

TRANSPORT

The University of Houston Department of Chemical and Biomolecular Engineering

Fall 2009

UH Nabs Challenge Grant



A team of University of Houston researchers is among a select few to be awarded a competitive grant from the National Institutes of Health to create a technology that more efficiently identifies the presence of cancer in even the smallest of

body fluid samples.

Professor Richard Willson is part of the team that will use the \$1 million grant not only to construct, but also to test their biosensor's ability to spot cancer protein biomarkers for Chronic Lymphocytic Leukemia—a blood and bone marrow cancer. The device will use magnetic nanotechnology to locate these biomarkers,

which are elevated in patients with the disease, on a single molecule level.

Professors Part of New DOE Center

Professors Demetre Economou and Vincent Donnelly will join approximately 20 scientists nationwide in conducting research as part of a new U.S. Department of Energy supported Center on Plasma Science.



In total, the researchers associated with the center garnered roughly \$10 million from the DOE to fund their work for five years. Of this total, Economou and Donnelly will utilize \$1 million to construct a novel plasma reactor. The machine will be designed so it can be configured to control the energy level of ions and electrons that make up plasmas—something that has not been done before.



Diesel Center Expands, Receives EPA Grants

The Texas Diesel Testing and Research Center recently finished an expansion doubling its size and increasing its means to research and test retrofit devices that reduce the amount of harmful pollutants emitted from heavy-duty diesel engine exhaust. The expansion, funded with a grant from the Texas Commission on Environmental Quality, cost more than \$9 million and took roughly a year to complete. Located in what is now the University of Houston Energy Research Park, the center occupies 12,000 square feet that houses more office and functional laboratory space as well as advanced emission testing equipment.

In addition, the center recently received three grants totaling more than \$3 million from the U.S. Environmental Protection Agency to test exhaust retrofit systems and provide real-world performance data to the agency. Specifically, diesel researchers will test the systems' ability to reduce smog-causing NOx emissions on a combination of road and nonroad vehicles.





Message From the Chair

Greetings and welcome to another issue of *Transport*. In this edition, we highlight some of the research and scholarly activities of our faculty as well as the accomplishments of our alumni. We are proud of all of you!

We're also proud to announce that a couple of individuals within our department have established endowments in support of our faculty and students. Professor Ernest Henley and his wife, Barbara, established the Ernest J. and Barbara M. Henley Chemical Engineering College Professorship Endowment to provide additional financial support for a faculty member.

Sharon Gates, long-time advising assistant, started an endowment to honor the legacy of Joseph R. Crump, William Prengle and Abraham E. Dukler, who launched our department in the early 1950s. This year, the first scholarship from the endowment was awarded to Walter Barta, an undergraduate student studying chemical engineering.

We thank the Henleys and Sharon for their contributions to our department. Also, we'd like to thank all of the graduates from the classes of 2000, 2003 and 2006 for completing the ABET surveys. Your efforts are greatly appreciated and instrumental in maintaining our accreditation.

Ramanan Krishnamoorti
Dow Chair Professor and Department Chair



Ernest and Barbara Henley



Sharon Gates and Walter Barta

The Neal Amundson Lecture

January 28-29, 2010



save the date

Dinner

Thursday, January 28
JW Marriott Houston
5150 Westheimer
Houston, TX 77056
713-961-1500

Lecture

Friday, January 29
Sankaran Sundaresan, Ph.D.
Princeton University

UH Cullen College of Engineering
Lecture Hall L2D2

For directions and nearby parking, go to
http://www.uh.edu/campus_map/buildings/D2.php

Faculty Accolades

Demetre Economou was named the 31st recipient of the Esther Farfel Award, the highest faculty honor given by UH.

Michael Harold received the Abraham E. Dukler Distinguished Engineering Faculty Award from the UH Engineering Alumni Association.

Ramanan Krishnamoorti was selected to participate in the National Academy of Engineering's 15th Annual U.S. Frontiers of Engineering Symposium.

Charles Rooks received an Outstanding Lecturer award from the college.

Richard Willson received the 2009 Fluor Daniel Faculty Excellence Award from the college.

Common Ground: Department Events

Over the past year, the department has launched events designed to reconnect alumni with the department as well as provide networking opportunities for graduates and students. Among these include:

- A wine and cheese reception last spring attended by nearly 100 chemical engineering alumni.
- A networking dinner for alumni, faculty and students held in November.
- Two industry alumni events at Dow Chemical Company and KBR. Professor Krishnamoorti visited with chemical engineering alumni at Dow in Freeport last spring and KBR in Houston this fall.

Although a great success, we'd like to grow these events in the coming year, so stay tuned for upcoming receptions and reunions!



Join UH ChBE on LinkedIn!

<http://www.linkedin.com/groupInvitation?groupId=1872800&sharedKey=7874C2204BC8>



New Faculty

Jeffrey D. Rimer joined the department as an assistant professor in August 2009. Rimer received his Ph.D. from the University of Delaware in 2006 under direction of Raul F. Lobo and Dionisios G. Vlachos. After leaving the University of Delaware, he conducted postdoctoral research at the Molecular Design Institute at New York University.

Rimer's research has focused on mechanistic studies of microporous silica self-assembly using colloidal approaches to develop a combined experimental and theoretical framework for analyzing zeolite

nucleation and growth. His future research interests are focused in areas of nanomaterials self-assembly and pathological biomineralization with fundamental and application-based initiatives. He aims to establish projects at the interface of catalysis and medicine that address microporous nanomaterials design, mechanisms of vascular calcification and kidney stone pathogenesis with combined efforts to control materials properties and characterize crystallization over multiple length scales.



Alumni Notes



Randal Sitton presents **Gabriel Cuadra** (1988 BSChE) with a Distinguished Engineering Alumni Award from the UH Engineering Alumni Association at its June 2009 banquet.

Cynthia Oliver Coleman (1971 BSChE) is now president of the UH Engineering Alumni Association.

Brian Daly (2002 BSChE) is now a senior engineering specialist at Samsung Engineering America.

Yasir Kazi (1995 BSChE) is working on a Ph.D. in Islamic Studies at Yale University.

Jim Keck (1995 BSChE) and wife, Amy, welcomed twins William Thomas and Audrey Catherine on June 8, 2009.

Katherine Kent (1986 BSChE) and her renewable energy business, The Solar Store, were highlighted by *The Arizona Daily Star*.

Bill Ramsey (1993 BSChE) has been promoted to global industrial and consumer market manager for the specialty elastomers business of ExxonMobil Chemical Company.

Avelino Reyes-Alfonso Jr. (2001 BSChE) welcomed Alezzandra Sophia Reyes on July 18, 2009. She weighed 6 lbs, 10 oz.

Randal Sitton (1985 BSChE/BSIE, 1988 MSIE, 1992 PhD IE) was inducted into the UH Department of Industrial Engineering's Academy of Distinguished Alumni.

Hao Song (2004 PhD ChE) is now an assistant professor at Nanyang Technological University's Singapore School of Chemical and Biomedical Engineering.

Jason Wolfe (1999 BSChE) earned a skydiving class-A license from the USPA and is working on his private pilot certificate for single-engine fixed-wing aircrafts.

Roman Wolff (1983 BSChE, 1987 MSChE) was appointed chief technical adviser for Neohydro Technologies Corporation. He is the founder and president of Enhanced Biofuels Inc.

Submit a class note at
<http://www.egr.uh.edu/news/submissions>

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