsburgh, New York. Jeff and Lisa enjoy seeing live music, spending time outdoors (especially in the summer), relaxing with friends, and reading good books.

Florida Team Wins First MCEER Undergraduate Seismic Design Competition

Five teams of undergraduate students converged in Buffalo on January 29 to put their structures to the test during MCEER's first annual *Seismic Design Competition for Undergraduates*.

The Florida A&M University team was the winner, with a 9 point lead over the second place team from the University of Nevada Reno. The other three teams were from the City College of New York, New Jersey Institute of Technology and the University at Buffalo.

Judged by MCEER's Deputy Director Andre Filiatrault (University of Buffalo), Diversity Director Makola Abdullah (Florida A&M University) and Education Director S. Thevanayagam (University at Buffalo), criteria included economics, performance, workmanship, construction cost, and technical presentation.

The competition began in September 2004, when the teams formally began the planning, design and construction of their own 15 story balsa wood model of an office building. Guided by faculty and SLC members, the undergraduates were introduced to the basic concepts of structural dynamics, seismic protection systems, and structural analysis and design.

Members of the University of Nevada-Reno team prepare their model for testing.



The winning team from Florida A&M University. From left: Zaneta Adme, MCEER Diversity Director Makola Abdullah, Karla Villarreal, Wally Barnawi, Andrea Smith, Marlon Hill and Andrea Jones, Team Captain.

The buildings they constructed showcased some truly inventive and carefully designed structural systems. Four of the five teams used base isolation systems constructed out of tennis balls in combination with springs, marbles and soda can bottoms, sliding lubricated plates, and rubber band systems with sliding surfaces. The one fixed base structure used walls and a cantilevered floor system to maximize open floor space. Competition rules, photographs of the buildings, videos, and performance plots under the ground motions, as well as results for all judging categories can be found on the SLC website at <http://mceer.buffalo.edu/slc>.

The Florida A&M University (FAMU) team received its award during a banquet in the evening at the University Inn. Dr. Abdullah provided an inspirational talk encouraging the undergraduates to reach for the sky and consider graduate school.

The FAMU team traveled to Berkeley, California on April 30 to compete in the Tri-Center competition against teams from PEER and MAE. The team placed second, and a complete review of the event will appear in the next issue of the *Bulletin*.

MCEER would like to thank all the undergraduates who participated; their enthusiasm was contagious and really carried the day. MCEER would also like to thank the SLC members and faculty who assisted the undergraduates in their designs and the technical staff from the Structural Engineering and Earthquake Simulation Laboratory (SEESL) at the University at Buffalo for conducting the shake table tests of the structures. This was a worthwhile endeavor that certainly laid the groundwork for future competitions in the coming years.

-Submitted by Jeffrey Berman,
University at Buffalo

Recent Events

January 1, 2005 – April 30, 2005

MCEER Annual Meeting

February 25-26, 2005
Sacramento, CA

MCEER-OSHPD Hospital Research & Retrofit Seminar

February 24, 2005
Sacramento, CA

UB-MCEER Quake and Shake

February 14, 2005
Buffalo, NY

MCEER Undergraduate Seismic Design Competition

January 29, 2005
Buffalo, NY

2005 UB MCEER Quake and Shake

On February 14, 2005, twenty-four third-graders from Sheridan Hill Elementary School in Clarence, New York participated in the 2005 UB-MCEER Quake & Shake. At the event, the students tested popsicle-stick structures they had built according to earthquake design principles on the shake table in the Structural Engineering and Seismic Simulation Laboratory (SEESL) at the University at Buffalo.

Prior to the event, MCEER Deputy Director Andre Filiatrault made a presentation to the class on earthquake design and provided pointers on how to build the structures, which were required to support a masonry brick at a height of 12" above a wood base. The students were then divided into five teams and given three weeks to build their structures using only 150 popsicle sticks, a bottle of Elmer's glue and a roll of dental floss.

The *Quake and Shake* began in a classroom in Ketter Hall, where each team gave a presentation explaining how they built their structures. The event then moved to the laboratory, where the students watched as their structures were shaken on the shake table under simulated ground motions from the El



Each student in Miss Fox's third grade class at Sheridan Hill Elementary School received a certificate declaring him or her an "honorary structural engineer."

Centro, Kobe and Northridge historical earthquakes. The structures were then subjected to the designed "UB-Rumble," a long and strong series of ground motions, until they all collapsed.

After the famous "UB Rumble," all structures were declared

"earthquake proof," and each student received a certificate naming him or her an "honorary structural engineer." More information is available at <http://mceer.buffalo.edu/education/k-12/05QuakeandShake/default.asp>. The event was broadcast on the local CBS-affiliate station, WIVB-TV in Buffalo, New York.

Four MCEER SLC Members Participate in Tri-Center Field Mission to Greece

Michael Pollino and Daniel Fenz of the University at Buffalo, Swagata Banerjee of the University of California at Irvine and Marlon Hill of Florida A&M University have been selected to participate in the 2005 *Post-Earthquake Reconnaissance EERC Field Mission Fellowship Program*, which will take place in Greece. The participants will visit various earthquake engineering testing facilities and universities and will also engage in a hands-on field assessment exercise. The trip will begin in New York City, with a departure for Athens on July 5, and a return on July 13.

The MCEER SLC members will join their peers from the Mid-America Earthquake Center and the Pacific Earthquake Engineering Research Center on the trip, which will be led by Dr. Reginald DesRoches from the MAE Center.

Participants will collaborate on a final group report and submit a presentation after they return. Past Field Missions have been held in Japan (2004), Italy (2003), and Taiwan (2002). More information about the program, which is sponsored by the three National Science Foundation Earthquake Engineering Research Centers, including MCEER Bulletin articles and web-cast seminars of past trips, can be found online at <http://mceer.buffalo.edu/education/tricenter/default.asp>.

Students watch as their structures are subjected to simulated earthquake ground motions; the structure shown (inset) is buckling after the "UB Rumble."



MCEER Movers & Shakers

David Parisi joins MCEER as a Senior Programmer Analyst, where he



David Parisi

oversees the Center's computing network, which includes administration of several large servers and complex websites. He is responsible for hardware and software purchases and training, recommending solutions to improve productivity, maintaining Center-wide databases, programming, and providing technical support both in-house and during special events. Prior to joining MCEER, he led projects in programming, web development, and systems analysis at Copeland Data Systems. He received both his Master's and Bachelor's degrees from the University at Buffalo, and received an Outstanding Service Award from the Vice President for Student Affairs. David is a Microsoft Certified Professional (MCP) and enjoys film and travel.

Joy James joins MCEER as an Administrative



Joy James

Assistant and word processing expert. Before joining the MCEER team, she was involved in many office activities, such as purchasing, internal auditing, documentation and process improvement at Delphi Thermal and Interior. She has also worked for several Buffalo-area defense contractors. Joy holds an AAS degree in Science from Erie Community College. She is married and has two sons, one attending UB.

Thomas D. O'Rourke, Thomas R. Briggs Professor of Engineering in the School of Civil and Environmental Engineering at Cornell University and long time MCEER investigator, received the prestigious Ralph B. Peck Award from the American Society of Civil Engineers (ASCE). The award is given annually to a geotechnical engineer selected for outstanding contributions to the profession through the analysis and publication of case histories. Tom delivered the Peck Lecture, entitled "Lessons Learned for Ground Movements and Soil Stabilization on the Boston Central Artery" at the ASCE Geo-Institute's *Geo-Frontiers Congress 2005*, held in Austin, Texas on January 23-26, 2005. Tom also delivered a keynote address at the *13th World Conference for Earthquake Engineering (13WCEE)* entitled "Advances in Lifeline Earthquake Engineering," which was largely based on the work he conducted as co-leader of MCEER's research in the lifelines area.



Thomas O'Rourke

Terri R. Norton, Ph.D. candidate from Florida A&M University and MCEER SLC member, was awarded the Graduate Student Leadership Award at the *19th Annual Black Engineer of the Year Awards Conference*, held February 17-19, 2005. This distinguished award honors innovators who exhibit a strong commitment to engineering expertise, leadership, and managerial panache. The award also acknowledges individuals for their contributions as role models and mentors working to expand the minority presence in technology enterprise and engineering. Terri also received the Graduate Student of the Year Golden Torch Award by the National Society of Black Engineers. She was honored at the Golden Torch Awards ceremony on March 24, 2005.



Terri Norton

Sofia Tangalos was promoted to MCEER Senior Program Officer for Education/Outreach Activities and Information Service. In her new position, Sofia will coordinate MCEER's educational activities, as well as manage the Information Service. She is working directly with Education Director S. Thevanayagam and Diversity Director Makola Abdullah to further MCEER's initiatives in these areas. Another main activity will be to expand the current library collection to include literature on multiple hazards to support research on extreme events. Sofia was previously a Program Officer for a U.S.A.I.D.-funded international education project through the African America Institute in New York. She has traveled extensively, and has taught English in Indonesia and Greece. She received her MLS degree from the University at Buffalo in 2003, and her B.A. in French Literature from Bryn Mawr College.



Sofia Tangalos

MCEER said a fond farewell as two of its staff members, **Carolyn Baumet** and **Barbara McManus**, retired. Carolyn, an Administrative Assistant for the Highway project, retired after 14 years with MCEER. She plans to travel and spend time with family. Barb, Senior Programmer Analyst since 1997, will be working as a volunteer for Prader-Willi USA, a national organization that supports children with this disability.



The MCEER administrative team celebrates the contributions of its two retirees during the holiday season.

MCEER Movers & Shakers

George C. Lee Receives Award for International Education



George Lee

MCEER's George C. Lee received an award for his "Outstanding Contribution to International Education" from the University at Buffalo (UB) on April 29, 2005. This university-wide award honors a faculty or staff member who has made exceptional contributions to international education.

Throughout his long career at UB, Dr. Lee has championed a wide variety of international educational programs. His efforts have helped shape many of today's leaders in the field of earthquake engineering.

Among his most important contributions are the cooperative research programs he developed as director of MCEER/NCEER with other centers throughout the world, most notably in Japan, Korea, India, Taiwan and China. These include the US-PRC Research Exchange Program in Earthquake Engineering, the US-Taiwan Cooperative Demonstration Project and development of the National Center for Research on Earthquake Engineering, and the US-Japan Cooperative Project between NCEER and INCEDE, University of Tokyo.

As Dean of the School of Engineering and Applied Science (SEAS), George worked with Dr. Stephen Dunnnett, Vice Provost for International Education, to develop the first US-PRC Scholarly Exchange Program in the U.S., which was founded in 1980 and continues today. They also established UB's first overseas branch campus program in Kuala Lumpur, Malaysia in the late 1980's.

Many of the students who participated in these programs now hold responsible government positions and/or are researchers and professors at prominent universities throughout the world.

Currently, Dr. Lee is continuing his international educational activities by serving as president of the Asian-Pacific Network of Centers in Earthquake Engineering Research (ANCER), a consortium comprising eleven centers. He is also developing a new program that will pair young U.S. researchers with their counterparts in China to develop joint research activities, with a particular emphasis on multi-hazard protection of buildings and infrastructure systems.

MCEER Announces New IAB Executive Committee Appointments



Ellis Stanley

MCEER is pleased to announce a number of changes among the leadership of the Industry Advisory Board (IAB) Executive Committee. These include the appointment of a new Chair, Ellis Stanley; Vice-Chair, Andy Taylor; and three new members, Sreenivas Alampalli, Scott Campbell and R. Jay Love. Ellis Stanley, General Manager of the Los Angeles Emergency Preparedness Department, was previously Vice-Chair and Andy Taylor of KPFF, has served on the Executive Committee since the IAB's inception in 2002.



Andy Taylor

Sreenivas Alampalli of the New York State Department of Transportation will serve as the committee's highway thrust representative. Scott Campbell of Kinetics Noise Control and R. Jay Love of Degenkolb Engineers will serve as members at-large. The three join continuing members Jeremy Isenberg of Weidlinger Associates and Glenn Singley of LADWP, who represent the lifelines thrust and Chris Tokas of OSHPD, who along with Andy Taylor, represent the hospitals thrust. Ellis Stanley represents interests in MCEER's emergency response and recovery research, ensuring that each of the Center's four main thrust areas—seismic evaluation and retrofit of lifelines; seismic retrofit of hospitals; earthquake response and recovery; and seismic design and retrofit of highways—have a practitioner voice in the strategic direction of research, education and outreach initiatives.



Gary Hart

Gary Hart of the Hart-Weidlinger Division of Weidlinger Associates, the IAB's inaugural chair, steps down after three years of service. MCEER thanks him for his outstanding commitment and leadership in the IAB's initial years of development.

New MCEER Information Service Research Guides Online

Two research guides appropriate for general audiences (and with links for K-12 students) are available on the MCEER Information Service's web page (<http://mceer.buffalo.edu/info-service/>) — follow the "Research Guides" link, listed under "Reference Services"). These guides - *Use the Internet to Learn More About Earthquakes* and *Use the Internet to Learn More About Engineering* – are the latest in a series of Research Guides created by the Information Service for use by visitors to our site.

Newly updated Guides (with recently added content) include the *Guide to Selected Web Sites for Earthquake Education*, the *Guide to Selected Bridge Engineering Web Sites*, and *World Trade Center and Pentagon Attacks of 9/11/2001: Selected Resources*, a bibliography rich with information on the 9/11 attacks from engineering and disaster management perspectives. In addition, our popular *Guide to U.S. & International Seismic Codes* is available for anyone interested in obtaining seismic code specifications for the U.S. and many foreign countries.

Longtime users of the Information Service may also wish to familiarize themselves with our newly updated Fee Schedule and Lending Policy (found at the Information Service web page address listed above, under "General"). Several modifications have been made in these policies as a result of the changing needs of our users.

New Technical Reports

Evaluation of Accuracy of Simplified Methods of Analysis and Design of Buildings with Damping Systems for Near-Fault and for Soft-Soil Seismic Motions

by E.A. Pavlou and M.C. Constantinou, 8/16/04, MCEER-04-0008, 124 pages, \$25.00

This report assesses the validity of the simplified methods of analysis and design of buildings with damping systems specified in FEMA's National Earthquake Hazard Reduction Program (NEHRP) *Recommended Provisions for Seismic Regulations for New Buildings and Other Structures* issued in 2000 and updated for 2003, and the upcoming ASCE-7 Standard for 2005 when the effects of near-field and soft-soil ground motions are taken into account. The procedures outlined in these documents are largely based on studies that excluded these effects. To determine their impact, both single- and multiple-degree-of-freedom structures with linear and nonlinear viscous damping devices were studied using two sets of near-field ground motions and one set of soft-soil ground motions.

The study found that the damping coefficient values are accurate or conservative; the ductility demand for near-field and soft-soil motions are very similar to those previously observed for far-field motions; simplified methods of analysis for single-degree-of-freedom systems produce results on displacement and acceleration that are generally of acceptable accuracy or conservative for near-field or soft-soil motions and are very similar to that previously observed for far-field motions; and their application to steel moment frames with linear and nonlinear viscous damping systems provided conservative estimates of drift and predictions for damper forces and member actions in good overall agreement with the average of results of nonlinear response-history analysis.



Assessment of Geotechnical Issues in Acute Care Facilities in California

by M. Lew, T.D. O'Rourke, R. Dobry and M. Koch, 9/15/04, MCEER-04-0009, 142 pages, \$25.00

This report summarizes the findings from an evaluation of geotechnical reports submitted as part of the compliance reports required by Senate Bill 1953 (SB 1953) for all hospitals in California. The geotechnical reports from 153 of the 470 licensed hospitals in California were reviewed with the cooperation of the California Office of Statewide Health Planning and Development (OSHPD). Review of this data indicates that less than half of the hospital buildings in California in 2001 were considered to be structurally compliant with the requirements of SB 1953. Almost 40 % were determined to be at significant risk for structural collapse and a danger to public safety in the event of a strong earthquake. Over 70 % had basic nonstructural systems essential to life safety and patient care that were inadequately anchored to resist earthquake forces. The survey of the geotechnical evaluations indicated that about 20 % of the hospital sites had a potential for liquefaction based on the SB 1953 design ground motions.

Scissor-Jack-Damper Energy Dissipation System

by A.N. Sigaher-Boyle and M.C. Constantinou, 12/1/04, MCEER-04-0010, 260 pages, \$35.00

This report describes an energy dissipation system configuration that extends the utility of fluid viscous damping devices to structural systems that are characterized by small interstory drifts and velocities. The geometry of the brace and damper assembly is such that the system resembles a jacking mechanism, and thus the name "scissor-jack-damper energy dissipation system" is adopted. The system is a variant of the toggle-brace-damper system, and offers the advantage of a more compact configuration. A theoretical treatment of the scissor-jack-damper system is presented and its effectiveness is demonstrated through testing of a large-scale steel framed model structure under imposed harmonic displacement on the strong floor, as well as dynamic excitations on the earthquake simulator. Experiments demonstrate that despite its small size, the scissor-jack system provides a significant amount of damping while also substantially reducing the seismic response of the tested structure. Application of the system in a new building in Cyprus is described.

Remote Sensing Technologies Applied Following South Asian Tsunami

MCEER Response: Post-Tsunami Urban Damage Survey in Thailand Using the VIEWS® Reconnaissance System describes the efforts of a post-tsunami field campaign undertaken in Thailand following the Sumatra earthquake and subsequent tsunami of December 26, 2004. Thailand was chosen by the multilateral reconnaissance team, which included MCEER researcher Shubharoop Ghosh of ImageCat, based on its condition--media reports suggested destruction at multiple tourist locations, more than 5,300 deaths and more than \$500 million (USD) damage to the nation's shrimp industry—and based on a preliminary assessment of potential casualties in the region by ImageCat, using remote sensing data. The report is available at <http://mceer.buffalo.edu/research/tsunami/default.asp>.

**To Order
MCEER
Publications**

Phone:
(716) 645-3391
ext. 105

Fax:
(716) 645-3399

Web:
<http://mceer.buffalo.edu/publications/default.asp>

E-mail:
mceer@mceermail.buffalo.edu

Seismic Retrofit of Bridge Steel Truss Piers Using a Controlled Rocking Approach

by M. Pollino and M. Bruneau, 12/20/04, MCEER-04-0011, 246 pages, \$35.00

The research presented in this report investigates a seismic retrofit technique for steel truss bridge piers that allows pier rocking by using passive energy dissipation devices implemented at the anchorage locations to control the rocking response. Specially detailed hysteretic energy dissipating elements (buckling-restrained braces) are used to act as easily replaceable, ductile structural "fuses." The dynamic characteristics of the controlled rocking/energy dissipation system are investigated in order to formulate a capacity design procedure using simplified methods of analysis. Design constraints are established that attempt to satisfy performance objectives and nonlinear time history analyses are used to assess the seismic behavior of the bridge piers retrofitted per this strategy. The retrofit strategy is shown to be more applicable to slender piers. The methods of predicting key response values were found to be conservative in most cases and capacity protection of the existing pier (to the prescribed limits) was achieved in all cases considered.

Experimental & Analytical Studies of Structures Seismically Isolated with an Uplift-Restraint Isolation System

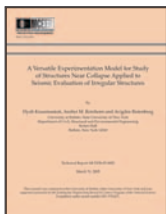
by P.C. Roussis and M. C. Constantinou, 1/10/05, MCEER-05-0001, 160 pages, \$30.00

This report describes the development of a novel uplift-prevention Friction Pendulum isolator called the XY-FP. It presents the principles of operation and mathematical model of the XP-FP isolator, describes its mechanical behavior through testing of a single isolator, and demonstrates its effectiveness through testing of a quarter-scale steel-frame model structure. The computer program 3D-BASIS-ME was modified to include an element representative of the mechanical behavior of the new XY-FP isolator, and the validity and accuracy of analytical methods to predict its behavior is assessed. The study shows that the XY-FP isolator provides effective uplift prevention regardless of the state of displacement in the bearing, allows for decoupling of the bi-directional horizontal motion along two orthogonal directions, and has the capability to provide distinct stiffness and energy dissipation along the principal directions of the bearing. In addition, by encompassing much less structural material, the isolator offers a lighter and more economical alternative to the standard Friction Pendulum bearing.

A Versatile Experimentation Model for Study of Structures Near Collapse Applied to Seismic Evaluation of Irregular Structures

by D. Kusumastuti, A.M. Reinhorn and A. Rutenberg, 3/31/05, MCEER-05-0002, 280 pages, \$35.00

This report presents a study of irregular structures near collapse and the development of an experimental model to study many types of structural systems in the near collapse state. Many analytical studies have been carried out to evaluate irregular structures, but few experimental works have been done on this subject. This study provides an overview of the accuracy of the analytical methods in predicting the structural response. Equally important in this research was the design of a structural model for study of structural systems near collapse. A versatile reconfigurable structural model was developed to be used and reused with structures undergoing severe damage to sacrificial elements, thus capable of being repaired and further tested without complete collapse. The study shows that a separation of lateral and gravity load resisting systems can produce a stable structure in case of major damage to lateral system, provided that redundancy exists to control lateral deformations. Such a system can be implemented when retrofitting structures, by weakening the connections of gravity columns and providing a redundant external lateral load resisting system.



Publications Order Form			
Name _____	Publication # _____	Authors _____	Price _____
Address _____			
City/State/Zip _____			
Country _____			
Telephone _____ Fax _____		Shipping Total _____	
Shipping Options <input type="checkbox"/> Media Mail (Book rate) - U.S. (no additional charge) <input type="checkbox"/> Priority - U.S. (add \$3.95 per title) <input type="checkbox"/> Global Economy (surface, international, add \$8 per title) <input type="checkbox"/> Global Priority to Canada or Mexico (add \$7 per title) <input type="checkbox"/> Global Priority - All Other International (add \$9 per title)		For Credit Card Orders: Name on credit card _____ Card number _____ Expiration date _____ Card type (circle one) VISA Mastercard American Express Signature _____	
Use this form to order technical reports, monographs and other publications from MCEER.			

Call for Papers

100th Anniversary Earthquake Conference Commemorating the 1906 San Francisco Earthquake

The *100th Anniversary Earthquake Conference* will be held in San Francisco, California, April 18-22, 2006, under the theme "Managing Risk in Earthquake Country," to commemorate the 1906 San Francisco earthquake. The conference will bring together EERI's *8th U.S. National Conference on Earthquake Engineering (8NCEE)*, the *Centennial Annual Meeting* of the Seismological Society of America (SSA) and the annual *Disaster Resistant California (DRC) Conference* of the California Governor's Office of Emergency Services to celebrate a century of accomplishment in earth science, earthquake engineering and emergency management. The program will feature joint multidisciplinary plenary sessions, technical sessions, seminars, poster sessions, exhibits and field trips, and the three technical programs will be fully coordinated throughout the four days to optimize program content.



Abstract submissions will be accepted online for all three events, each of which has its own deadline and requirements as follows:

- 8NCEE: June 1, 2005
- DRC: October 15, 2005
- SSA: January 15, 2006

Guidelines and detailed instructions for all three events are available on the conference home page at <http://www.1906eqconf.org>.

Published by

Multidisciplinary Center for Earthquake Engineering Research
University at Buffalo, State University of New York
Red Jacket Quadrangle
Buffalo, NY 14261

Phone: (716) 645-3391
Fax: (716) 645-3399
E-mail: mceer@mceermail.buffalo.edu

Website: <http://mceer.buffalo.edu>

ISSN 1520-2933

Staff

Editor: Jane Stoyale

Illustration/Photography: Hector Velasco

Layout/Composition: Michelle Zuppa

Some of the material reported herein is based upon work supported in whole or in part by the Earthquake Engineering Research Centers Program of the National Science Foundation (under award number EEC-9701471), the State of New York, the Federal Highway Administration of the U.S. Department of Transportation, the Federal Emergency Management Agency and other sponsors. Any opinions, findings, conclusions or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of MCEER or its sponsors.



University at Buffalo *The State University of New York*



A National Center of Excellence in Advanced Technology Applications

University at Buffalo
State University of New York
Red Jacket Quadrangle
Buffalo, NY 14261

NON-PROFIT
U.S. POSTAGE
PAID
Buffalo, NY
Permit No. 311

Change Service Requested

Please check the appropriate box below, correct the label and return to MCEER
 Add name to list Correct address Take name off list