

CEAS Graduate Programs & Research Newsletter

ASEE Regional Conference Comes to UWM

It's not too late to register for the 2004 American Society for Engineering Education (ASEE) North Midwest Regional Conference to be held at UWM, October 7-9, 2004. The theme for the conference is *Partnerships for Engineering Education*.

You can register on-line at: <http://www.uwm.edu/CEAS/ASEE/> UWM Faculty members can register for a reduced rate of \$25.00. Checks are to be made out to UW-Milwaukee.

If you have any questions please contact:

Dev Venugopalan, Associate Dean
 414-229-5691
dv@uwm.edu
 or
 Ronald Perez, Chair Mechanical Engineering
 414-229-6543
perez@uwm.edu.

ASEE is committed to furthering education in engineering and engineering technology by promoting excellence in instruction, research, public service, and practice; exercising worldwide leadership; fostering the technological education of society; and providing quality products and services to members. The North Midwest Section of ASEE serves Iowa, Minnesota, North Dakota, eastern South Dakota, Wisconsin, Manitoba and the western part of Ontario.

Faculty Research Resources

Research resources for CEAS faculty are available on the CEAS website. Faculty can link to the online transmittal form in the Engineering Research Proposal Tracking Database, the Proposal Budget Form, and the Graduate Programs and Research Newsletter at <http://www.uwm.edu/CEAS/ResearchRes.html>.

By accessing the Engineering Research Proposal Tracking Database, faculty can enter new proposals, update pending proposals, and track new and old proposals. This system is CEAS' required method for filling out and submitting T-forms.

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Proposals Submitted

December 13, 2003 through July 31, 2004

Principal Investigator	Title	Amount
Amano, R.	Development of an Innovative Remediation Methodology Using HSVE Technologies	\$50,000.00
Beimborn, E.	UWM Participation in Midwest Regional Transportation Center- Year Five	\$25,000.00
Bravo, H.	Practical two-fluid computational model for the aeration of deep floodwater Reservoirs	\$139,298.00
Bravo, H. (McLellan, S.)	Evaluation of the UW Great Lakes WATER Institute Green Roof	\$55,458.00
Buechler, D.	Improving the Health and Safety of the Nation's Wastewater Infrastructure	\$91,959.00
Chen, J. (Xie, H.; Wu, M.)	Creating a Knowledge Base for Health and Nanotechnology	\$147,000.00
Chen, J.	CAREER: Direct Current Corona Discharge from Carbon Nanotubes as a Novel Ion Source for Charging Nanoparticles	\$533,330.00
Cheng, C.	Generalizing and Generating Combinatorial Designs for Applications in Computer Science	\$500,843.00
Christensen, E.	MMSD Monitoring Program Data Analysis	\$34,388.00
Corzine, K.	Design Optimization of Low-Voltage Power Converters	\$49,663.00
Corzine, K.	Ac Impedance Measurement	\$115,980.00
Dhingra, A.	Engine Mount Modeling and Optimization for Enhanced Vibration Isolation	\$49,985.00
Dumitrescu, A.	CAREER: Algorithmic Issues in Geometric Network Optimization, Binary Space Partitions, And Metamorphic Systems	\$474,918.00
Garg, A.	Upper Limb Musculoskeletal Disorders: Identifying Risk	\$499,122.00
Garg, A.	Low Back Pain: Quantifying Risk Factors	\$499,962.00
Ghorbanpoor, A.	Graduate Internship Program	\$139,098.00
Ghorbanpoor, A.	Bridge Integrated Analysis and Decision Support: Case Histories	\$100,000.00
Gregory, W.	Development of a Fast and Accurate Pathology Tool: FastPath	\$49,917.00
He, X.	Rheological Study of Nanofluids with Novel Quantum Structures	\$162,415.00
He, X.	Adhesion dynamic study of micro and nano structures	\$493,461.00
He, X.	Education Course Development: Flip-Chip Packaging Interconnect Technology and Reliability	\$30,000.00

Proposals Submitted December 13, 2003 through July 31, 2004

Principal Investigator	Title	Amount
Helwany, S. (Titi, H.)	NEESR-II, GRS Abutment-Bridge-Pier Interaction: Improvement and Verification of Current Seismic Design Methods for GRS Abutments	\$450,760.00
Helwany, S. (Titi, H.)	Determination of Shear Strength Values for Granular Backfill Materials Used by the Wisconsin Department of Transportation	\$82,738.00
Helwany, S. (Abu-Zahra, N.)	Analysis and Design of Dies and Polymer Extrusion	\$41,393.00
Horowitz, A.	Statewide Travel Forecasting Models (36-09)	\$29,000.00
Horowitz, A.	Smart Work Zone Deployment Initiative	\$64,171.00
Jen, T. (Venugopalan, D.)	Experimental and Theoretical Studies of HP DMFC-Hydrogen Peroxide Direct Methanol Fuel Cell	\$50,000.00
Johnson, E.	Small School Planning Grant	\$49,997.00
Kim, K.	Efficient Finite Element Simulation for Engineering Design using Nonlinear Active Materials	\$50,000.00
Kim, K.	Design of water filtration boxes	\$10,000.00
Kim, K. (Dhingra, A.)	Computer Based Instruction of Fundamental Mechanics Courses Using Interactive Software Tools	\$37,909.00
Kim, K.	Physics-based Simulation of Human Posture Using 3D Whole Body Scanning Technology for Astronaut Space Suit Evaluation	\$15,999.00
Law, C. (Yu, D.)	Fiber Optics Based Fault Detection Schemes for Fused Tap-Line Faults	\$49,081.00
Lee, J. (Chen, Z.)	Software Tools for IEEE 1451-based Smart Sensor Network	\$23,867.00
Lee, J.	REU (supplement to NSF I/UCRC - UWM 144 KJ37)	\$5,000.00
Lee, J.	NSF SBIR Phase 1 - Automated Knowledge Extraction from Maintenance Logs	\$29,974.00
Lee, J.	IMS Membership Fee	\$229,940.00
Li, J.	Molecular Biology for Environmental Engineers	\$100,000.00
Mali, A.	Techniques for Efficient Distributed Planning	\$171,461.00
Munson, E.	Collaborative Research: Increase the Representation of Undergraduate Women and Minorities in Computer Science	\$53,276.00
Naik, T.	Economical Self-Consolidating Concrete for the Wisconsin Concrete Industry	\$50,000.00

Continued on page 4

Proposals Submitted

December 13, 2003 through July 31, 2004

Principal Investigator	Title	Amount
Naik, T.	Recycling of Residual Solids from Wisconsin Pulp and Paper Industry in Flowable Slurry	\$29,789.00
Naik, T. (Kraus, R.)	CCP Use Technology Implementation Projects in Illinois	\$38,571.00
Naik, T. (Kraus, R.)	Implementation of Blended Ash Technology Using Illinois Coal Ash	\$125,807.00
Naik, T.	Recycling Opportunities for Coal Combustion Products Through Educational Seminars	\$10,000.00
Naik, T.	Reducing Shrinkage Cracking of Structural Concrete Through the Use of Admixtures -Supplement	\$15,525.00
Naik, T. (Kraus, R.)	Manufacturing Flowable CLSM Using Residual Solids from the Wisconsin Pulp and Paper Industry	\$55,024.00
Pillai, K.	REU supplement to the CAREER award	\$10,500.00
Rahman, A.	Improved Structural-System Foundation Designs to Eliminate the External Vibration Interference with an Open MRI Magnet	\$49,706.00
Rahman, A.	Analysis of Concrete Pavement Joints to Predict the Onset of Distress	\$59,746.00
Reisel, J.	Reduction of the Deterioration of Small Engine Exhaust Emissions over the Life Cycle of Small Utility Engines	\$60,000.00
Renken, K.	Permeability and Burst Pressure Measurements of In-Well Technologies, Inc. Bladder Materials	\$2,500.00
Rohatgi, P.	Near Net Shaped Castings of Aluminum Foam using Fly Ash Cenospheres	\$48,472.00
Rohatgi, P.	Advanced Rapid Manufacture of Lightweight Materials and Components for Military Applications	\$3,373,511.00
Rohatgi, P.	Synthesis of Cast Aluminum Reinforced with Ultra-Fine Foundry Sands for Industrial Applications	\$42,556.00
Saxena, U.	Industrial Assessment Center	\$605,653.00
Schroeder, P.	ITR: Collaborative Research:(ASE+NHS)-(dmc):High Volume Automated Testing	\$486,302.00
Titi, H. (Helwany, S.; Tabataba, H.)	Analysis of Concrete Pavement Joints to Predict the Onset of Distress	\$59,983.00
Titi, H. (Helwany, S.)	Investigation of Vertical Members To Resist Surficial Slope Instabilities	\$29,714.00
Titi, H.	Research and Development of the Application of the Federal Highway Administration's Hiperpav Model to Wisconsin	\$3,138.00

Proposals Submitted December 13, 2003 through July 31, 2004

Principal Investigator	Title	Amount
Wang, W.	ITR-ASE-dmc Pulse mode Low Noise Amplifier for UWB Impulse Radio	\$389,727.00
Wang, W.	CAREER: Block Level Radiation Hardening Integrated Circuits Design	\$552,888.00
Ying, L.	Fast Magnetic Resonance Imaging Using Phased Array Coils: Theory, Algorithms, and Applications	\$451,237.00
Yu, D.	Object tracking techniques for surveillance	\$17,825.00
Yu, D.	New algorithms for PTZ camera based object tracking	\$129,336.00
Yu, D.	Image Processing Techniques for Digital Video Surveillance	\$18,211.00
Zhang, J.	New Techniques for Image Sequence Segmentation and Analysis	\$36,384.00
Zhao, T.	Aliasing control for secure object-oriented systems	\$476,494.00
Total		\$13,014,962.00

CEAS Welcomes Four New Faculty in CS, EE, and ME

Dr. Mukul Goyal,
Assistant Professor, Computer Science

Ph.D. in Computer and Information Science, Ohio State University, 2003.

Research Interests:
Computer Networks, Internet Traffic Engineering, TCP/IP Protocols and Routing in the Internet.

Teaching Interests:
Computer Networks and Operating Systems.

Contact Information:
EMS 919
414-229-5001
mukul@uwm.edu

Dr. David Klemer,
Associate Professor, Electrical Engineering

M.D., Columbia University, 1999.
Ph.D. in Electrical Engineering, University of Michigan, 1982.

Research Interests:
Biomedical imaging (including experimental techniques such as optical, near-infrared and fluorescence imaging), instrumentation for bioanalysis, biomedical diagnostics and bioinformatics, high-frequency solid state device/circuit design and fabrication.

Teaching Interests:
Biomedical imaging, bioinstrumentation and biophotonics.

Contact Information:
EMS 955
414-229-2228
dklemer@uwm.edu

Dr. Yaoyu Li,
Assistant Professor, Mechanical Engineering

Ph.D. in Mechanical Engineering, Purdue University, 2004.

Research Interests:
Mechatronics, Extremum Seeking Control, Robust Control, Active Control of Sound and Vibration, Control of Thermal Systems, Miniaturized Cooling Devices, Smart

Continued on page 6

UWM Co-Hosts SBIR National Conference

We are pleased to announce that the Fall 2006 National SBIR Conference will be held in Milwaukee. UWM and CEAS have worked with a number of institutions including the Wisconsin Medical College and MSOE to bring this national conference to Milwaukee. The conference is sponsored by the National Science Foundation and several federal funding agencies.

The conference will showcase the SBIR/STTR opportunities in the Milwaukee/Great Lakes region and as such, the conference theme will be *Spreading the Wings of Opportunity Through Regional Research Partnerships*. It is expected that the conference will host between 400 to 500 attendees. For more information contact Associate Dean Al Ghorbanpoor at 414-229-4962 or algh@uwm.edu.

New Faculty, *continued from page 5*

Structures, Fault Diagnosis.

Teaching Interests:
Mechatronics and Controls

Contact Information:
EMS 907
414-229-3960
yyli@uwm.edu

Dr. Ertan Zencir,
Assistant Professor, Electrical
Engineering

Ph.D. in Electrical Engineering,
Syracuse University, 2003.

Research Interests:
Low-power RF CMOS Integrated
Circuits, circuit and architectural
level methods to reduce power
dissipations of RF Integrated
Circuits; Wireless CMOS Trans-
ceiver Design, fully-integrated wire-

less receiver & transmitter imple-
mentations; modeling and CAD of
Passive Integrated Circuits, analyti-
cal modeling of integrated inductors
based on simulation data, EM
modeling of passive integrated cir-
cuits; Monolithic Microwave Inte-
grated Circuits, broadband low-
noise amplifiers for Software De-
fined Radio applications.

Teaching Interests:
Communication Circuits, Analog
CMOS Integrated Circuits, Wireless
Transceiver Design, RF Microelec-
tronics, and Wireless Communica-
tions.

Contact Information:
EMS 1287
414-229-4679
zencir@uwm.edu

Graduate Applications

(As of September 23, 2004)

	Spring 2004	Fall 2004	Spring 2005	Total
Ph.D. Candidates	21	77	25	123
Ph.D. Candidates w/o M.S.	5	18	3	26
M.S. Candidates	111	204	46	361
Total	137	299	74	

Nominate For Outstanding Student Awards

This December, CEAS will award the 2004-2005 Outstanding Student Achievement Awards. The CEAS Constituent Alumni Association and the College have established awards specifically designed to recognize our students' achievements that are above and beyond normal class work.

All CEAS Faculty are invited to nominate undergraduate students who will be graduating by August 2005, and current graduate students for these awards. Candidates will be judged based on their achievements under the following criteria as well as on their academic performance. The students selected by the awards committee will receive their awards at the Graduating Student Reception on December 19, 2004.

Undergraduate Students who will be graduating by August 2005 can be

nominated to be honored in the following categories:

Service

A student who has at least 2 years of active service in either a Professional Society, or in a CEAS Student Organization which has helped promote or improve the College of Engineering and Applied Science.

Leadership

A student who has held an officer position and has demonstrated the ability to lead people in an organization, project, or other endeavor. Special consideration will be given to leadership in organizations which help promote CEAS.

Continued on page 10

Important Dates

October—November

Employer in Residence Program
CEAS Career Services, EMS 387

October 4—8, 2004

Mock Interviews
CEAS Career Services, EMS 387

October 8, 2004

Thesis and Dissertation Formatting Workshop
Mitchell Hall 191, 4:30 pm

November 1, 2004

Graduate School 2005-2006 Fellowships Available

November 18 & 19, 2004

Qualifying Exams and Thesis Submissions

December 6, 2004

Defense Deadline

December 13, 2004

Thesis Submission Deadline

December 18, 2004

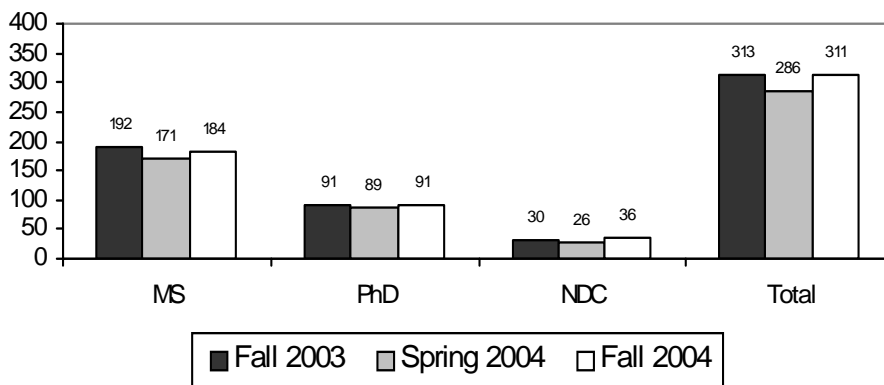
Order of the Engineer and Graduating Student Awards Ceremony

December 19, 2004

Commencement



Graduate Student Enrollment



Proposals Funded

December 13, 2003 through July 31, 2004

Principal Investigator	Proposal	Agency	Amount
Amano, R.	Heat Transfer Studies of Heated Soil Vapor Extraction	JJI	\$26,000.00
Beimborn, E.	Development of Improved Methods for Transit Service Market Analysis and Use of Benchmarking for Transit Services Comparisons in Great Cities	University of Alabama-Birmingham	\$3,500.00
Boylard, J.	Analysis for High-Dependability Computing	Carnegie Mellon University	\$83,000.00
Christensen, E.	MMSD Monitoring Program Data Analysis	Milwaukee Metropolitan Sewerage District	\$34,388.00
Corzine, K.	IGBT Device Characterization	Newport News Shipbuilding	\$46,044.00
Dhingra, A.	Engine Mount Modeling and Optimization for Enhanced Vibration Isolation	UW System Applied Research Program	\$49,985.00
Ghorbanpoor, A.	Graduate Internship Program	Harley Davidson; ReGENco, LLC; Chirch Global, LLC	\$139,098.00
He, X.	Education Course Development: Flip-Chip Packaging Interconnect Technology and Reliability	IEEE Components, Packaging and Manufacturing	\$30,000.00
Helwany, S. (Abu-Zahra, N.)	Analysis and Design of Dies and Polymer Extrusion	UW System Applied Research Program	\$41,393.00
Horowitz, A.	Smart Work Zone Deployment Initiative	Kansas Department of Transportation	\$64,171.00
Kim, K.	Design of Water Filtration Boxes	Department of Agriculture	\$10,000.00
Kojasoy, G.	Thermal Hydraulic Research - Interfacial Area Transport	Purdue University	\$49,988.00
Lee, J.	Design an Optimal Reconfigurable Power Drive Assembly System in Product Mix Manufacturing	University of Michigan ENGG Research Center	\$4,335.00
Lee, J.	IMS Membership Fees	Automated Precision, Inc; Harley Davidson; Industrial Technology Research Institute (ITRI); Kone; Omron Corporation; Precision Machinery; Toyota Motors Manufacturing; United States Postal Service; We Energies	\$299,940.00
Lee, J.	Industry/University Cooperative Research Center for Intelligent Maintenance of Systems	National Science Foundation	\$85,000.00

Proposals Funded December 13, 2003 through July 31, 2004

Principal Investigator	Proposal	Agency	Amount
Li, J. (Jen, T.)	Developing an On-Chip Magnetic Bead Biosensor for Real-Time and Remote Detection of Biological Threat Agents in Drinking Water	UW System Applied Research Program	\$42,500.00
Naik, T.	Center for By-Products Utilization	UWM Foundation #3368.09	\$60,000.00
Naik, T.	Economical Self-Consolidating Concrete for the Wisconsin Concrete Industry	UW System Applied Research Program	\$49,934.00
Naik, T.	Recycling of Residual Solids From Wisconsin Pulp and Paper Industry in Flowable Slurry	UW System Solid Waste Research Program	\$29,789.00
Naik, T.	Reducing Shrinkage Cracking of Structural Concrete Through the Use of Additives	Wisconsin Department of Transportation	\$15,525.00
Pillai, K.	CAREER: Modeling the Unsaturated Flow During Fiber Wetting in the Manufacture of Composite Materials	National Science Foundation	\$415,056.00
Renken, K.	Permeability and Burst Pressure Measurements of In-Well Technologies, Inc. Bladder Materials	In-Well Technologies	\$2,500.00
Renken, K. (Reisel, J.)	Design and Implementation of a Multimode Heat Transfer Experiment	ASHRAE	\$5,000.00
Reza, A.	SPIRE	UWM Foundation #8562.09	\$10,000.00
Rohatgi, P.	Synthesis of Cast Aluminum Reinforced with Ultra-Fine Foundry Sands for Industrial Applications	UW System Applied Research Program	\$42,556.00
Rohatgi, P.	US-Egypt Cooperative Research: Manufacture of Aluminum and Magnesium Matrix Composites Under Industrial Conditions	National Science Foundation	\$2,946.00
Rohatgi, P.	Wisconsin Distinguished Professorship	UWM Foundation	\$170,000.00
Titi, H.	Research and Development of the Application of the Federal Highway Administration's Hiperpav Model to Wisconsin	Transtec, Inc.	\$3,138.00
Yu, D.	DV2010 Fault Study For We Energies - Final Phase	We Energies	\$29,080.00
Yu, D.	Image Processing Techniques for Digital Video Surveillance	National Science Foundation	\$18,211.00
Yu, D.	Object Tracking Techniques for Surveillance	National Science Foundation	\$17,825.00
Zhang, J.	New Techniques for Image Sequence Segmentation and Analysis	DOD, Navy	\$36,384.00
Total			\$1,917,286.00

Mock Interviews and Employer in Residence Program

This fall, CEAS Career Services will host a Mock Interview and an Employer in Residence Program. Mock Interviews, October 4-8, are an opportunity for students to meet with employers for a practice interview followed by constructive feedback.

Employer in Residence allows students to meet with employers for advice regarding their resume, interviewing, salary negotiations and the job search. Program dates are in October and November.

These programs are open to all CEAS students. Encourage your students to sign up today. For additional information call 229-3208.

Student Awards, *continued from page 7*

Academic Achievement

A student who has a high cumulative GPA and CEAS involvement.

Personal Achievement

A student who has overcome a personal challenge or out-of-the-ordinary obstacle while enrolled in the College of Engineering and Applied Science.

Graduate Students can be nominated for the following:

Graduate Student Teaching Award

Excellence in teaching. Nominations by students only.

Overall Outstanding Graduate Student Award

Academic excellence, as well as exceptional community involvement

within and outside the college.

A nomination form can be obtained in EMS e387 or by emailing ceascareers@uwm.edu.

CEAS Graduate Programs & Research Newsletter

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EMS e387



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