



EMISSIONS RESEARCH GARNERS NATIONAL EPA AWARD FOR UNIVERSITY OF MISSOURI

A team of University of Missouri-Rolla researchers have developed a test that will, for the first time, allow scientists to accurately gauge the impact that jet aircraft emissions have on global climate change.

Their work garnered the team a 2007 Climate Protection Award from the US Environmental Protection Agency. The award was presented in Washington, D.C.

Led by Dr. Philip Whitefield the researchers from UMR include: Dr. Donald Hagen, Dr. Darryl Alofs, Dr. Ralph Alexander, Dr. John Schmitt, Dr. Daniel White, Dr. Gary Gadbury, Otmar Schmid, Dr. Prem Lobo, Max Trueblood, Steven Achterberg, Ben Baker, Shane Standley, Max Alcorn and the late Ray Hopkins.

UPCOMING events

Open House.....	March 21
Chemistry Phonathon.....	April 17
2008 Spring Banquet.....	April 19
Spring Commencement.....	May 17
Fall Semester Opens.....	August 25
Homecoming.....	October 17-18
Fall Commencement.....	December 20

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UMR chemist is one of 15 to receive international Nano 50 award

Dr. Nicholas Leventis, professor of chemistry at UMR, is one of 15 innovators included in the 2007 Nano 50 Awards presented by Nanotech Briefs magazine. Leventis was recognized for his groundbreaking research in the development of polymer cross-linked aerogels.

The annual Nano 50 awards recognize the top 50 technologies, products and innovators that have significantly influenced – or are expected to influence – the state of the art in nanotechnology.

Leventis' specialty is in cross-linked aerogels, a breakthrough material that is an extremely sturdy, lightweight combination of highly porous glass and plastic that per pound is four to five times tougher than materials currently used in military armor.

Although lightweight, aerogels were not of much use historically because they were very brittle. Leventis and his associates developed a way to improve the strength of these materials by cross-linking, or bonding together chemically, strings of nano-sized glass particles with common polymers like polyurethane, polystyrene and epoxy. Like earlier aerogels, the resulting material was extremely lightweight, but the new chemical approach created aerogels that were 100 times more resistant to breakage and totally resistant to moisture.

Leventis' aerogel composite materials have possible military applications as stronger, lighter material for body armor, armored vehicles and run-flat tires. The material can also store liquid fuel, making it useful for safer, more impact-resistant fuel tanks for aircraft and fuel transport vehicles.

In addition to their strength and light weight, aerogels feature lots of empty space between their nanoscopic strings of glass-like nanoparticles that give them a high resistance to heat transfer and high acoustic impedance. This leads to promising applications in lightweight thermal insulation for use in insulated windows, refrigerators and cryogenic tanks.

Leventis believes other possible applications range from tiny but sturdy drug-delivery vehicles to acoustic insulation, filtration membranes, optical sensors, fuel cell membranes and aircraft structural components, like lighter, more efficient frames for aircraft and spacecraft.

Leventis' work with aerogels is currently funded through a three-year \$150,000 grant from the National Science Foundation.

Leventis received the Nano 50 Award during the 2007 NASA Tech Briefs National Nano Engineering Conference that was held in Boston, Nov. 14-15. Leventis also presented a talk on his aerogel research during the conference.



Jay Switzer receives University of Missouri Presidential Award



Dr. Jay A. Switzer, the Donald L. Castleman Endowed Professor of Chemistry at UMR, received the Presidential Award for Research and Creativity from the University of Missouri.

The award was presented May 31, 2007 during an evening ceremony hosted by interim University of Missouri President Gordon H. Lamb and his wife, Nancy, in Columbia.

The Presidential Award for Research and Creativity recognizes a faculty member with a sustained record of national and international quality research or creativity.

Switzer is an international leader in materials synthesis by electrodeposition, an area at the interface between chemistry, electrochemistry, materials science and solid-state physics. Since joining UMR in 1990, he has produced numerous patents and journal articles, including four Science papers and a Nature paper.

His current research focuses on chiral electrochemical sensors, which could be useful to the pharmaceutical industry.

“Most important drugs on the market are chiral – they exist as either right-handed or left-handed molecules,” Switzer explains. One “hand” of the molecule is effective as a drug, the other is ineffective at best and occasionally toxic. “The chiral surfaces we produce could be used as catalysts to produce the chiral pharmaceuticals or as sensors to measure their concentration, perhaps even as implantable sensors in the human body.”

Other current projects include research into epitaxial electrodeposition of metal oxides, spintronics and electrochemical biomineralization.

He is the recipient of three simultaneous grants from the National Science Foundation, as well as funding from the Department of Defense and other agencies. He also received the American Chemical Society’s Midwest Award for Outstanding Scientist in 2006.

One of Switzer’s colleagues writes that he is an “outstanding scientist whose contributions to ceramic and electrodeposition technology have revolutionized the field. He has also distinguished himself through his service to the chemistry community.”

Switzer earned a bachelor’s degree in chemistry from the University of Cincinnati and a master’s degree and a doctorate, both in inorganic chemistry, from Wayne State University.

UMR BECOMES MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

On January 1, 2008 UMR officially became Missouri University of Science and Technology. All awards, achievements, honors and recognitions before January 1, 2008 are noted as UMR.

2008 Chemistry Phonathon

Last year's Chemistry Department phonathon was held in April and was a huge success. The UMR Chemistry Department received pledges totaling \$9,230.00. Thank you to all those who made this possible, and thank you for supporting the students.

This year's phonathon will be held April 17, 20, 21, 22 and 23, 2008. We will begin calling our alumni on April 17, 2008. When the phone rings, please take a moment to share some of your Rolla experiences with a current student, and say "Yes," when asked to make a pledge. Taxpayer support accounts for 40% of the university's revenue, making your contribution a vital ingredient in the revenue pie. Any amount you give will be greatly appreciated.

May

Ramesh Alleti, PhD
Ayse Beyaz, PhD
Meher Perambuduru, PhD
Devender Pinnapareddy, PhD
Joshua Ogony, MS
Joshua Carey, BS
Elizabeth Cooley, BS
Elizabeth Garvin, BS
Elyse Hendrickson, BS
Kylee Hyzer, BS
Tracie Kost, BS

2007

Graduates



August

Lin Weisheng, PhD

December

Shiva Garg, PhD
Joshua Ogony, PhD
Tongwen Wang, PhD
Lea Dankers, MS
Manikantan Nair, MS
Christina Gramlich, BA
Jacob Pupillo, BS

SPECIAL NOTE FROM MRS. WILLIAM WEBB

I enjoy receiving mail from Scholarship recipients and look forward to reading of their successes in the Alumnus news column. My family celebrated my 90th birthday in fine style last August. I moved to an "active retirement" community in Kansas City on November 28, 2006. I have given up long solo automobile trips but visited in Phoenix in February and hope to go to Boston and Maine in the summer. I'm not sure I can visit Rolla again but all of you are dear to my heart and I wish all of you success and happiness.

Ruby Webb



UMR RESEARCH LEADS TO R&D 100

A group of researchers at the University of Missouri-Rolla have been recognized in an issue of R&D Magazine for helping to develop one of the 100 most technologically significant products in 2006. The UMR scientists collaborated with Deft Inc. of Irvine, California to create chrome-free coatings that reduce health risks for workers who apply primer to military aircraft.

Those that worked on the project from UMR are Dr. James Stoffer, Dr. Thomas O'Keefe and Dr. Eric Morris. Dr. Morris graduated with a PhD in Chemistry in 2000 from UMR. Others who researched the project are Dr. Scott Hayes, who earned a PhD in Chemistry at UMR in 2005, Dr. Paul Yu, a research assistant professor at UMR's Materials Research Center and Dr. Xuan Lin who earned a PhD in metallurgical engineering at UMR; and Richard Albers, a research chemist at Deft Inc.



KATHY EUDALY, SECRETARY

CHEMISTRY DEPARTMENT SECRETARIAL CHANGES

Kathy Eudaly is the new secretary in the Chemistry Department. Kathy began working in April of 2007. We welcome Kathy to the department.

Dawn Davis, the secretary for the Chemistry department since January 3, 2005, has been promoted and is now in the Computer Science Department. Congratulations!!!

ALUMNI UPDATES

Thomas F. Schlaf

(BS 1969) I am in my 6th year as a member of the Industrial Advisory Board for the Department of Chemistry and Biochemistry at the University of South Carolina serving as chairman 2005-2006. The board helped the department set up an Industrial Chemistry course which has been well received by the students.

Edward L. Creamer

(BS 1953) Retired in 1997 from Shell Oil, but still doing some consulting. In January 2008 he and his wife celebrated 50 years of marriage.

James E. Akers

(BS 1953) Retired in 1991 from Shell Oil. He has 4 children, of whom 2 are UMR graduates, and 9 grandchildren.

2007-2008

SCHOLARSHIP RECIPIENTS

**SCHOLARSHIP ON BEHALF OF TNEMEC
COMPANY AND ITS REPRESENTATIVES, IN
SUPPORT OF THE ALBERT C. BEAN, SR.
SCHOLARSHIP AND LOAN FOUNDATION**

CHRISTOPHER JAMES
JOSEPH KELLOGG

**WOUTER BOSCH ENDOWED SCHOLAR-
SHIP FUND (INCLUDING THE COATINGS
INDUSTRY EDUCATION FOUNDATION
SCHOLARSHIP GRANT FROM THE FED-
ERATION OF SOCIETIES FOR COATINGS
TECHNOLOGY)**

BROOKE BURROUGHS
CHRISTOPHER JAMES
JOSEPH KELLOGG
AMANDA KOENIG
KIMBERLY LEVEL
LAURA MEYER
AUBREY MOORE
JAMES MOORE
ANNALISE PFAFF
MATTHEW PORTER
BRADLEY PORTER
EMILY SPEORL
MEGAN OLDROYD

**JAMES & JULIA STOFFER
SCHOLARSHIP FUND**

ANNALISE PFAFF

**DAVIES FAMILY ENDOWED
SCHOLARSHIP FUND**

BRITTANY HOOD

**WILLIAM & ARLENE JAMES
SCHOLARSHIP FUND**

ROHNY HALL
BRYCE HAMILTON
MELISSA LEEK
TIMOTHY SMILEY

**PETER H. PIETSCH SCHOLARSHIP
FUND**

KARISSA BRAATEN
JONATHAN BRACE
TYLER FEARS
CHRISTINA GRAMLICH
RYAN RADER
YI-JEN SU
STEPHANIE VELEZ
ALAN WINDHAUSEN

**WILLIAM HAMLET WEBB ENDOWED
SCHOLARSHIP FUND**

CHARLES ANDERSON JR.
BRETT BABCOCK
CHRISTOPHER CAMPBELL
BRANDI CLARK
ADRIENNE COMAGE
TAYLOR HAHN
KELSEY JORDAN
RACHAEL-ANH LAUTERWASSER
MARTIN MCPHAIL
CAITLIN MOFFETT
RACHEL MOORE
JENNIFER PENA
ANGELA RUDOLPH



Contributions

3M Foundation
Albert C. Bean, Sr.
Scholarship & Loan
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BASF Corporation
Coatings Industry Education Foundation
Dow Chemical Company
Foundation
Dow Corning Corporation
Engelhard Corporation
Hallmark Corporation
Foundation
Henkel Corporation
Materials Research Foundation
Merck Company Foundation
Missouri Forest Products
Association
Monsanto Fund
MSC
National Philanthropic Trust
Shell Oil Company Foundation
Union Pacific Corporation

Gifts

Akers, David A.
Akers, James E.
Akers, Jill R.
Altepeter, Michael A.
Anderson, Dennis R.
Anderson, Robert K.
Armbruster, Marc A.
Banks, Amy K.
Banks, Matthew W.
Barklage, Ron K.
Barklage, Amy L.
Bartlett, Ruth A.
Beckmann, Karen L.
Beckmann, Michael R.

Bennett, Garry A.
Bierman, Frederick H.
Breckenridge, Julie M.
Brent, Bill M.
Breuer, George M.
Byrd, Samuel M.
Cape, Christopher C.
Chang, Chau-Dung
Covault, Richard A.
Craig, Mary R.
Crump, Jamie J.
Davies, Carol A.
DeGood, John S.
Dover, George M.
Downing, Robert G.
Dugan, Daniel C.
Duncan, Pamela M.
Duong, Khang Van-Si
Eckler, Paul E.
Evers, April M.
Evers, Thomas M.
Faes, John
Flaim, Tony D.
Flori, Beverly J.
Flori, Ralph E.
Gao, Xuerong
Gianino, Jo-Ann M.
Gianino, Kenneth M.
Giannobile, William V.
Goewert, Joseph C.
Grannemann, Harry N.
Grannemann, Lynn
Griffin, Paul D.
Haefner, Brent W.
Hardin, David P.
Hawkins, Rodney B.
Heifner, William R.
Higgins, Arthur J.
Higgins, Patricia A.
Hoffman, Glenn W.
Holdman, Jon M.
Holland, Jeffery R.
Holland, Kathleen P.
Iverson, Jon R.
Ihms, David W.
James, William J.
Kaiser, Mark E.
Kennedy, Floyd R.
Knox, James R.
Krishnamurthy, Vandana
Little, Billy F.
Little, Kathryn S.
Lovell, Gregory M.
Lunte, Craig E.
Lutz, Dale R.
Mason, Nicole R.
Mayer, Clarence D.
Menges, Randy A.
Milne, Annie H.
Morice, Larry F.

Naeger, Melanie G.
Naeger, Robert J.
Noel, Kenneth D.
Noland, Patrick A.
Oostendorp, David J.
Patterson, Barbara R.
Patterson, Gary K.
Payne, Kathryn E.
Perkins, Tracy S.
Reimer, Michael T.
Ridenour, Kristin R.
Rowton, Richard
Sanders, Amelia G.
Schlaf, Thomas F.
Schroeder, Charles E.
Schucker, Gerald D.
Seelke, Adele M.
Seelke, Matthew R.
Shackelford, Marshall B.
Shermer, William D.
Silkwood, Blake E.
Silkwood, Laura A.
Six, Ronald K.
Smith, Paul J.
Snarrenberg, James D.
Srirangam, Umamaheswar
Strait, Darrell R.
Straub, John C.
Strite, Russell R.
Tabor, Kenneth E.
Taylor, Christina M.
Thomlison, Clyde D.
Thompson, Larry F.
Tobin, Garry S.
Treasurer, Roberta L.
Underwood, Gary L.
Vinansky, George
Vogel, Matthew F.
Wallace, Lawrence R.
Warner, Deanna L.
Webb, Mrs. William (Ruby)
Wideman, Lawson G.
Williams, Gary E.
Williams, Margaret L.
Wilson, Melissa R.
Wyzlic, Gerald W.
Yang, Huafang
Yeoman, Sherree L.
Zimmerman, Mark C.
Zweerink, Gerald L.

Thank you so very much!

CONGRATULATIONS

Taylor Anne Hahn for being selected as a 21st Century Leadership Academy Fellow. The academy is sponsored by the Sue Shear Institute for Women in Public Policy.

Dr. Harvest Collier and Dr. Yinfa Ma for being chosen by the UMR freshman engineering students as their favorite teacher. A total of 26 instructors in 10 departments were nominated. They received the Freshman Engineering Program WE LOVE YOUR CLASS award.

Linu Abraham for winning 2nd place in the Council of Graduate Students showcase. Fifty graduate students showcased their research through poster presentations.

Jonathan Brace for receiving the “Diversity Award” given at the Student Leaders’ Banquet. This award is given to a student, staff or faculty member who has made a significant and sustained contribution to diversity.

Dr. David Hoiness and Dr. James Stoffer received recognition for being 50 year members of the American Chemical Society at the 2007 Chemistry Department Award’s Banquet.

Dr. Michael Van De Mark received a patent for Water Borne Film-Forming Compositions.

Dr. Nicholas Leventis for being promoted to professor of chemistry.

Dr. Nuran Ercal received a grant from National Institute of Health for a research project titled “A New Antioxidant Prevents Toxicity of HIV Proteins with Methamphetamine”.

Dr. Yinfa Ma for being named a Curators’ Teaching Professor of Chemistry and for receiving a 2007 Faculty Excellence Award.

Weisheng Lin, Yinfa Ma , Yue-wern Huang and Xiaodong Zhou were awarded the best paper award by American College of Toxicology on November 12, 2007. Paper Title: “Toxicity of Cerium Oxide Nanoparticles in Human Lung Cancer Cells.”



GREETINGS FROM THE CHAIR

Greetings from the Department of Chemistry at Missouri S&T! No longer are we UMR. On January 1st the University officially changed its name to Missouri University of Science and Technology. I hasten to assure you, however, using the words of Shakespeare's Juliet "... *that which we call a rose by any other name would smell as sweet*". The department of Chemistry continues its traditions of excellence in research and teaching.

On the research front this last year Nick Leventis was honored by Nanotech Briefs magazine as one of 15 innovators for his invention of cross-linked aerogels. Jay Switzer received the University of Missouri Presidential Award for Research and Creativity. The development of non-chrome primers used to coat military aircraft by Jim Stoffer and Tom O'Keefe Sr. (Materials Science and Engineering) was recognized by R&D Magazine as one of the 100 most technologically significant products of 2006. The R&D 100 Awards have been called the "Oscars of invention" by the Chicago Tribune. And as you saw in the cover article even the chair is out there pumping, receiving one of the EPA's Climate Protection Awards in May 2007.

In December the University of Missouri bestowed its highest teaching honor on our department by naming Yinfa Ma our department's first Curators' Teaching Professor. In this last year Yinfa also received both the Faculty Excellence Award and Outstanding Teaching Award. This is timely and appropriate recognition for one of Missouri S&T's best teachers. As a measure of the excellence in our service teaching mission, Harvest Collier and Yinfa were voted as two of the top five teachers by the freshmen engineering students and Nuran Ercal, Shubhender Kapila, Nick Leventis, Tom Schuman, and Jay Switzer received high ratings in the outstanding teaching award evaluations even though their class loads were not at a level to qualify for an Outstanding Teaching Award.

It was also a red letter year for The WT Schrenk Society (student affiliate of the American Chemical Society). They received an Honorable Mention award from the ACS for their accomplishments for the 2006-2007 academic year.

Although in this letter I have highlighted the accomplishments of a few of our faculty, it is important to share with you what a cohesive team we are, depending on each other and collectively maintaining the highest standards in all we strive to achieve. A department to be proud of!

I wish you a great 2008 and look forward to sharing more news from Missouri S&T in the next letter from the chair. With best wishes to all,

Phil Whitefield

W.T. SCHRENK SOCIETY NEWS



Congratulations to the W.T. Schrenk Society for receiving Honorable Mention for the South Central Missouri Section for their accomplishments for the 2006-2007 academic year. This award is given to Student Affiliate Chapters by the ACS Undergraduate Programs Office. Faculty Advisors are Dr. Thomas Schuman and Dr. Terry Bone.

Dr. Pericles Stavropoulos won the Professor Snarf award from the W.T. Schrenk Society. Snarf is awarded to the chemistry professor who assigns the most homework, gives exams you can't possibly finish in the time limit, and generally seems to be out to get you (or your GPA, at the very least). But are one of your best teachers.

Let us know where you are and what you are doing.

mail to
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or

fax to (573) 341-6055
email to
zudalgk@mst.edu
or chzm@mst.edu

Name _____ Year attending UMR/Missouri S&T _____

Current activities/interests _____

Family _____

News/Plans _____

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