

Graduate Programs & Research Newsletter



College of Engineering & Applied Science *Discover. Innovate. Lead.*

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Early Alert: RGI-3

The Graduate School has announced details of the RGI-3 competition, with a proposal deadline of early October. No changes will occur in the proposal format and length (maximum of four pages, including references).

The proposal narrative will be uploaded electronically in a pdf format. The budget will again be prepared on an Excel sheet downloaded from the RGI web site and then uploaded with

completed budget information.

The major significant change, which should greatly benefit the review process, is that the application form itself will have a place to list proposed reviewers, as NSF does now. Each RGI-3 applicant will have the opportunity to suggest reviewers who are most relevant to the proposed research.

As in previous competitions, RGI-3 reviewers must have

no conflict of interest with the RGI investigators and should be persons with national reputations in the field and external reviewer experience.

Another major change is that the entire process will be electronic, including all signatures.

CEAS will host an RGI-3 workshop in early September for faculty who have not applied previously or who wish to review the changes in application procedures.

CEAS Students Win Fellowships, Honorable Mentions from the National Science Foundation

CEAS undergraduate student Tarisa Lerro was one of 1,000 students nationwide selected to receive a prestigious Graduate Research Fellowship from the National Science Foundation (NSF), and undergraduates Ben Hanson and Richard Hondlik were two of 1,500 students who received Honorable Mentions from this program.

Nearly 40,000 students apply to NSF Graduate Research Fellowship program each year, which provides \$30,000 annually for three years of graduate study leading to a research-based master's or doctoral degree. A total of five CEAS students, including

Andrew Dressel and Marco LoRocco, applied to the program. Lerro, Hanson, and Hondlik are the first CEAS students to receive awards from this program.

These awards are especially exciting because the students worked closely with CEAS faculty mentors and the Office of Research to develop their applications. Last fall the Office of Research launched an initiative to identify potential candidates through faculty recommendations, host workshops on how to prepare the Fellowship application, and provide one-on-one writing assistance. Due to its outstanding

success, the workshops will be repeated this summer and early fall.

In the next few weeks the Office of Research will request faculty recommendations of students who have the academic and research background required for a Graduate Research Fellowship. Applications will be due in early November 2007. For more information about this program, contact Michelle Schoenecker at schoene7@uwm.edu or x4421 or Dr. Marjorie Piechowski at piechow4@uwm.edu or x3721.

New CEAS Faculty Members

The following new CEAS faculty members will begin their appointments in August 2007:

Matthew E. Petering
Industrial and Manufacturing Engineering Department

Ph.D., Industrial and Operations Engineering, University of Michigan–Ann Arbor

Konstantin Sobolev
Civil Engineering & Mechanics Department

Ph.D., Research Institute of Concrete and Reinforced Concrete (NIIZhB), Russia

CEAS Grants Database Receives a Makeover

The CEAS Office of Research has launched an ambitious effort to scrub the archival information in the CEAS Grants Database and make improvements for capturing and reporting new grant information. Improvements include standardizing sponsor names, correcting spelling and other inaccuracies, and verifying the disposition of proposals listed as "in process" or "submitted."

The Database was built in 2000 to track CEAS' grant

activity by capturing the information that is entered on the Grant Transmittal Form. However, system limitations and several years of inconsistent data entry and recordkeeping have affected the reliability of the data, making it difficult to retrieve and accurately report the information faculty and staff need today.

After careful analysis of the Database's strengths and limitations, the Research Staff developed a list of enhancements to be

implemented over the next few months with technical assistance from Dusko Josifovski, Senior Systems Analyst in CEAS Computing Services. The enhancements will enable greater accuracy and diversity in reporting CEAS' grant activity.

For questions about the Grants Database, please contact Michelle Schoenecker at schoene7@uwm.edu or x4421.

Grant Opportunity: Graduate School Research Committee Awards

A reminder that applications for the Graduate School Research Committee Awards will be due in early November for projects that begin on July 1, 2008.

This date is later than usual, to avoid the RGI-3 deadline. Guidelines and eligibility

will remain the same as in the past, with a maximum award of \$10,000.

Applicants must not have received \$100,000 or more in start-up funds and must not have received this award in any of the three previous years. Strong preference is

given to new and junior faculty or to faculty who are transitioning to new areas of research. The CEAS grants office has a copy of last year's guidelines for faculty who would like to work on these applications during the summer.

CEAS Materials Researchers Receive Merrill Scheil Award

CEAS faculty member Dr. Pradeep Rohatgi, his Ph.D. student Ben Schultz, and visiting scholar Dr. Weiwen Zhang received the first prize of the Merrill Scheil Award for Excellence in Metallography and Materials Characterization at the Milwaukee chapter meeting of the American Society of Metals (ASM) on May 8, 2007.

Micrographs of the new metal matrix composite synthesized as a result of their work at the UWM Composites Center

will be featured on the cover of the ASM 2007-2008 Membership Directory.

In addition, Ben Schultz will receive the American Foundry Society's (AFS) Aluminum Division Award for scholarship and research on aluminum alloys and metal matrix nanocomposites. He was selected from a national competition. The award was presented at the Aluminum Division Banquet on May 15, 2007 at the AFS Casting Congress in Houston, Texas.



Dr. Pradeep Rohatgi and Ben Schultz

Important Dates

May 19, 2007
Order of the Engineer
UWM Union
Wisconsin Room
2:00 – 4:00

May 20, 2007
Commencement

June 1, 2007
Graduation Application
Deadline

August 6, 2007
Defense Deadline

August 13, 2007
Thesis Submission
Deadline

August 18, 2007
Graduation – no ceremony

Industrial Liaison Council Conducts Research Study

The Industrial Liaison Council, with thirty-five representatives of major industries from Milwaukee and southeastern Wisconsin, is an advisory group to the Dean of the College of Engineering and Applied Science. Besides providing significant input on curriculum, co-op and internship opportunities for students, the ILC has taken on the charge of raising the profile of CEAS on the

UWM campus, in the local industrial community, and among its national peers.

Members of the ILC have established a mission to “develop a mutually beneficial relationship between the college and the businesses and industry in Wisconsin in support of the college’s primary mission: to provide world-class education, research and services and act as a catalyst

for economic development with a focus on the diverse needs of Southeast Wisconsin.”

A particular interest of the ILC is to help CEAS identify and develop areas of research excellence that will benefit local industry. The ILC Consulting and Cooperative Research Committee identified four research areas of particular interest to local and

regional industry: imaging technology, materials technology, energy, water and air, and casting technology.

A recent survey (April, 2007) of ILC members showed that almost 90% of the respondents agreed that these research initiatives were the right areas for their company. Almost 70% reported that their companies had already

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NSF CAREER Awards

The Office of Research will host two workshops for CEAS faculty interested in applying for the NSF CAREER Award. Workshop dates will be announced by May 25. The first workshop will provide information and advice on preparing the proposal, which uses a different approach and format

from regular NSF research applications. In addition to a five-year research plan, the CAREER application also requires a five-year plan for education, including working with underrepresented students and the larger community.

The second workshop will

feature previous CEAS awardees offering insights and strategies on preparing a successful proposal. The deadlines for CAREER proposals are July 17, 18 and 19, depending on the NSF program.

The CAREER grant is the most prestigious NSF award

available for untenured faculty researchers, providing five years of non-competing support. CEAS has an exceptional track record for receiving CAREER awards, having earned seven of the fifteen awarded to UWM (46%) since 1989.

Year	CEAS Faculty	Title	Amount
2007	Sarah Gong	Sustainable and Eco-Friendly Biobased/ Biodegradable Polymers	\$400,000
2005	Adrian Dumitrescu	Algorithmic Issues in Geometric Network Optimization, Binary Space Partitions, and Metamorphic Systems	\$371,743
2004	Krishna Pillai	Modeling the Unsaturated Flow During Fiber-Wetting in the Manufacture of Composite Materials	\$421,462
2000	John Boyland	Analysis Techniques for Evolution of Modular Software	\$239,596
1998	Ethan Munson	Representation, Tools, and Services for the Integration of Software Development Documents	\$205,943
1997	Susan McRoy	Integrating Multiple Knowledge Sources for Robust Human-Machine Communication	\$396,426
1996	C.T. Law	Non-Linear Propagation of Optical Vortex Solitons	\$220,000
			TOTAL \$2,255,170

Proposals Funded February 1, 2007 to May 11, 2007

PI/Co-PI	Agency	Title	Amount
Chen, J.	Xerox Corporation	GIFT: Support Research of Corona Discharges Based on Carbon Nanotubes	\$20,000
Chen, J.	WiSys Technology Foundation, Inc.	Development of Nanoscale Corona Discharge Electrodes	\$14,440
Chen, J.	UW System Administration	Development of Nanoscale Corona Discharge Electrodes	\$6,000
Dumitrescu, A.	National Science Foundation	CAREER: Algorithmic Issues in Geometric Network Optimization, Binary Space Partitions, and Metamorphic Systems	\$191,847
Gong, S.	National Science Foundation	CAREER: Sustainable and Eco-Friendly Biobased/Biodegradable Polymers	\$400,000
Gong, S.	National Science Foundation	REU Supplement: Study of Microcellular Injection Molding of Bio-based/Biodegradable Plastics	\$12,000
Ghorbanpoor, A.	Wisconsin Dept. of Transportation	Implementation of Rehabilitation Techniques for Concrete Bridges	\$15,000
Hanson, G.	RF Nano Corporation	Carbon Nanotube Antennas	\$12,352
Li, J. Yang, C.H., Co-PI	Wisconsin Groundwater Coordinating Council	Transport and Survival of Pathogenic Bacteria Associated With Dairy Manure in Soil and Groundwater	\$69,941
Li, Y.	Johnson Controls, Inc.	GIFT: Conduct Research on HVAC Controls	\$34,000
Munson, E.	General Electric Company	Change Traceability	\$1,500
Naik, T. Kraus, R., Co-PI	Wisconsin Dept. of Natural Resources	Demonstration of Manufacturing Technology for Concrete and CLSM Using Residuals and Reject Fibers from Pulp and Paper Mills	\$55,150
Pillai, K.	S.C. Johnson & Son	Modeling the Evaporation of Volatile Liquids from Porous Media	\$35,674
Rohatgi, P.	National Science Foundation	NER: Synthesis of Metal Matrix-Nanoparticle Composites by Stir Mixing	\$6,000
Venugopalan, D.	UWM Foundation	GIFT: Austempered Ductile Iron Research Fund	\$3,000
Wang, W.	UWM Foundation	GIFT: To Promote the Research and Education of Circuit Design	\$4,000
Yu, D.	JunTech, Inc.	New Algorithms for PTZ Camera-Based Object Tracking	\$15,000
Ying, L.	University of Pittsburgh	Parallel Generalized Series Imaging: Algorithm and Applications to Contrast-Enhanced Breast Cancer Imaging	\$54,684

Data Source: Graduate School Reports

TOTAL: \$950,588

Proposals Submitted February 1, 2007 to May 11, 2007

PI/Co-PI	Agency	Title	Amount
Abu-Zahra, N.	National Science Foundation	Synthesis and Characterization of Polymer Foam Nanocomposites Using Supercritical CO ₂	\$193,134
Abu-Zahra, N. Nayfeh, T., Co-PI	National Science Foundation	High Strength Glass Fibers Embedded with CNT/CNF	\$138,819
Bravo, H. Wapels, J., Co-PI	National Science Foundation	Y-90/Sr-90 disequilibria: A New Method for Determining Water Age in a Drinking Water Distribution System	\$377,166
Bravo, H. McLellan, S., Co-PI	Sea Grant Institute	Development of a Near-Shore Pathogen Prediction Model for Beach Closures	\$122,605

PI/Co-PI	Agency	Title	Amount
Chen, J.	Honda Research Institute	Novel Nanomaterial Gas Sensors for Automotive Applications	\$50,000
Dhingra, A.	Honda Research Institute	Optimum Experimental Design of an All-Purpose Load Transducer	\$50,000
Dumitrescu, A.	National Science Foundation	Motion Planning and Reconfiguration Systems of Multiple Objects	\$308,268
Gong, S.	National Science Foundation	REU Supplement: Study of Microcellular Injection Molding of Biobased/ biodegradable Plastics	\$12,000
Gong, S.	Honda Research Institute	Environmental-Friendly Biocomposite Components with a Solid Skin/Foamed Core Structure Produced via a Novel Microcellular Co-injection Molding Process for Vehicle Applications	\$50,000
Goyal, M. Hosseini, H., Co-PI	Federal Highway Administration	Smart Parking Lots	\$70,000
Goyal, M. Hosseini, H., Co-PI	Federal Highway Administration	Accurate Location/Size Estimates of Nearby Vehicles for Collision Avoidance Using 802.11 based Communication	\$80,000
Goyal, M. Hosseini, H., Co-PI	Honda Research Institute	Accurate Location Estimates of Nearby Vehicles for Collision Avoidance Using 802.11 based Communication	\$64,000
Goyal, M. Hosseini, H., Co-PI	Johnson Controls, Inc.	Performance Evaluation of Zigbee/802.15.4 Networks	\$43,608
He, X.	National Science Foundation	Bio-detection Sensor and Device Using Lab-on-a-chip: Nonlinear Modeling and Development	\$257,677
Helwany, S.	National Cooperative Highway Research Program	Seismic Design and Construction Guidelines for GRS Bridge Abutments With Modular Block Facing	\$300,001
Helwany, S. Titi, H., Co-PI	Applied Research Associates	Evaluation of Intelligent Compaction Technology for Densification of Roadway Subgrades and Structural Layer	\$39,984
Hosseini, H. Goyal, M., Co-PI Sorensen, B., Co-PI	Hewlett-Packard	Enhancing the Teaching of CS101	\$74,000
Jen, T.C.	National Science Foundation	Advanced Graphite Composite Plate for PEM Fuel Cell	\$367,443
Klemer, D. Oliver, J., Co-PI	National Institutes of Health	Platelet Targeting and Destruction by Inductively-Heated Core-Shell Nanoparticles	\$381,617
Kouklin, N.	Office of Naval Research	Efficient Multi-Spectral Light Sensors and Detectors Based on Single Walled Carbon Nanotubes	\$366,141
Kouklin, N.	National Science Foundation	Uniaxially Nanopatterned Polymeric Arrays for Mass-Scale Opto-Electronic Device Applications	\$285,723
Kraus, R.	UW System Solid Waste Research Program	Recycling Wood Waste from Construction and Demolition Debris to Enhance Durability of Concrete	\$30,000
Kraus, R.	Wisconsin Highway Research Program	Reduction of Minimum Required Weight of Cementitious Materials in WisDOT Concrete Mixes	\$115,000
Kraus, R. Chun, Y.M., Co-PI	U.S. EPA Region 5	Technology Transfer Seminars to Increase Use of Non-Specification Coal Combustion Products	\$16,573
Li, Y. Peng, Z.R., Co-PI	National Science Foundation	Trip Based Optimal Power Management of Plug-in Hybrid Electric Vehicles	\$329,562
Li, Y.	We Energies	Robust Health Monitoring of Wind Turbine Drive-Train	\$185,555
Li, Y. Peng, Z.R., Co-PI	Federal Highway Administration	Trip Based Optimal Power Management of Plug-in Hybrid Electric Vehicles	\$101,005

Proposals Submitted February 1, 2007 to May 11, 2007

PI/Co-PI	Sponsor	Title	Amount
Li, J. Liao, Q., Co-PI	Sea Grant Institute	Transport and Survival of Microbial Pollutants in the Sand on Lake Michigan Beaches	\$240,000
Naik, T. Kraus, R., Co-PI	WiSys Technology Foundation	Manufacturing Flowable Fill Using Residual Solids from the Wisconsin Pulp and Paper Industry	\$50,000
Naik, T. Kraus, R., Co-PI	WiSys Technology Foundation	Production of High-Durability Concrete Using Pulp Mill Residuals	\$50,000
Nasiri, A.	Federal Highway Administration	Simultaneous Driving and Charging of Electric and Hybrid Electric Vehicles on the Road Using Conductive Concrete	\$502,000
Nasiri, A. Yu, D., Co-PI	National Science Foundation	A State-of-the-Art Approach in Improving Power Electronics and Electric Drives Courses, Curriculum, and Laboratories	\$160,404
Pillai, K. Varanasi, P., Co-PI	National Science Foundation	GOALI: A Scientific Study on Wiping a Surface Clean	\$295,440
Pillai, K.	National Science Foundation	CAREER: Modeling the Unsaturated Flow During Fiber Wetting in the Manufacture of Composite Materials - Supplement 2	\$10,200
Reisel, J. Munson, E., Co-PI	National Science Foundation	Educating Tomorrow's Engineers and Computer Scientists (E-TECS)	\$599,623
Reisel, J.	National Science Foundation	Modeling the Use of Renewable Energy in the Production of Ethanol	\$89,189
Titi, H.	Midwest Regional University Transportation Center	Characterization of Unbound Materials for ME Pavement Design of Marquette Interchange	\$15,000
Titi, H.	Wisconsin Highway Research Program	Determination of Resilient Modulus Values for Typical Plastic Soils of Wisconsin	\$50,690
Titi, H.	Bloom Consultants & Wisconsin Highway Research Program	Guidelines for Pre-Overlay Pavement Surface Preparation	\$34,933
Wang, W.	National Science Foundation	Thermally Assisted Magnetic Tunneling Junction for Bio-Sensing Applications	\$301,687
Ying, L.	National Science Foundation	Collaborative Research: GOALI: Parallel MRI Using Phased Array Coils	\$129,351
Ying, L.	Harvard Medical School/ National Institutes of Health	Metabolomic Imaging for Human Prostate Cancer Detection	\$424,963
Yu, D. Nasiri, A., Co-PI	We Energies	Short-Term Demand Forecasting for Increasing Wind Penetration Levels in a Utility Power Supply Portfolio	\$244,983
Zhao, T. Tabatabai, H., Co-PI	Microsoft Corporation	Integration of Transit Trip Planner with Virtual Earth	\$59,734
Zhao, J. Peng, Z.R., Co-PI	Wisconsin Highway Research Program	Analysis of Permit Vehicle Loads in Wisconsin	\$49,959
		Subtotal	\$7,718,037
Aita, C.R. Rohatgi, P. Co-PI	National Science Foundation	Preliminary Proposal for an Engineering Resource Center for Advanced Materials	\$16,236,716

Data Source: CEAS Grants Database

TOTAL: \$23,954,753

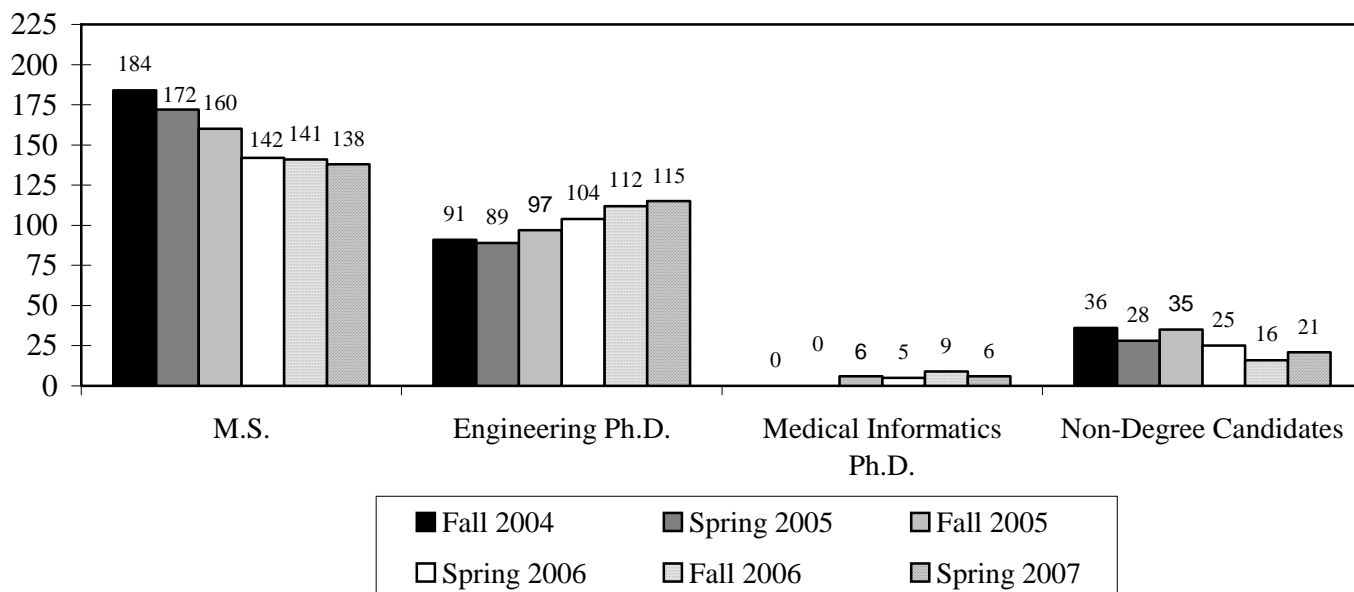
Graduate Applications for Admission (As of May 9, 2007)

	Spring 2005	Fall 2005	Spring 2006	Fall 2006	Spring 2007	Fall 2007*
M.S. Candidates	81	140	89	176	81	145
Engineering Ph.D. Candidates	25	73	29	58	38	47
Engineering Ph.D. Candidates w/o M.S.	2	11	4	23	3	25
Medical Informatics Ph.D.	-	11	5	17	1	14
Total	107	268	127	274	123	231*

Data Source: UWM Graduate School – Graduate Applications and Admissions Summary

*In Process

Graduate Student Enrollment



Data Source: UWM Institutional Research – Enrollment Facts at a Glance

ILC Research Study, *cont. from page 3*

worked with CEAS on research projects but reported some concerns about intellectual property issues and the speed of research results. About 40% of the respondents said they were very comfortable working with UWM and CEAS.

Suggestions for improving the relationships between CEAS and local industry included the need for better intellectual property agreements and more relationship building and collaboration with

individuals at the ILC companies. They also suggested that there be a single point of contact with CEAS to help foster future research relationships.

A larger follow-up survey is planned later this year to more companies, including smaller firms and specialized industries relevant to CEAS faculty research interests.

CEAS Faculty Receive UWM GSRC Awards

Two CEAS faculty members recently received UWM Graduate School Research Committee Awards.

Christine Cheng received \$9,965 for “Algorithmic and Complexity Issues of Sudoku.”

Jin Li received \$10,000 for “Impact of Surface Properties on the Transport of Microbial Pollutants in Porous Media.”

Please congratulate them on their fine work!

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