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our mission

The mission of the CEE Department is threefold:

- Provide a high quality, challenging education that encompasses breadth and depth; and prepare graduates to be proficient in both analysis and synthesis aspects of civil engineering design

- Maintain a strong research program that is recognized for excellence in major areas of civil and environmental engineering

- Provide service to the University, the civil engineering profession, and the community at large
This report highlights the accomplishments of the faculty, staff, and students of the department of Civil and Environmental Engineering at the University of Maryland during the fiscal years 2010 and 2011.

In fall 2009, Mr. Charles E. Wagner, one of the Clark School’s distinguished alumni endowed a professorship with his generous gift in honor of Professor Deborah Goodings, the Founding Faculty Advisor of the University of Maryland Engineers without Borders who left the University of Maryland to assume a department chair position at George Mason University. The “Deborah J. Goodings” Professorship in Engineering for Global sustainability is established to help outstanding faculty who are active in Engineers without Borders succeed in their careers.

Another important event during this period was the recognition of Dr. Allen Davis as the recipient of the 2009 A. James Clark School Outstanding Faculty Research Award. Dr. Davis was recognized for his work on bioretention. He did the first fundamental research on nature-based bioretention in the late 1990s and has become the international expert on bioretention and related natural stormwater management technologies.

During this period Dr. Charles Schwartz was promoted to the rank of Professor in fall 2010 and Dr. Deborah Goodings retired from active service and joined the rank of emeritus professors. Dr. Krista Rule Wigginton joined the department as an Assistant Professor of environmental engineering in January 2010. Also
FIGURE 1: CEE ENROLLMENT

FIGURE 2: CEE UNDERGRADUATE ENROLLMENT
during this period Dr. Eric Seagren left the department to pursue other interests. There were several turnovers in the administrative staff as well. Ms. Brenda Brooks, Ms. JoAnn Maxim, Ms. Gloria Spindler and Mr. David Lewis left the Department. Mr. Otto Gonzales and Mr. Christopher M. Jones joined the department as the IT Coordinator and Accounting Associate respectively, and Ms. Charity McGee, Ms. N’kola Morris and Ms. Stephanie Peters were promoted to higher positions within the department.

On the educational front, our undergraduate and graduate programs are continuing to do well. The enrollment in our undergraduate and graduate programs increased again in the years covered by this report and in fall 2010 they were about 430 and 220 respectively. The department initiated a new graduate program in Civil Systems Engineering and a new batch of students were admitted to this program for spring 2012.

The faculty have been very active and have garnered many recognitions that are highlighted in other parts of the report. Most notable among these are Professor Aydilek’s ASCE Walter Huber Research Prize and Professor Davis’s Clark School Outstanding Research Award. Our students have been extremely active also. Our student chapter of Engineers without Borders, under the guidance of their faculty advisor, Dr. David Lovell, continues to be extremely active and their outstanding work has brought them recognition and awards.

Figures 1, 2, and 3 show the Department’s enrollment trends from Fall 2002 to Fall 2010. The total undergraduate enrollment and the number of female students have increased substantially in the past two years. The number of minority students has also increased slightly.
The graduate student enrollment has also increased in the past two years. This increase is in all student populations, male, female and minority.

The profile of the department’s undergraduate and graduate student populations are given in Figures 4 and 5. It should be also noted that the percentage of foreign students enrolled in our graduate programs continues to decline while the total enrollment has increased. This indicates that our efforts in recruiting more domestic students have been fruitful.

The average 25 and 75 percentile SAT scores for the freshman class were 1300 and 1360 for the class entering in fall 2010. The quality of enrolled graduate students has remained steadily high. The trend in average GRE scores of graduate students who are enrolled in our graduate programs is shown in Figure 6. The trends in the percentage of applicants who were admitted to our graduate programs and the percentage of those who were admitted and who subsequently enrolled are shown in Figure 7. We continue to have a strong pool of applicants and we are competing with very high quality programs in recruiting these students.
The increase in undergraduate enrollment is reflected in the number of undergraduate degrees the department is granting (Figure 8). The number of undergraduate degrees granted has markedly increased since FY 2008, while the total number of graduate degrees awarded as well as the number of PhD degrees granted has decreased. Given the increase in graduate enrollment, we believe that this situation will be reversed in the next couple of years.

Members of our faculty have been very active in research front as well. A number of major research awards were received by our faculty. Most notably are Dr. Fu and Professor Y. Zhang’s $2.67 million research grant from U.S. Department of Transportation Research and Innovative Technology Administration and Drs. Ball and Lovell’s NEXTOR II contract from federal Aviation Administration.

The new research awards to the department in fiscal years 2010 and 2011 were $28,108,705 and $16,273,411 respectively. Notable among these are new funding for CapWIN and the I-95 Corridor Coalition program, new funding for the Center for Integrated Transportation System Management and new federal and state funding for Drs. Fu, Y. Zhang, Davis and G.L. Chang.

The department total research expenditure in the two year period covered by this report was over $44.5 million. The trends in department’s overall research expenditure and the research expenditure per faculty Full-Time Equivalent (FTE) during the period 2002 through 2009 are shown in Figures 9 and 10 (next page). Both of these Figures are testimonies to the extremely productive and vibrant research activities of the department.

The faculty members have also been extremely active in disseminating the results of their research through publications in archival journals, conference proceedings and research reports as
well as talks and presentations in seminars, professional conferences and symposia. This report gives a complete list of the faculty’s scholarly activities during fiscal years 2010 and 2011 as well as a detailed account of the ongoing projects in this period. The faculty, staff, and students have received many awards and recognitions during the period covered in this report. The report also highlights these and other accomplishments of our faculty, staff and students.

It has been another productive two years for the Department and I hope you enjoy reading about the details of our accomplishments in the pages that follow.
CHAPTER 2

Faculty and Staff

Professors
Sherif Aggour
Amde M. Amde
Bilal Ayyub
Gregory Beacher
Gang-Len Chang
Allen Davis
Deborah Goodings
Ali Haghani (Chairman)
Oliver Hao
Richard McCuen
Paul Schonfeld
Miroslaw Skibniewski

Associate Professors
Mark Austin
Ahmet Aydilek
Kaye Brubaker
Peter Chang
Steven Gabriel
Dimitrios Goulias
David Lovell
Elise Miller-Hooks
Eric Seagren
Yunfeng Zhang

Assistant Professors
Cinzia Cirillo
Qingbing Cui
Lei Zhang

Affiliate Professors
Kelly Clifton
Jacques S. Gansler
Bruce Golden
Mehdi Kalantari Khandani
Eugenia Kalnay
Matthias Ruth

Emeritus Faculty
Francis B. Birkner
James Colville
Bruce Donaldson
Robert Ragan
David Schelling
Yaron Sternberg
Donald Vannoy
Matthew Wittczak
Deborah Goodings

Adjunct Faculty
Russell E. Anderson
Thomas Barham
Kathryn Britton
Jorgomai Ceesay
Mehmet Y. Corapcioglu
Brian Crocetti
Adrienne Keane
Stacy M. Langsdale
James C. Myers
Sam Negahban
Kenneth O’Connell
Thomas J. Powell
Randolph Sibold
Angela Schedel
John Schedel
Neil R. Schulman
Steven Shapiro
C. Chris Smith
Shahabeddin Toobaie
Jimmie West
Alaa Zeitoun

**CEE Staff**
- Janet Alessandri
- Elyse Beaulieu
- Alfred Bituin
- Brenda Brooks
- Otto Gonzalez
- Masoud Hamedi
- Christopher Jones
- Sangeeta Kaul
- Jo Ann Maxim
- Charity McGee
- N’Kola Morris
- Stephanie Peters
- Al Santos
- Lisa Schuetz
- Gloria Spindler

**BEST Center**
- Chauling Fu
- Chung Fu
- Patricia Johnson
- I-Cheng Lin

**CATT**
- Richard Dye
- Thomas Jacobs
- Carly Keane
- Maritza Montelara
- Oscar Morales
- Jennie Prevots
- Stanley E. Young
- Michael Pasziewicz

**CATT Lab**
- Jason Ellison
- Nikola Ivanov
- Michal Pack
- Philip Weisberg

**CITE**
- Kathleen Franklin
- Dorothy Parnian
- Denise Twisdale
- Abigail Kress
- Michael Kress

**MD T² Center**
- Ellen Neale
- Janette Prince
- Ed Stellfox

**Traffic Safety and Operations Lab**
- Gang-Len Chang
- Nan Zou
- Shangjian Zhu

**MD Water Resources Research Center**
- Allen Davis
- Philip Kearny
- Kaye Brubaker

**CapWIN**
- John Binks
- Wanda Byrd
- David M. Fontaine
- William Henry
- Ian McEwan
- Rodrigo Moscoso
- Andrew Mushio
- Ramin Nafisi
- Marvin Thomas

**CNIS**
- Stuart Milner
- Christopher Davis

**CITSM**
- Phil Tarnoff
- Ali Haghani
- Mike Pasziewicz
- Fulbright Scholar
- Aurangzeb Khan
- Research Faculty
- John Cable
- Chung Fun
- Gerry Galloway
- Ed Link
- Stuart Milner

**CVISEN**
- Manoj Pansare

**CTSM**
- Bilal Ayyub
- Andrew N. Blair
- Mark Kiminiskiy

**CvSn**
- Mike Paszkiewicz
- Fulbright Scholar
DRS. CHUNG FU AND YUNFENG ZHANG
AWARDED $2.67 MILLION RESEARCH
PROJECT BY RITA

A joint research team led by two structural engineering professors – Drs. Chung C. Fu and Yunfeng Zhang at the Department of Civil and Environmental Engineering of the University of Maryland (UMD) has recently been awarded a research project with a total budget worth $2.67 million dollars. The project team members also include the North Carolina State University (NCSU) and URS Corporation, a giant engineering company. The US Department of Transportation’s Research and Innovative Technology Administration (RITA), under The Commercial Remote Sensing and Spatial Information (CRS&SI) Technologies Program, provides $1.15 million under a cooperative agreement, and the rest comes from matching supports from the Maryland Transportation Authority (MdTA), Maryland State Highway Administration (MSHA), North Carolina Department of Transportation (NCDOT), as well as cost sharing by UMD and NCSU.

The project aims to develop a smart bridge condition monitoring system termed ISHM system, which features a number of technology innovations, including remote sensing capability, piezo paint acoustic emission sensors, wind and solar based energy harvesting devices to power sensor network, high-speed wireless sensing ability and advanced data analysis methods for remaining life estimation of aging bridges. With many bridges plagued with fatigue cracking problems, the current system will be focused on fatigue condition assessment of highway steel bridges with a potential for monitoring other types of structural damages, such as corrosion. The proposed system will integrate recent advancements in civil, aerospace, and electrical disciplines to develop a transformational system that will have high-rewards in reducing the operating and maintenance costs by providing an accurate quantification of damage and degradation at an early stage.

After validation and characterization tests performed at the UMD’s Structures Lab, the ISHM system will be implemented on bridges at Maryland and North Carolina for field demonstration. If successful, this system will be deployed to more bridges in other states. One of the primary goals for the RITA funded project is to commercialize the developed sensor technology. The project team is also looking at possible technology transfer opportunities to commercialize the developed technology by partnering with UMD’s business incubator programs. Through successful advancement and commercialization in the state-of-the-art technology of remote infrastructure sensing, the ISHM system is promising to reduce life cycle costs while significantly maintaining the sustainability of the highway infrastructures in the US.

EWB PROJECT HELPS IMPROVE IRRIGATION IN PERU

Engineers Without Borders (EWB) recently implemented an irrigation project in Compone, Peru. On June 1st a team of 7 undergraduate students, a faculty advisor, and a professional mentor traveled to the Andean community of Compone to help construct improvements to the community’s main irrigation channel.

Compone is a community of about 1200, who rely mainly on subsistence agriculture to provide for themselves. An assessment of their irrigation network in August 2010 showed evidence of losses of water greater than 200,000 liters per day through the bottom of the main channel alone. With water being the source of their livelihood, conservation has become a priority.
Over the fall 2010 and spring 2011 semesters students worked with faculty and professionals to design and test a low-cost soil-cement lining and more efficient water diversion structures for Compone’s main irrigation channel. With the implementation, students were able to see the impact of their hard efforts. The team used only local materials and tools to help the community construct 30 meters of the 1.3km channel, empowering Compone with the technical knowledge and experience to expand the soil-cement to the remainder of the irrigation network.

Future work in Compone will focus on bringing the community access to potable water.

**Dr. David Lovell Honored by Philip Merrill Scholar**

Kathleen Hendrick, a mechanical engineering rising senior, has been chosen as a 2011-2012 Philip Merrill Presidential Scholar. She named Professor David Lovell as the faculty mentor who has made the most impact on her academic achievement.

Professor Lovell will be honored at a special workshop, hosted by the Center for Teaching Excellence, in November 2011.

Hendrick met Lovell during her freshman year through Engineers Without Borders. She says, “He has taught me more about engineering than any textbook could…most importantly: how to think like an engineer.”

She adds, “There is no other person you want with you when traveling to a developing country to construct an engineering project.”

She hopes other students are inspired to get involved with EWB. “Working alongside other students and the professional engineering mentors is an exciting collaborative experience that can’t always be found in the classroom.”

**FAA Approves NEXTOR II Research Contract**

The University of Maryland is the lead institution for an eight-university consortium forming NEXTOR II, a research program focused on aviation operations research. The new seven-year contract with the Federal Aviation Administration (FAA) will extend and expand the work of the original National Center of Excellence for Aviation Operations Research (NEXTOR). Research expenditures could total as much as $60 million over the length of the contract.

Since NEXTOR’s inception in 1996, the Clark School’s Institute for Systems Research (ISR) has been the home for Maryland NEXTOR researchers. ISR is a leader in cross-disciplinary research involving complex systems, and NEXTOR has been an important component of its research program. ISR professors Michael Ball (ISR/Robert H. Smith School of Business) and David Lovell (ISR/CEE) lead the Maryland NEXTOR II team.

The original NEXTOR program was one of the five Centers of Excellence created by the FAA to lead the aviation community in advancing new ideas and paradigms for aviation operations, educating and training aviation professionals, and promoting knowledge transfer among industry, government and academic leaders.

NEXTOR has carried out a broad research program encompassing a wide range of topics of vital interest to the FAA and the airline industry. NEXTOR looks to develop an understanding of how National Airspace System (NAS) service providers and users will respond to alternative system architectures, operational concepts, investment strategies and finance mechanisms. The knowledge and capabilities gained from this government-sponsored research program provide critical information to executives and senior government officials on a host of issues ranging from near-term investment choices to long-term strategies.

NEXTOR research also addresses the development of new system architectures and operational concepts and related decision support models and tools. Some of its research results have been incorporated into FAA systems and have led to improved NAS performance.

Over the years, NEXTOR research has had a substantial impact on aviation practice, through its use in decision support tools, operational and system concepts, and policy making. Through their long association with the FAA, NEXTOR team members have come to understand the problems of today’s air transportation system at a fundamental level and have gained the trust of a broad range of FAA program managers.

At the University of Maryland, NEXTOR has drawn on faculty from a broad range of disciplines, including: transportation engineering, systems engineering, electrical and computer engineering, operations research, economics, transportation economics, and statistics. The research focus at Maryland has primarily involved applying operations research and optimization methods to solve problems in air traffic flow management.

In addition to the University of Maryland, NEXTOR II members include George Mason University; the Massachusetts Institute of Technology; the University of California, Berkeley; the Virginia Polytechnic Institute and State University; the Georgia Institute of Technology; the Ohio State University; and Purdue University.

These eight core members are being joined by five affiliates that expand involvement to a more diverse group of faculty and students: Embry Riddle, Morgan State University, San Jose State University, University of South Florida and University of Colorado.
The Center for Integrated Transportation Systems Management (CITSM) of the Department of Civil and Environmental Engineering at the University of Maryland organized a one-day demonstration/exhibition of prominent university transportation products that are developed with US DOT sponsorship, in partnership with the DOT’s Research and Innovative Technology Administration (RITA). This event was held on April 6, 2011, in the DOT Headquarters building in Washington, D.C. The purpose of this event was to highlight the accomplishments and show the impact of DOT’s college- and university-based research and education programs. In addition, this event highlighted the transfer of technology from the university transportation programs in use at various federal, state and local agencies.

The original idea for this event was conceived during the RITA Administrator, Mr. Appel’s visit to CITSM in July 2010. The permission from RITA to organize this event was granted in late December and the original announcement for the event was sent via e-mail on January 12, 2011. A planning meeting was held in the annual TRB meeting in which several of University Transportation Center directors participated. The solicitation for the abstracts of the research to be showcased in this event was sent out on January 31st, 2011. Despite the short notice and the short time window for submission, 57 high quality abstracts were received.

Despite the desire to accommodate all abstracts that were submitted, because of the limited space some tough choices had to be made and therefore, the abstracts were sent for external review. The reviews were double blind and each abstract was reviewed by 3 reviewers.

The evaluation criteria included:
• Quality and intellectual merit of the research;
• Significance of contribution to the state-of-the-art and practice;
• National relevance and potential for national use;
• Observed or potential impact, and,
• Relevance to the DOT strategic research directions and research priority areas.

Following the review process, 27 abstracts were selected for presentation in this event. Researchers representing 25 different universities, Federal Highway Administration and Federal Aviation Administration, attended the event and showcased some of the outstanding and high impact research that is sponsored by the US Department of Transportation. Six of the projects that were presented in the poster session were also selected for podium sessions in which the researchers shared their experiences in bringing their research to practice. Two of the CITSM projects led by Drs. Mehdi Kalantari Khandani and Gang Len Chang were selected for presentation in this event. Dr. Chang’s project was also presented in one of the podium sessions.

The event started by a welcoming address from Mr. Peter Appel who introduced Mr. John Porcari, Deputy Secretary of Transportation, State of Maryland’s former Secretary of Transportation, and former University of Maryland Vice President for Administration. Following Mr. Porcari’s remarks, Mr. Greg Nadeau, Deputy Administrator, Federal Highway Administration spoke and then Dr. Ali Haghani, Chairman of the Department of Civil and Environmental Engineering and the Director of CITSM welcomed the event participants who were university program directors, faculty/staff, involved students, US DOT personnel, state DOT personnel, and other interested parties. This event was open to the media.

ALUMNUS ELECTED PRESIDENT OF ASCE MARYLAND CHAPTER
Frank Kaul, a senior associate/senior structural engineer from Dewberry’s Baltimore office, has been elected president of the American Society of Civil Engineers’ Maryland chapter. Mr. Kaul has been active in the ASCE chapter since graduating from the University of Maryland, College Park in 1988 and has held a number of positions within the organization, including serving on the hospitality committee, program chair, newsletter editor, board member, treasurer, and vice president.

DR. AHMET AYDILEK RECEIVES THE ASCE WALTER HUBER RESEARCH PRIZE
Dr. Ahmet Aydilek was selected as the 2011 recipient of the prestigious ASCE Walter Huber Civil Engineering Research Prize for his contributions to the area of sustainable geotechnical infrastructure design, microbiological soil improvement, and image-based geomaterial characterization.

The Huber Prize is considered the highest level mid-career research prize in civil engineering, and awarded to members of the American Society of Civil Engineers (ASCE) for notable achievements in research related to all areas of civil engineering.

Previous recipients of this award include faculty members from leading engineering programs, including MIT, UC-Berkeley, UT-Austin, Georgia Tech, University of Illinois, and Cambridge.

DR. ALLEN DAVIS NAMED A DIPLOMATE BY AAWRE
Allen P. Davis was recently named a Diplomate, Water Resources Engineer (D.WRE) of the American Academy of Water Resources Engineers (AAWRE), a subsidiary of the American Society of Civil Engineers (ASCE). In support of AAWRE’s mission in ‘Elevating level of Standards’ – to broaden and deepen the body of knowledge for practicing
engineers, AAWRE’s certification was developed to improve the practice, elevate the standards and advance the profession of water resources engineers. The D.WRE represents strong professional ethics and a commitment to life-long learning and continuing professional development. Since the start of AAWRE’s Diplomate, Water Resources Engineer (D.WRE) program, 500 water resources engineers worldwide have qualified for the Diplomate, Water Resources Engineer credential.

**MILITARY ENGINEERS HONOR CIVIL STUDENTS**

Three civil students have received scholarships from the Washington, D.C., post of the Society of American Military Engineers (SAME). The awardees are:

**Erin Strittmatter** – 2010 Recipient of the 4th Annual Murphy Tuomey Scholarship Award. She is the vice president of the FLEXUS program within Women in Engineering at the Clark School. Additionally, she is a student member of the American Society for Civil Engineers (ASCE) and of SAME.

**Melanie Wong** - Recipient 2010 Annual SAME Scholarship Award. Wong is president of the student chapter of ASCE and the director of outreach for the student chapter of the Society of Women Engineers. Additionally, she is involved in the University of Maryland Gemstone Research Program.

**Peter Soprano** - Recipient 2010 Annual SAME Scholarship Award. He is an active member of ASCE and has participated in the Army ROTC program at the University of Maryland. SAME is a professional society of Engineers, Architects and Environmental professionals. It is one of the oldest and most respected in the nation. It maintains the highest standards of professionalism, fosters exchange of ideas, and encourages team work between military and civilian design professionals.

**GRADUATE STUDENT WOON KIM WINS ITSWC OUTSTANDING PAPER AWARD**

The study on “Development of a Hybrid Model for Predicting Freeway Incident Duration,” by Woon Kim and her advisor, Professor G.L. Chang, has received the Outstanding Paper Award for 17th Intelligent Transportation Systems (ITS) World Congress. Woon Kim, who is a Ph. D candidate, attended the conference and received the award on October 29th, 2010 in Busan, Korea. ITS World Congress is the most well recognized ITS organization, and has the best quality among all ITS related conferences. Its annual conference is rotated between US, Europe, and Asia.

**DR. ALLEN DAVIS RECOGNIZED FOR OUTSTANDING RESEARCH**

Civil and Environmental Engineering professor Allen P. Davis was the recipient of the 2009 Outstanding Faculty Research Award from the Clark School. Davis was recognized for his work on bioretention. He did the first fundamental research on nature-based bioretention in the late 1990s and has become the international expert on bioretention and related natural stormwater management technologies.

“His recent studies into novel areas of urban stormwater management and quality improvement are setting engineering design and performance standards for use worldwide,” said Clark School Dean Darryll Pines.

Davis focuses on the sources and characteristics of pollutants in urban and highway stormwater runoff and on the evaluation of bioretention for managing runoff flows and reducing pollutant levels.

Davis received his B.S. in agricultural engineering, and his M.S. and Ph.D. degrees in environmental engineering, from the University of Delaware.

The Faculty Outstanding Research Award is an important Clark School tradition, an annual honor (now in its ninth year) that celebrates exceptionally strong and influential research by faculty members at the full professor rank.

**DR. ALI HAGHANI INVITED TO PRESENT KEYNOTE SPEECHES IN CHINA**

Dr. Ali Haghani, professor and Chairman of the Department of Civil and Environmental Engineering was invited to give a keynote speech in the Seventh International Conference on Traffic & Transportation Studies (ICTTS 2010) and the 10th International Conference of Chinese Transportation Professionals (ICCTP 2010).

The ICTTS Conference was held from August 3 through August 5 in Kunming, China, and the ICCTP was held from August 4-8 in Beijing, China.

Professor Haghani was also invited by the Institute of Transportation Engineering, Tsinghua University, and the Department of Traffic Engineering, Beijing Jiatong University to give lectures in these institutions and engage in discussions aimed at establishing professional collaborations between these institutions and the Department of Civil and Environmental Engineering at the University of Maryland.

**DR. ALLEN DAVIS AWARDED GRANT BY PRINCE GEORGE’S COUNTY GOVT.**

Technological advances developed by University of Maryland researchers, including Allen P. Davis, a CEE professor, promise significant reductions in urban runoff polluting the Anacostia watershed and the Chesapeake Bay. The researchers say their work represents the next generation of “low impact development” technologies.

In the laboratory, the researchers have dramatically improved the removal of phosphorous, nitrogen and other prime urban pollutants from runoff. To achieve these results, they’ve re-engineered bioretention projects, also known as rain gardens - special
strips of greenery that capture and filter storm runoff before it enters the watershed. Now, in partnership with the Prince George’s County Government, the researchers will demonstrate the effectiveness of their new approaches by improving the capture and treatment of university campus runoff that would eventually end up in Chesapeake Bay waters.

“Runoff from urban development represents a growing source of pollution to the Chesapeake watershed, and we believe we can help curb this,” says Davis, the lead researcher on the project. “Our technologies offer major improvements, and could one day be used by housing developments or businesses to reduce their environmental footprint.”

With a new grant from the National Fish and Wildlife Foundation and the Prince George’s County Government totaling nearly $600,000, Davis’s team will conduct a three-part demonstration project near parking lots at the university’s Comcast Center. The project is designed to reduce phosphorus, nitrogen, sediment and the volume of runoff from the university into the Anacostia watershed, one of the rivers feeding the Chesapeake Bay. “The university already is recognized as one of the greenest in the nation, and with this project, we’ll be able to reduce our environmental impact even further,” says Davis.

**DR. GANG-LEN CHANG AWARDED $1MILLION BY MSHA**

Dr. Gang-Len Chang’s “An Applied Technology and Traffic Analysis Program (ATTAP)” program recently got an extension, and an award of $1 million, by the Maryland State Highway Administration (MSHA). Over the past five years, joint efforts between MSHA and Dr. Chang’s Traffic Safety Lab have made MSHA the nationwide leading institute on both fundamental research and field implementation of various unconventional intersections. ATTAP program’s focus is to develop design guidelines and evaluation procedures for unconventional intersections – an increasingly popular new design strategy to minimize the local arterial bottlenecks. This latest award will support the lab by further advancing research on this vital subject.

**BIO-FILTRATION SYSTEM PROMISES LESS CHESAPEAKE POLLUTION**

Technological advances developed by University of Maryland researchers promise significant reductions in urban runoff polluting the Anacostia watershed and the Chesapeake Bay. The researchers say their work represents the next generation of “low impact development” technologies.

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“The university already is recognized as one of the greenest in the nation, and with this project, we’ll be able to reduce our environmental impact even further,” says Davis.

The campus is current on all stormwater and other environmental permits and this project is not part of any legally mandated cleanup efforts.

“Success in this project will have enormous impact for continued retrofit and new designs for reductions in nitrogen, phosphorus, sediment, and runoff volume to the Chesapeake Bay,” says the project proposal.

**How It Works:** Over the past two decades, bioretention technologies have been used in the Chesapeake Bay watershed with some success. Runoff from parking areas is directed into a carefully engineered, yet natural, sponge-like layer of greenery that slows the onrush of rain water and helps remove a suite of pollutants.

“A matter of minutes or hours can make all the difference in the quality of the rain water that empties into a creek,” Davis explains. “Detaining the runoff gives us the margin of time needed to filter it and remove critical pollutants.”

Where the current technology has fallen short is in the removal of phosphorous and nitrogen. These pollutants “remain the top concerns for the Chesapeake Bay,” their proposal says, especially in urban areas.

To achieve enhanced phosphorous and nitrogen removal and to conserve rain
water for useful purposes, the project involves the following parts:

**Enhanced Bioretention For Phosphorous Removal:** Existing projects will be retrofit and new bioretention strips constructed. These natural soil and vegetation strips, roughly 50 by 10 feet, work like a sponge, capturing and delaying runoff after rain showers. An added layer of a special powdered aluminum hydroxide will help strip phosphorus from the runoff. The engineers predict very low phosphorous discharge levels.

**Nitrogen Neutral Parking Lot:** A permeable, porous concrete campus parking area will be constructed for enhanced nitrogen removal. Rain water will collect and drain through this area into a submerged basin where natural, passive denitrification can take place. The sand or gravel basin will contain a carbon source, such as mulch or shredded newspaper. Piping will keep the tank full of water, creating anoxic conditions. The combination of anoxic conditions and carbon will trigger denitrification. The engineers predict a 75 percent improvement in nitrogen removal.

**Water Conservation:** Treated runoff from bioretention strips will be collected by a solar sump pump and cistern. The collected runoff will be used for campus irrigation, preventing runoff discharge and concurrently reducing potable water use. Zero runoff and zero pollutant discharge is the goal.

The researchers will work to maximize the effectiveness of these technological advances over the next two or three years.

**UM Environmental Impact:** The 2008 University Strategic Plan firmly establishes sustainability as part of the mission of the institution and sets the goal for the university to be “a national model for a Green University.” Researchers across campus are applying cutting edge technologies to environmental problems of all scales. Environmental management and ecology of the Chesapeake Bay remains an important research and educational focus.

“This is the second large grant issued to Dr. Davis in which he will work with campus units to install advanced stormwater control technology that will both benefit his research and improve the quality and quantity of stormwater that flows from the campus,” says Scott Lupin, who directs the university’s Office of Sustainability. “These are very important issues for us. This project was endorsed by the University Sustainability Council, which will focus on furthering campus water and stormwater policies and goals during the next academic year.”

In addition to research, many staff and administrators are working hard to green their departments by reducing material consumption, increasing recycling rates, reducing energy use, and encouraging other responsible behaviors, Lupin adds.

**DR. ED LINK AWARDED PRESTIGIOUS GOLD DE FLEURY MEDAL**

The Department of Civil and Environmental Engineering’s Dr. Ed Link was recently honored for his service by the U.S. Army Engineer Association and Regiment. This is the highest honor given by the Regiment, and is awarded to only one individual each year. Dr. Link is a senior research professor with the department and the Project Management program. Dr. Link is also the Director of Interagency Performance Evaluation Task Force (IPET).

**Medal Description:** On the obverse of the medal is the Latin inscription meaning: “A MEMORIAL AND REWARD FOR COURAGE AND BOLDNESS”. In the center appears the image of a helmeted soldier standing amidst the ruins of a fort, holding in his right hand an unsheathed sword, and in his left the staff of the enemy’s flag, which he tramples underfoot.

On the reverse, again in Latin: “FORTIFICATIONS, MARSHES, ENEMIES OVERCOME”. In the center the fortress at Stony Point is depicted with both turrets and a flag flying. At the base of the hill are two shore batteries, one of which is firing at one of six vessels on the Hudson River. Beneath the fort is the legend: “STONY POINT CARRIED BY STORM, JULY 15, 1779”.

**CEE LAUNCHES A NEW GRADUATE PROGRAM IN CIVIL SYSTEMS**

The Civil and Environmental Engineering department launched a new graduate program in Civil Systems. This interdisciplinary program started to accept applications for M.S. and Ph.D. for Spring 2011 (on-campus) and Fall 2011 (on-line and on-campus). The focus of the program is to study a variety of systems such as energy, transportation, evacuation, and sensor-based ones and their interactions. This approach necessarily involves a holistic view of the system under consideration and will involve an interesting mixture of engineering principles and other disciplines.

**ENGINEERS WITHOUT BORDERS RECOGNIZED BY NCEES**

The Department of Civil and Environmental Engineering’s Engineers Without Borders program was recently honored by the National Council of Examiners for Engineering and Surveying (NCEES). While the University of Delaware won the $25,000 grand prize, Univ. of Maryland was one of five $7,500 winners. The other co-winners in this category were California Polytechnic State University, San Luis Obispo, California State University, Los Angeles, Clemson University, University of New Mexico.

The award was presented on the University’s College Park campus on April 27 by Skip Harclerode, P.E., Chairman of the Maryland PE board and an alumnus of the university.
CEE HOSTS JOHN J. KIRLIN RESEARCH REVIEW DAY

The Department of Civil and Environmental Engineering hosted the John J. Kirlin Research Review Day on May 4th, 2010. Student poster displays, research demonstrations, and lab visitations were held, as well as, a “Distinguished Lecture” by Dr. G. Wayne Clough (Secretary, Smithsonian Institute) was presented. The poster displays and research demonstrations were held in the rotunda of the Kim Engineering Building. All Civil and Environmental Engineering laboratories in the Kim Building and the Engineering Laboratory Building were open for visitation.

DR. DAVID LOVELL NAMED “ENGINEERS WITHOUT BORDERS” ADVISOR

David Lovell, associate professor in the Department of Civil and Environmental Engineering (CEE) and the Institute for Systems Research (ISR), will be the new faculty advisor of the Clark School’s chapter of Engineers Without Borders (EWB).

“I am pleased that Dr. Lovell has accepted this role mentoring our students,” said Clark School Dean Darryll Pines, “EWB is a highly regarded service organization and our chapter is considered one of the nation’s best.”

Lovell joined the Clark School in 1997. He earned a B.A. degree in mathematics from Portland State University, and M.S. and Ph.D. degrees in civil engineering from the University of California, Berkeley. He is a combat veteran of the United States Marine Corps. Lovell’s primary research area is transportation engineering. He has conducted projects for the National Science Foundation, the National Aeronautics and Space Administration, the Federal Aviation Administration and many other organizations.

Having taught undergraduate and graduate courses in transportation engineering, structural mechanics, computing and numerical analysis, engineering design, simulation, and statistics, Lovell is currently teaching an “I”-series course on engineering in the developing world, and he is scheduled to teach another “I”-series course beginning in the fall of 2010 on the history of technological innovation in the transportation industry. Lovell teaches components of the review courses for the Fundamentals of Engineering exam and the Professional Engineering exam. He also teaches a regular summer course to high school seniors on engineering design.

Chair of ISR’s Educational Program Committee, Lovell also has served as faculty mentor to two Gemstone teams, three Quest teams and three teams from the student chapter of EWB. He has supervised EWB projects in Burkina Faso, Ethiopia, and the Pine Ridge Indian Reservation in South Dakota. He is a former faculty advisor to the student chapter of the American Society of Civil Engineers. He is the 2008-2009 recipient of the Faculty Service Award in the CEE department.

Lovell replaces Deborah Goodings as chapter advisor. Goodings is now chair of the Department of Civil and Environmental Engineering at George Mason University.

DR. G.L. CHANG’S TEAM DEMON-STRATES NEW VARIABLE SPEED CONTROL SYSTEM IN MARYLAND

The research team led by Dr. Gang-lun Chang demonstrated a travel-time estimation and variable speed control system on the segment Between MD100 and US29 for mitigating day-o-day recurrent congestion. The entire control system consisted of 4-image cameras for license plate recognition, 4-radar sensors for flow measurement, and 4 variable message signs for displaying estimated travel time and the suggested optimal speed. The research team collected both field data and driver responses during the one-month demonstration period for effectiveness evaluation. This project was sponsored by Maryland State Highway Administration.

SEC. H. CLINTON NAMES DR. GERRY GALLOWAY A SENIOR ECPA FELLOW

Civil and Environmental Engineering department’s Dr. Gerry Galloway was recently named a Senior ECPA Fellow to the Americas by Secretary of State Hillary Clinton. Galloway, a research professor (Civil Engineering/Project Management), and a Glenn L. Martin Institute Professor of Engineering, was only one of three scientists named by Clinton to this post.

ALUM’S GIFT HONORS INSPIRATIONAL PROFESSOR

A gift of $625,000 by Charles E. Waggner (B.S. ’54, chemical engineering) was established the Deborah J. Goodings Professorship in Engineering for Global Sustainability. The professorship is to provide annual support for a salary supplement, programming and research for a professor (to be named) in the Clark School’s Department of Civil and Environmental Engineering.

Waggner, a successful engineer with a long career in the petrochemical field, was inspired by former Clark School professor Deborah Goodings and her leadership of the University of Maryland chapter of Engineers Without Borders (EWB). Waggner is a member of the Clark School’s Board of Visitors—through which he became aware of Goodings and EWB—and provided funds to support a EWB regional conference here in 2008. He also established, with his wife Joan, the Charles E. and Joan M. Waggner Endowed Scholarship Fund in 1999.

“In addition to honoring Deborah Goodings, this important professorship reflects Chuck Waggner’s commitment to the Clark School and its students, to the service mission of Engineers Without Borders and to sustainable
development,” said Clark School Dean Darryll Pines.

Goodings joined the Clark School faculty in 1981. She was a professor of civil and environmental engineering, served as the EWB faculty advisor and was a co-director of the university’s Master of Engineering and Public Policy program. She departed the Clark School this summer to chair the civil engineering department at George Mason University in Northern Virginia.

EWB provides real-life experiences in which students build engineering projects and help developing communities. Under Goodings’s guidance the university’s EWB chapter sent groups of students to various locations in Asia, South American and Africa to bring sustainable energy, sanitary and water solutions to developing areas in those regions.

One of the chapter’s current projects is in Dissin, Burkina Faso, West Africa. In January, a student team will travel there to install a pumping system currently being designed and tested on the College Park campus.

This is not the chapter’s first work in Burkina Faso.

Earlier this year, students from the EWB chapter worked on a project much closer to home, building a bioretention facility in Edmonston, Md., to help prevent rainwater runoff and pollution in the Anacostia River (press release online).

CATT LAB RECEIVES $1.3 MILLION URBAN AREA SECURITY INITIATIVE GRANT FROM DHS

The Center for Advanced Transportation Technology Laboratory (CATT Lab), under the direction of Michael L. Pack, received a $1.3 Million Urban Area Security Initiative (UASI) grant, which was awarded by the Department of Homeland Security. This project aims to strengthen information sharing and collaboration capabilities within the national capital region by expanding upon the existing Regional Integrated Transportation Information System (RITIS). Local traffic management centers and transit agencies from Fairfax County, Prince George’s County, and Montgomery County will be integrated with RITIS. RITIS currently fuses and disseminates freeway traffic, incident, and weather information from the Virginia Department of Transportation, the Maryland Department of Transportation, the District of Columbia Department of Transportation, the Washington Metropolitan Area Transit Authority and the Capital Wireless Information Net.

This integration effort led by the CATT Lab will include the addition of real-time signal system data, transit data, and incident data. RITIS will also incorporate data from select computer aided dispatch systems, which will help facilitate greater situational awareness, coordination and improve response time. Non-sensitive data will eventually become available to 511 systems and the media. As a result of this collaboration, the public will ultimately experience an increase in mobility during both normal operating conditions and during emergency or evacuations.

TRAFFIC SAFETY AND OPERATIONS LAB AWARDED $1.23 MILLION BY MSHA/ FHWA

Department of Civil and Environmental Engineering’s Traffic Safety and Operations Lab was awarded a research project of $1.23 Million from MSHA/ FHWA. The lab, headed by Dr. G. L. Chang, received the award for design and implementation of a real-time traffic monitoring and travel time prediction system for Ocean City, MD.

The entire project includes operating 40 radar sensors in the Eastern Shore region, developing algorithms for optimizing signal controls in the regional highway networks, providing predicted travel times based on detected traffic conditions, and monitoring evacuation traffic flows during major or emergency events such as hurricane attacks.
CHAPTER 4

Faculty & Staff Honors

2010 HONORS AND AWARDS

SHERIF AGGOUR
Department of Civil and Environmental Engineering’s Faculty Service Award

AHMET AYDILEK
Department of Civil and Environmental Engineering Faculty Teaching Award Honoree, 3rd Annual University-wide Celebration of Scholarship and Research, Univ. of Maryland

BILAL AYYUB
Certificate of Gratitude for Active, Impartial and Significant Contribution as an International Evaluator, Georgia National Science Foundation, Tbilisi, Georgia

GANG-LEN CHANG
Outstanding Paper award at the 17th Intelligent Transportation Systems World Congress in Busan, Korea

ALLEN DAVIS
A. James Clark School of Engineering’s Faculty Outstanding Research Award, recognizing exceptionally influential research accomplishments related to urban storm water quality, its management, and the concept of Low Impact Development

DIMITRIOS GOLIUS
Department of Civil and Environmental Engineering’s Faculty Service Award

DAVID LOVELL
Best Paper Award, 4th International Symposium on Highway Geometric Design, Valencia, Spain

RICHARD MCCUEN
Department of Civil and Environmental Engineering’s Faculty Service Award

CHARITY MCGEE
Department of Civil and Environmental Engineering’s Staff Service Award

RAHUL NAIR
Best Doctoral Research Presentation awarded by the Transportation Network Modeling Committee, annual meeting of the TRB

SHANJIANG ZHU
John S. Adams Award for Excellence in Transportation Research and Education, the Center for Transportation Studies, University of Minnesota
2009 HONORS AND AWARDS

SHERIF AGGOUR
Department of Civil and Environmental Engineering Faculty Teaching Award

AHMET AYDILEK
Arthur M. Wellington Prize, American Society of Civil Engineers

BILAL AYYUB
The American Society of Mechanical Engineers, certificate of recognition, awarded on the historic occasion of ASME Codes and Standards 125th anniversary for dedicated voluntary service

ASME Safety Engineering and Risk Analysis Division (SERAD), Honorable Recognition Award in testimony of the high regard of associates and the deep appreciation of the society for valued service

PETER CHANG
Department of Civil and Environmental Engineering’s Faculty Service Award

DIMITRIOS GOULIAS
Department of Civil and Environmental Engineering’s Faculty Service Award

DAVID LOVELL
Department of Civil and Environmental Engineering’s Faculty Service Award

RICHARD MCCUEN
Department of Civil and Environmental Engineering’s Faculty Teaching Award

NIKKI MORRIS
Department of Civil and Environmental Engineering’s Staff Service Award

MICHAEL PACK
Greg Harrington Award for Outstanding Research in Transportation Visualization

LISA SCHUETZ
Department of Civil and Environmental Engineering’s Staff Service Award

MIROSLAW SKIBNIEWSKI
Doctor honoris causa (honorary doctorate) from Vilnius Gediminas Technical University

MICHAEL VANDANIKER
Greg Harrington Award for Transportation Research Board for Excellence in Visualization Research

HONG ZHENG:
2009 Outstanding Graduate Student Award, awarded by College of Engineering, University of Arizona
CHAPTER 5

Student Honors/Scholarships

- **Bora Cetin**  
  Maryland Water Resources Research Center Summer Fellowship [Ahmet Aydilek]

- **Woon Kim**  
  Outstanding Paper Award for the 17th ITS World Congress in Busan, Korea, 2010 [G.L. Chang]

- **Michael Maness**  
  Dwight Eisenhower Transportation Fellowship [Cinzia Cirillo]

- **Renting Xu**  
  Women’s Transport. Engineer award–D.C. chapter [C. Cirillo]

- **Pratt Hetrakul**  
  I-95 Corridor Coalition Fellowship [Cinzia Cirillo]

- **Ruud Egging**  

- **Andy Blohm (and Joanna Mauer)**  

- **Sauleh Siddiqui**  

- **Jeremy Eckhause**  

- **Hakob Avetisyan (and Sauleh Siddiqui, Ruud Egging):**  

- **Masoud Hamedi**  
  presented a paper in the 17th ITS World Congress, Busan, Korea [Ali Haghani]

  presented a paper in the 89th annual meeting of the Transportation Research Board and published a paper in the *Transportation Research Record* [Ali Haghani]

- **Wenxin Qiao**  
  presented a paper in the 89th annual meeting of the Transportation Research Board and published a paper in the *Transportation Research Record* [Ali Haghani]

- **Mindy Liu**  
  presented a paper in the 89th annual meeting of the Transportation Research Board and published a paper in the *Transportation Research Record* [Ali Haghani]

- **Kaveh Farokhi Sadabadi**  
  presented a paper in the 89th annual meeting of the Transportation Research Board and published a paper in the *Transportation Research Record* [Ali Haghani]
• Abbas Mohassel Afshar
  presented a paper in the 89th annual meeting of the Transportation Research Board [Ali Haghani]

• Sahabeddin Toobaie
  presented a paper in the 89th annual meeting of the Transportation Research Board [Ali Haghani]

• Rafael Olarte
  presented a paper in the 89th annual meeting of the Transportation Research Board [Ali Haghani]

• Rafael Olarte
  won I-95 Corridor Coalition Fellowship [Ali Haghani]

• Keivan Ghoseiri
  presented a paper at the 2010 INFORMS conference [Ali Haghani]

• Masoud Hamedi
  presented a paper in the 2010 INFORMS conference [Ali Haghani]

• Hadi Sadrsadat
  presented a paper in the 2010 INFORMS conference [Ali Haghani]

• Abbas Afshar
  presented a paper in the 2010 INFORMS conference [Ali Haghani]

• Taehyeong Kim
  presented a paper in the 2010 INFORMS conference [Ali Haghani]

• Kaveh Farokhi Sadabadi
  presented a paper in the 2010 INFORMS conference [Ali Haghani]

• Mona Asudegl
  presented a paper in the 2010 INFORMS conference [Ali Haghani]

• Wenxin Qiao
  presented two papers in the 2010 INFORMS conference [Ali Haghani]

• Wenxin Qiao
  won I-95 Corridor Coalition Fellowship [Ali Haghani]

• Kaveh Farokhi Sadabadi
  presented a paper in the NATMEC conference [Ali Haghani]

• Masoud Hamedi
  presented a paper in the NATMEC conference [Ali Haghani]

• Abbas Mohassel Afshar
  presented a paper in the Health and Humanitarian Logistics conference [Ali Haghani]

• Rahul Nair
  won Best Dissertation presentation from the TRB Transportation Network Modeling Committee [Elise Miller-Hooks]

• Frank Chen
  won I-95 Corridor Coalition scholarship; submitted 3 journal papers of which one is already accepted; presented 2 papers at TRB conference [Paul Schonfeld]

• Nikola Markovic
  submitted two journal paper of which one is already accepted [Paul Schonfeld]

• Ying Luo (Assoc. Prof., Univ. of Chongqing)
  submitted two journal papers of which one is already accepted [Paul Schonfeld]

• Vivian Yang
  submitted several journal papers and had one published [Paul Schonfeld]

• Kang, Min Wook
  submitted two journal papers and had one published [Paul Schonfeld]

• Sadaf Khosravifar
  scholarship from Maryland Asphalt Association [Charles Schwartz]

• Gabriela Nino De Guzman
  Best MS Thesis Award [Torrents, Alba]

• Various Students
  students presented/published 11 papers [Lei Zhang]

• Mike Mercado
  won first prize in undergraduate poster contest, CEE Department Research Day, University of Maryland

• Asok Ghosh
  selected as both the “Veterans Affairs Headquarters Engineer of the Year” and the “Overall VA Engineer of the Year” [Amde Amde]

• Nicolas McMorris
  paper published [Amde Amde]

• Rabih Najib
  paper accepted [Amde Amde]
• Katherine Gaulke  
  paper submitted [Amde Amde]

• Andreas Paraschos  
  paper submitted [Amde Amde]

• Cintia Lijeron  
  paper published [Amde Amde]

• Dr. Naji Al-Mutairi  
  appointed Director General of Kuwait Institute for Scientific Research [Bilal Ayyub]

• Woon Kim  
  Women’s Transportation Engineer Award–D.C. Chapter [Gang-Len Chang]

• Jifang Zhuang and Rudolf G. Egging  

• Jeremy M. Eckhouse  

• Rudolf G. Egging  

• Prawat Sahakij and Sirapong Vilalai  

• Jifang Zhuang and Rudolf G. Egging  

• Yohan Shim  

• Kaveh F. Sadabadi  
  two papers accepted for presentation in the 89th annual meeting of the Transportation Research Board [Ali Haghani]
  won I-95 Corridor Coalition Fellowship [Ali Haghani]
  paper presented at the Joint CORS-INFORMS international meeting, Toronto, Canada [Ali Haghani]

• Mindy Wang Liu  
  paper accepted for presentation in the 89th annual meeting of the Transportation Research [Ali Haghani]

• Wenxin Qiao  
  paper presented at the INFORMS annual meeting, San Diego, CA [Ali Haghani]
  paper accepted for presentation in the 89th annual meeting of the Transportation Research Board [Ali Haghani]

• Masoud Hamedi  
  paper presented at the 16th ITS World Congress, Stockholm, Sweden [Ali Haghani]
  paper presented at the ITS America annual meeting, National Harbor, MD [Ali Haghani]
  three papers accepted for presentation in the 89th annual meeting of the Transportation Research Board [Ali Haghani]

• Abbas M. Afshar  
  paper accepted for presentation in the 89th annual meeting of the Transportation Research Board [Ali Haghani]
  paper presented at the INFORMS Annual Meeting, San Diego, CA [Ali Haghani]

• Taehyeong Kim  
  paper presented at the INFORMS annual meeting, San Diego, CA [Ali Haghani]

• Mona Asudegi  
  paper presented at the INFORMS annual meeting, San Diego, CA [Ali Haghani]

• Kaveh F. Sadabadi  
  two papers accepted for presentation in the 89th annual meeting of the Transportation Research Board [Ali Haghani]
  won I-95 Corridor Coalition Fellowship [Ali Haghani]
  paper presented at the Joint CORS-INFORMS international meeting, Toronto, Canada [Ali Haghani]
• **Rafael Olarte**  
  paper accepted for presentation in the 89th annual meeting of the Transportation Research Board [Ali Haghani]

• **Kristin Gilroy**  
  best student paper award, VA Water Resources Conference [Richard McCuen]

• **Navik Agrawal**  

• **Michael VanDaniker**  
  Transportation Research Board Greg Harrington Award for Outstanding Research in Visualization [Michael L. Pack]

• **Darya Filippova**  
  Transportation Research Board Greg Harrington Award for Outstanding Research in Visualization [Michael L. Pack]

• **Krist Wongsuphasawat**  
  Transportation Research Board Greg Harrington Award for Outstanding Research in Visualization [Michael L. Pack]

• **Andreea Oleea**  
  Transportation Research Board Greg Harrington Award for Outstanding Research in Visualization [Michael L. Pack]

• **Ning Yang**  
  published 3 papers in *Tranp. Research Record, Public Works Management & Policy, Computer-aided Civil and Infrastructure Engineering* [Paul Schonfeld]
  won an I-95 Corridor Coalition Fellowship [Paul Schonfeld]

• **Min Kang**  
  published 2 papers in *Tranp. Research Record, Public Works Management & Policy, Computer-aided Civil and Infrastructure Engineering* [Paul Schonfeld]

• **Cheng-Chieh (Frank) Chen**  
  paper accepted in the *Transportation Research Record* [Paul Schonfeld]

• **Sarah Fick**  
  awarded an Eisenhower Graduate Research Fellowship by the U.S. Federal Highway Administration [Charles Schwartz]

• **Rui Li**  
  paper “Sensitivity of Predicted Flexible Pavement Performance to Unbound Material Hydraulic Properties,” accepted to ASCE GeoFlorida 2010 conference [Charles Schwartz]

• **Regis Carvalho**  
  chapter “Viscoplasticity Modeling of Bituminous Mixtures,” submitted for publication in forthcoming *Transportation Research Board Circular* [Charles Schwartz]

• **Junaid Khan**  
  presentation “Tracking HMA Placement using RFID Technology,” at the annual meeting of the Transportation Research Board [Charles Schwartz]

• **Gemstone Honors Team (9 members)**  
  presented final thesis “Design and Evaluation of a Retrofittable Electric Snow Melting System for Pavements” [Charles Schwartz]
### PHDs

#### PhD: SPRING 2011

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<tr>
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<td>&quot;Estimating Pavement Friction Performance and Service Life Based on Aggregate Properties: Analysis and Modeling&quot;</td>
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<td>Erdogan, Sevgi</td>
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<td>Gilroy, Kristin</td>
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<td>Hamedi, Masoud</td>
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<td>Mohasel Afshar, Abbas</td>
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#### PhD: FALL 2010

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<td>Mejia, Alfonso</td>
<td>&quot;The Spatial Distribution of Imperviousness in Watershed Hydrology&quot;</td>
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## MASTER OF SCIENCE

### MASTER OF SCIENCE: SPRING 2011

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<td>&quot;Catalog of Material Properties for Mechanistic-empirical Pavement Design&quot;</td>
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<td>Yimam, Abadir</td>
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<td>Fick, Sarah</td>
<td>&quot;Pavement Construction and Network Sustainability Management&quot;</td>
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<td>Maness, Michael</td>
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PHD JOB PLACEMENTS LIST

(Faculty advisors listed in parenthesis)

- **GIRUM SIRAW AWOKE**
  MDOT Chief Engineer (Ph.D., 2011)
  [Goulias, Dimitrios]

- **JASON BECKER**
  URS, Inc (M.S. (thesis), 2010)
  [Aydilek, Ahmet H.]

- **STEWARD BENNIE**
  National Defence Threat Reduction Agency,
  Sr. Chief Engineer (Ph.D., 2010) [Goulias, D.]

- **RUUD EGGING**
  NTNU (Norwegian University of Science and Technology), Trondheim, Norway
  (other, 2010) [Gabriel, Steven A.]

- **ANUBHA GOEL**
  Faculty ar IIT Kanpur (Ph.D.) [Torrents, Alba]

- **AMPUN JANPENGPEN**
  Professor Thai Military Academy
  (Ph.D., 2010) [Baecher, Gregory B.]

- **HAEJIN KIM**
  NRMCA Research Laboratory,
  Director (Ph.D., 2009) [Goulias, Dimitrios]

- **YU LIU**
  University of Wisconsin (Ph.D., 2009)
  [Chang, Gang-Len]

- **SUSHANT UPADHYAYA**
  Senior Chief Engineer (Ph.D., 2009) [Goulias, Dimitrios]

- **NAN ZOU**
  National Sandon University, China
  (Ph.D., 2009) [Chang, Gang-Len]

---

**Ranadive, Nitin**
NON THESIS

**Sangworawong, Supasit**
"Toward Development of Standards for Web-based Project Management System"

**Siddiq, Hina**
NON THESIS

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BACHELOR OF SCIENCE

Spring 2011 Graduates

- Apolonio, Alyssa M.
- Asplen, Douglas Charles
- Bass, Scott Edward
- Becker, Ian Guilloux
- Bednarczyk, Stephanie
- Bell, Jamie Elizabeth
- Bisers, Daniel
- Bonato, Daniel John
- Bui, Anh Quynh
- Bujanowski, Krista Ann
- Cambre, Matthew Elliot
- Campbell, Charles John
- Chang, Maria Kuomei
- Dason-Deane, Rosemary Anne
- Davis, St Jerome Nathaniel
- Emmell, Derek J.
- Emrich, Chad Devin
- Evans, Kayla Elizabeth
- Frieden, William B.
- Gates, Jason Skylar
- Gilson, Scott Michael
- Hughes, Garrett Douglas
- Jang, Chinho
- Jordan, Dennis Michael
- Joseph, Kaitlin Sara
- Kanner, Emily Michelle
- Krummel, Jeffrey Scott
- Lattanzio, William J.
- Li, Yi Qian
- Liu, Tina Yao
- Majlaton, Fadi Yousef
- Mantua, Mark J.
- Maresco, John David
- Martin, John Joseph
- McGehee, Michael Eugene
- Miller, David Joseph
- Misner, Ryan Patrick
- Moxley, John C.
- Nerlinger, Dustin Michael
- Paraloglou, Nina Jeannette
- Piland, Samuel Reger
- Resch, Corinne Marie
- Schnetzler, Christopher W.
- Schupler, Charles
- Scofi, Jason
- Seufert, Juergen Christian
- Shi, Vincent J.
- Stanka, Kelley Marie
- Strobel, Jonathan G.
- Thompson, Cassandra Blair
- Trumpower, Daniel J.
- Wheaden, Crystal Denise
- Whiteleather, Jonathan David
- Winter, Samuel H.
- Yen, Eric
- Zinkand, Kevin Joseph

Fall 2010 Graduates

- Bakhru, Anjuli Marie
- Cook, Lauren Marie
- Delaney, Brian Thomas
- Detore, Thomas Scott
- Epstein, Jacob D.
- Falik, Kehat Lavi
- Galloway, Kathleen Elaine
- Harris, William Simon
- Herer, Thomas Eamon
- Higgins, Matthew James
- Homar, Brooke Alexandra
- Kilgore, Charlton Leigh
- Losin, Steven Paul
- McBride, Ryan Hesser
- Mowrer, Christopher Martin
- Muqtader, Mohammed Abdul
- Nguyen, Khiem Hoang
- Tyner, Andrew
- Vogel, Jennifer L.
- Wachs, Laura Rose
- Ward, Harrison John
- Zinkand, Kevin Joseph

Summer 2010 Graduate

- Solomon, Leiul
Spring 2010 Graduates
- Baird, Michael Samuel
- Bauer, Jake Jack
- Berger, Kevin Andrew
- Berry, Daniel M.
- Boyer, Marcus Kerell
- Clarke, Alyson Marie
- Clifford, Mark Harlow
- Dague, Brady Patrick
- Duma, Robert James
- Fallon, Bradford Evans
- Fish, Robin
- Fox, William Regis
- Gatti, Eric R.
- Goodwin, Jeffrey A.
- Guevara, David Joseph
- Herman, Rosanna M.
- Hinebaugh, Nicholas R.
- Holian, Jill Christine
- Jackson, Teddy Sevada
- Kraus, William Joseph
- Kurgansky, Jonathan Edward
- Lauenroth, Ryan Anthony
- Le, Alexander Hao
- Lindaman, Sean Patrick
- Mace, James McGillin
- Makhlof, Jonathan Michael
- Money, Jeffrey Xavier
- Morriello, Zachary Francis
- Newsome, Andrew Stephen
- Nolder, Elizabeth Ashley
- Oberle, Kevin Michael
- Orlando, Nicholas Joseph
- Parks, Mark Alexander
- Patel, Shakher Pankaj
- Porter, Ryan Christopher
- Roberts, David Ivon
- Smith, Kevin J.
- Tan, Theodor Caspar
- Tehansky, Kevin Eric
- Thornton, John O’Hara
- Tse, Wesley C.
- Tsipouras, Ilias Dimitrios
- Vu, Duy A.
- Walker, Alicia Kay
- Weissman, Jeremy Michael

Fall 2009 Graduates
- Ajide, Oluwaseun O.
- Akbari, Abdul Basit
- Breeding, Andrew William
- Ermer, John Patrick
- Faye, Elhadji B.
- Fike, Christopher William
- Jmourko, Ianina
- Lambertson, Katherine Marie
- Lee, Wyatt Daniel
- Letke, Adam Stephen
- Limpert, Jennifer Marie
- Moss, Richard Jacob
- Patel, Neil Sunil
- Rodrigues, Dilson O.
- Roseman-Hanauer, Andrew Neil
- Vose, Cassandra
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*Unless otherwise noted, all faculty members are listed as PI's*
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<td>Comparison and Integration of Lock Control Policies</td>
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<td>07/22/09</td>
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<td>Software-simulated Test and Evaluation of Military Mission Using Positioning and Routing Algorithms</td>
<td>Schoenefeld, P.</td>
<td>06/08/09</td>
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<td>Dwight David Eisenhower Transportation Fellowship Program – Sara Beth Fick</td>
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<td>Using RFID Technology to better Manage and Assess Pavement</td>
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<td>Design and Evaluation of Foamed Asphalt Base Materials</td>
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<td>Sensitivity Evaluation of MEPDG Performance Prediction</td>
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<td>Environmental Fate of Brominated Flame Retardants in Biosolids and Assessing the Fate of Triclosan</td>
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<td>Assessing the Fate of Triclosan and Triclocarban in WWTP with Emphasis on Sludge Processing and Land Application of Biosolids</td>
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## EXPENDITURES CHART

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<th>SOURCE</th>
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<td><strong>Federal</strong></td>
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<td><strong>State &amp; Local</strong></td>
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<td><strong>DRIF</strong></td>
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<td><strong>TOTAL</strong></td>
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Assessing the effect of POPs in Biosolids Microbial Communities – Reck  
Torrents, A.  
10/01/09 08/30/10  
DCWASA

Assessing the effect of POPs in Biosolids Microbial Communities – Reck  
Torrents, A.  
10/01/09 09/30/10  
DCWASA

Assessing the Relative Risk of Steroid Hormones from Biosolids and Animal Manure – Bevacqua  
Torrents, A.  
10/01/09 08/30/10  
DCWASA

Assessing the Relative Risk of Steroid Hormones from Biosolids and Animal Manure – Bevacqua  
Torrents, A.  
10/01/09 08/30/10  
DCWASA

Advanced Transit Association (ATRA)  
Young, S.  
08/15/09 12/31/10  
ATA

Development of “What If” Scenario Models and “Seed Value” Data for the FHWA Multimodal Passenger Travel Modeling Program  
Zhang, L.  
10/19/09 03/31/11  
MacroSys Research and Technology

Develop A Research Roadmap and Strategies to Estimate Multi-Modal Inter-Regional Passenger Travel Flow  
Zhang, L.  
11/23/09 03/31/10  
UT Battelle

Development of the Multimodal Transportation Analysis Framework  
Zhang, L.  
06/15/10 06/14/12  
USDOT

2010 Dwight Eisenhower Transportation Fellowship Program – Mercado  
Zhang, Y.  
09/01/10 09/01/11  
DOT/FHWA
1. Full Books (Published, edited, authored, or co-authored)

2. Chapters in books (published, edited, authored, or co-authored)
3. Refereed articles in archival journals


4. Conference proceedings


ment in Engineering. May doi:10.1061/(ASCE)ME.1943-5479.0000070


4. Articles in conference proceedings


• Ayyub, B.M., Markham, K. and Chang, C.Y. (April 11-13, 2011). “Development of Spatial Risk Profiles of Cargo Rail Systems.” proceedings of the First International Conference on Vulnerability and Risk Analysis and Management (ICVRAM 2011) and the Fifth International Symposium on Uncertainty Modeling and Analysis (ISUMA 2011) on Marriott Inn & Conference Center. MM. Published by ASCE. Reston, VA.
• Ayyub, B.M., Kearney, M., Ramirez, J., Markham, K. and Chang, C.Y. (April 11-13, 2011). “Development of Spatial Risk Profiles Resulting from Sea Level Rise.” proceedings of the First International Conference on Vulnerability and Risk Analysis and Management (ICVRAM 2011) and the Fifth International Symposium on Uncertainty Modeling and Analysis (ISUMA 2011) on Marriott Inn & Conference Center. MM. Published by ASCE. Reston, VA.
• Kearney, M. and Ayyub, B.M. (April 11-13, 2011). “Understanding What Predictions of Future Sea Level Rise Mean for Assessment of Vulnerability and Risk for the Built Coast.” proceedings of the First International Conference on Vulnerability and Risk Analysis and Management (ICVRAM 2011) and the Fifth International Symposium on Uncertainty Modeling and Analysis (ISUMA 2011) on Marriott Inn & Conference Center. MM. Published by ASCE. Reston, VA.
• Chang, C.-Y. and Ayyub, B.M. (April 11-13, 2011). “Statistical Characterization and Prediction of Sea Waves Based on Buoy Data.” proceedings of the First International Conference on Vulnerability and Risk Analysis and Management (ICVRAM 2011) and the Fifth International Symposium on Uncertainty Modeling and Analysis (ISUMA 2011) on Marriott Inn & Conference Center. MM. Published by ASCE. Reston, VA.


• Fu, C.C. (Sept. 16, 2010). “Concrete Research with Specific Issues of Multi-beam Slab Bridges, Live-load Continuous Pre-cast Prestressed Girder Bridges and Elastomeric Bearings.” 4th Annual Bridge Seminar. CEAM Fall Conference, Ocean City, MD.

• Fu, C.C. (Sept. 16, 2010). “Steel Research with Specific Issues of Truss Bridge Connections and Girder Bridge Splices.” 4th Annual Bridge Seminar. CEAM Fall Conference. Ocean City, MD.

• Fu, C.C. and Ahmed, M.S. (August 24, 2010). “Concrete Research by the Best Center with Specific Issues of Transversely Posttensioning of Multi-beam Slab Bridges.” 2010 PCEF Mid-Atlantic States Meeting. Baltimore, MD.


• Fu, C.C., Pan, Z.F. and Ahmed, M.S. (August 3-6, 2010). “Analysis and Testing of Transversely Post-tensioned Multi-beam Slab Bridges.” Proceedings of the 8th International Conference on Short and Medium Span Bridges (SMB). Niagara Falls, Canada.

• Fu, C.C. and Ahmed, M.S. (August 3-6, 2010). “Aesthetic and Design Considerations of Integral Piers and Abutments toward Jointless Steel Bridges.” Proceedings of the 8th International Conference on Short and Medium Span Bridges (SMB). Niagara Falls, Canada.


• Zhang, Y. (November 7, 2010). “A Rule-based Model of Route Choice under Uncertainty: Do Travelers Choose to be Reliably Congested?” Presented at the 2010 INFORMS annual meeting. Austin, TX.

• Zhang, L. (November 7, 2010). “Optimal Regulation on Private-sector Transportation Investment.” Presented at the 2010 INFORMS annual meeting. Austin, TX.


• Zhang, L. (August 10, 2010). “Multimodal Inter-regional Transportation Infrastructure Investment in China: High Speed Rail.” Presented at the Institute of Transportation Engineers annual meeting. Vancouver, BC, Canada.


5. Papers presented at conferences, seminars and symposia


• Ayyub, B.M. (August 23, 2010). “On Uncertainty in Information and Ignorance in Knowledge.” Committee on Mathematical Foundation of Verification, Validation, and Uncertainty Quantification. Meeting.

• Austin, M.A. (November 18, 2010). “ISR Education since ERC Graduation.” Presentation to NSF Site Visit Team and ISR Faculty. Institute for Systems Research. University of Maryland, College Park, MD.


Institute of Standards and Technology, Gaithersburg, MD 20899.


- **Gabriel, Steven A.** (Nov. 7-10, 2010). “Using Schur’s Decomposition and SOS Type 2 Variables to Solve Mathematical Programs with Equilibrium Constraints with an Application to the U.S. Natural Gas Market.” Invited talk (with Sauleh, Siddiqui, Hakob Avetisyan). INFORMS 2010, Austin, TX.

- **Gabriel, Steven A.** (Nov. 7-10, 2010). “A Multi-objective Optimization Model for Biogas Production at the Blue Plains Advanced Wastewater Treatment Plant, D.C. Water.” Invited talk (with Chalida U-tapao). INFORMS 2010, Austin, TX.


- **Haghani, A.** (November 2, 2010). “Transportation Research and Education at the University of Maryland.” Invited lecture. Presented at the Beijing Normal University, Beijing, China.


- **Haghani, A.** Ghoseiri*, K. and Hamedi*, M. (October 7-10, 2010). “A Real Time Dynamic Rideshare System.” Presented at the INFORMS annual meeting, Austin, TX.


- **Afsahr*, A.M. and Haghani, A. (October 7-10, 2010).”High-resolution Logistics in Disaster Response: Modeling and Solution Algorithms.” Presented at the INFORMS annual meeting, Austin, TX.

- **Kim*, T. and Haghani, A. (October 7-10, 2010). “Solving Large Scale Dial-a-Ride Problem Using a Two-stage Heuristic Based on Clustering Routing.” Presented at the INFORMS annual meeting, Austin, TX.

- **Sadabadi*, K.F. and Haghani, A. (October 7-10, 2010).”An Efficient Algorithm for Minimum Labeling Spanning Tree Problem.” Presented at the INFORMS annual meeting, Austin, TX.

- **Asudegi*, M. and Haghani, A. (October 7-10, 2010).”Parallel Machine Scheduling Problem.” Presented at the INFORMS annual meeting, Austin, TX.


- **Qiao*, W., Haghani, A. and Lu, Y. (October 7-10, 2010). “Modeling the Hazardous Material Transport Network through...
a Game Theory Approach,” presented at the INFORMS annual meeting, Austin, TX.

**Haghani, A.** (August 9, 2010). “Transportation Research and Education at the University of Maryland,” invited lecture, presented at the Lanzhu Jiatong University, Lanzhu, China.

**Haghani, A.** (August 9, 2010). “Transportation Research and Education at the University of Maryland.” Invited lecture, presented at the Beijing Jiatong University, Beijing, China.

**Haghani, A.** (August 4-8, 2010). “I-95 Corridor Coalition Vehicle Probe Project.” Keynote speech, presented at the 10th International Chinese Conference of Transportation Professionals (ICTTP 2010), Beijing, China.


**Haghani, A.** (July 29, 2010). “Transportation Research and Education at the University of Maryland.” Invited lecture, presented at the Tsinghua University, Beijing, China.

Wenn Qiao, Haghani, Ali and Hamedi, Masoud (November 2010). “Comparison of Parametric and Nonparametric Models for Travel Time Prediction Based on Bluetooth Data.” INFORMS annual meeting, Austin, TX.


**Schwartz, Charles W.** (November 2010). “Geotechnical Aspects of Pavements.” Seminar for Bechtel Power Corporation, Frederick, MD.


**Zhang, L.** (2010). “Effectiveness and Equity of Transportation Financing Options at the Federal and State Levels.” Department of Civil and Environmental Engineering, University of Massachusetts–Amherst.

6. Other/Non-Refereed Works Published


July 1, 2009 – June 30, 2010

1. Full Books (Published, edited, authored, or co-authored)


2. Chapters in books (Published, edited, authored, or co-authored)


3. Refered articles in archival journals


• Hart, J.C. (2009). Conducted full day Academic Forums in Amsterdam and Orlando, FL.


4. Articles in conference proceedings


• Cui, Q. and Hsu, S.C. (May 10-13, 2010). “Project Complexity under Carbon Regulation and Trading.” CIB World Congress. Salford Quays, United Kingdom.


• Sharma, D, Cui, Q., Baldwin, R. and Arkle, D. (Sept. 9-11, 2009). “Big or Small, Does Warranty Contracting Provide Equal Opportunities to All?” First International Conference on Transportation Construction Management. Orlando, FL.


• Fu, C.C., Pan, Z.F. and Ahmed, M.S. (August 3-6, 2010). “Analysis and Testing of Transversely Post-tensioned Multi-beam Slab Bridges.” Proceedings of the 8th International Conference on Short and Medium Span Bridges (SMSB). Niagara Falls, Canada.

• Fu, C.C. and Sisman, B. (August 3-6, 2010). “Aesthetic and Design Considerations of Integral Piers and Abutments toward Jointless Steel Bridges.” Proceedings of the 8th International Conference on Short and Medium Span Bridges (SMSB). Niagara Falls, Canada.


Zhang, L. and Robitaille, A. (May 19-20, 2010). “Effectiveness and Equity of Transportation Financing Options at the Federal
and State Levels.” Presented at the Fourth International Conference on Financing Surface Transportation in the U.S. New Orleans, LA.


5. Papers presented at conferences, seminars and symposia


• Baecher, Gregory B. (March 24, 2010). “Spillway Systems Reliability.” Invited lecture. Dam Safety Interest Group (Canadian Dam Association) annual meeting. Las Vegas, NV.


• Cable, J.H. (2009). Conducted full day academic forums in Amsterdam and Orlando, FL.


Presented at the 2009 INFORMS annual conference. San Diego, CA.


6. Other / Non-Refereed Works Published

and Future.” Interagency Performance Evaluation Taskforce. Washington, D.C.


• **Moscoso, Rodrigo E.** (January 2010). “Virtual USA to Enhance Disaster Management.” Roddy Moscoso. Domestic Preparedness.

• Kang, M.W., Yang, N., **Schonfeld, P.** and Jha, M.K. (July 2009). “Multi-objective Bi-level Highway Alignment Optimization, NSF SBIR-STTR Phase I.” Final report to the U.S. National Science Foundation.


