



# CHEMMUNICATOR

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2009 Spring Semester

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## Missouri S&T Researchers Recognized for Significant Contributions to 2007 Nobel Peace Prize

Although former Vice President Al Gore got most of the credit in the media for the 2007 Nobel Peace Prize, the award was shared by the Intergovernmental Panel on Climate Change (IPCC). A team of researchers from Missouri University of Science and Technology were integral to the IPCC's work and this spring the group received official recognition from the Nobel Committee.

The award was presented for "efforts to build up and disseminate greater knowledge about man-made climate change, and to lay the foundations for the measures that are needed to counteract such change." The IPCC was recognized for its research connecting human activities and global warming. Missouri S&T researchers from the Center of Excellence for Aerospace Particulate Research contributed their work with studies and analysis related to aircraft emissions in the atmosphere.

The Missouri S&T team is led by Dr. Donald Hagen, professor of physics, and **Dr. Phil Whitefield**, professor and chair of chemistry. Their research into the role of aircraft emissions on climate change was featured in chapter seven of the IPCC report "Aviation and the Global Atmosphere," one of the scientific reports from the IPCC that contributed to the Nobel Prize. Hagen and Whitefield were two of the chapter's lead authors. The report summarized the knowledge of the role of aircraft emissions on climate change and made predictions based on that information.

Hagen and Whitefield credit their colleagues at Missouri S&T for much of their recognition. "One reason we were able to do so much work in this area is because we are at a university that is a mix of science and engineering," Hagen says.

"We were able to represent the university on the IPCC, but we drew on phenomenal support from our colleagues who work with us in this interdisciplinary center. Missouri S&T is a unique entity to foster that kind of work."

In addition to Hagen and Whitefield, Dr. Darryl Alofs, professor of mechanical and aerospace engineering, **Dr. Nuran Ercal**, professor of biochemistry, and Dr. Gary Gadbury, assistant professor of mathematics and statistics, and graduate and undergraduate research students also worked on the project.

## UPCOMING events

Open House.....	April 10
Chemistry Phonathon.....	April 16
Spring Commencement.....	May 16
Fall Semester Opens.....	August 24
Homecoming.....	October 23-24
Fall Commencement..	December 19

## INSIDE THIS ISSUE

- Researchers recognized for contribution in 2007 Nobel Peace Prize
- 2008 Goldwater Scholarship Award
- 2009 Phonathon
- 2008-2009 Scholarship Recipients
- 2008 Graduates
- Contributions & Gifts
- Greetings from the Chair
- Alumni Updates



Brandi Clark  
2008 Goldwater Scholarship  
Award Winner

## Brandi Clark Goldwater Scholarship Award

**Brandi Clark**, a junior in chemistry from Westervelt, Ill., was named a 2008 recipient of the Goldwater Scholarship. The scholarship covers the cost of tuition, fees, books and room and board up to a maximum of \$7,500. Clark plans to earn a Ph.D. in environmental chemistry and would like to conduct research in environmental chemistry and teach at the university level.

“I was very excited to receive the scholarship; it’s a huge honor,” Clark says. “I feel that all of the hard work I put in doing research, getting involved in organizations on campus and maintaining my GPA is being noticed and appreciated.”

Goldwater Scholars are chosen from the areas of mathematics, science and engineering based on academic merit. The Goldwater Foundation is a federally endowed agency established in 1986 honoring Sen. Barry M. Goldwater. It was designed to foster and encourage outstanding students to pursue careers in the fields of mathematics, natural sciences and engineering.

## May

Christopher Campbell, BS  
Jacob Grubbs, BS  
Melissa Leek, BA  
Vinita Pandit, PhD  
Vishal Patil, MS  
Angela Rudolph, BS  
Emily Speorl, BS  
Stephanie Velez, BS

## 2008 Graduates



## August

Karissa Lyn Braaten, BS  
Hossein Daniel Bahaghighat, MS  
Sansanee Boonsalee, Ph.D.  
Sudhir Mansing Mulik, Ph.D.

## December

Brooke Burroughs, BS  
Ying Gao, PhD  
Kalyan Manda, MS  
Ryan Schwiderski, MS  
Xinsheng Zhang, MS



**Dr. Raymond Venable**

## Memorial

We extend our sincere sympathy to the family of Dr. Raymond L.Venable. Dr. Venable died in Rolla, Missouri on May 24, 2008.

Raymond graduated from Southern State College (now Southern Arkansas University) in Magnolia, AR. He received his M.S. and Ph.D. in chemistry from Louisiana State University in Baton Rouge, LA. In the 1950's, he was a research chemist for Texaco in Bellaire, TX. He was a faculty member in the UMR (now Missouri S&T) Chemistry department for over 30 years. He taught freshman and physical chemistry. His research was in the area of surface chemistry. He was a fifty year member of the American Chemical Society. He was an active member of Sigma Xi, the scientific research society, and served a term as president of the local chapter.

## Congratulations!!!

**Dr. Yinfa Ma**, Curators' Teaching Professor, received the 2008 ACS (American Chemical Society) Division of Analytical Chemistry J. Calvin Giddings Award for Excellence in Education. The award was presented August 17, 2008 at the Analytical Division Award Symposium during the 236th ACS National Meeting, Philadelphia, PA.

The following students graduated with honors at the May 2008 commencement ceremony; **Melissa Leek** (cum laude), **Christopher Campbell** (summa cum laude), **Jacob Grubbs** (cum laude), **Sephanie Velez** (cum laude), **Angela Rudolph** (summa cum laude) and **Emily Speorl** (cum laude).

The Environmental Research Center (ERC) at Missouri S&T recently presented four Missouri S&T students with 2007 Barr Engineering Student Publication Awards. Dr. Tian Wang tied for third place with his paper, titled "Adsorption of Trimethylamine on Zirconium Silicate and Polyethylene Powder Surfaces," published in "Colloids and Surfaces" with co-authors **Dr. Charles C. Chusuei**, assistant professor of chemistry at Missouri S&T, Xiaowen Guo, and Dr. Glenn C. Morrison, associate professor of civil, architectural and environmental engineering at Missouri S&T.

Two professors at Missouri University of Science and Technology have been chosen to receive a faculty award from the John W. Claypool Fund for Medical Research. **Dr. Nuran Ercal**, professor of chemistry at Missouri S&T and adjunct associate professor of internal medicine at St. Louis University, and **Dr. Yinfa Ma**, Curators' Teaching Professor of chemistry at Missouri S&T, have earned the \$1,000 award to help fund their research in a treatment for HIV-1 associated dementia and a method for non-invasive pre-cancer screening, respectively.

Missouri's Electric co-ops are partnering with Lincoln University and Missouri University of Science and Technology to research carbon capture technology for power plants. The research is being funded by the co-operatives and will be performed in conjunction with two algae-related research projects currently being conducted by both universities and funded by USDA's Cooperative State Research, Education and Extension Service and the Missouri Life Sciences Research Board. Principal researchers are Dr. Keesoo Lee, associate professor of biology, Lincoln University; and **Dr. Paul Nam**, assistant professor of chemistry, Missouri S & T.

**Dr. Yinfa Ma**, Curators' Teaching Professor, was nominated for the Missouri Council on Public Higher Education's "Teacher of the Year award". Dr. Ma was the only professor nominated from Missouri University of Science and Technology.

**Martin McPhail** is a senior majoring in chemistry. He hails from Springfield, MO and is an avid member of the Missouri S&T theatre program. He has been involved in a number of performances including "Footloose," "The Rainmaker," and "Greater Tuna." He played "JB", his first lead role in a Leach Theatre performance, in November 2008.

**W. T. Schrenk Society** received a Commendable Award for its activities conducted during the 2007-2008 academic year. **Dr. Thomas Schuman** and **Dr. Terry Bone** are the faculty advisors of the chapter.

## Sympathy Extended

**Dr. Dwight Deardeuff** passed away Saturday, Nov. 1, at his home after a prolonged illness. He received a bachelor of science degree in chemistry from Missouri S&T in 1972 and served many years as director of Missouri S&T's Student Health Services until his retirement in 2004.



## WELCOME

### **Dr. Manashi Nath and Dr. Amitava Choudhury**

In the fall of 2008 the chemistry department welcomed two new faculty members, Dr. Manashi Nath and Dr. Amitava Choudhury, a wife and husband team. Dr. Nath has been hired by the department as an assistant professor in materials and inorganic chemistry. Dr. Choudhury has been hired as an assistant research professor.

Dr. Nath comes to us from Colorado State University where she had been a post-doc in Prof. Bruce Parkinson's laboratory for about three and a half years. She was born in Kolkata, situated along the eastern part of India and got her bachelor's degree (B.Sc. with major in chemistry) from Presidency College, Kolkata. After that, Dr. Nath moved to the highly acclaimed Indian Institute of Science in Bangalore and continued to pursue her studies in chemistry. She obtained her MS degree in chemical sciences from Indian Institute of Science and followed that with a doctoral degree in materials chemistry with special focus on nanomaterials. The area of nanomaterials continued to fascinate Dr. Nath and she went on venturing deeper and deeper into the area of nanoscience and chose that area as her prime career interest.

Dr. Nath's research at Missouri S&T focuses mainly on nanomaterials. Her prime interest encompasses synthesis of functional nanomaterials with interesting properties and integrating them into functional devices. Generally, in her lab, an exploratory synthesis route is undertaken to produce various nanomaterials of interest with pre-determined composition. Some of the materials that are of constant interest to Dr. Nath and her group are semiconductors and superconductors, the nano-structured morphology of which are proving to be more useful day by day.

Dr. Amitava Choudhury also comes from Colorado State University, where he had been a post-doc with Prof. Peter Dorhout for about three and a half years. Dr. Choudhury was born in the beautiful plains near the foothills of the Himalayas surrounded by the tea gardens called the dooars region, near the city of Jalpaiguri, situated in the eastern part of India. After getting his bachelor degree (B.Sc.) with chemistry honours, Dr. Choudhury accepted admission to the M.Sc. program at University of North Bengal situated in Siliguri (a city close to Darjeeling). During the M.Sc. days, Dr. Choudhury developed an interest in inorganic chemistry and he continues to nurture this interest all throughout his research career. After getting his M.Sc. degree, Dr. Choudhury cleared the national level entrance exams and was accepted for the PhD program at the prestigious Indian Institute of Science situated in Bangalore. During his PhD studies, his research was mainly focused on inorganic solid-state chemistry, where he ventured deeply into the areas of magnetic porous solids and open-framework materials. Dr. Choudhury continued to pursue research in solid-state chemistry while at Colorado State University and focused mainly on rare-earth chalcogenides.

Dr. Choudhury's research at Missouri S&T falls within the realm of solid state materials chemistry and is mainly focused on developing smart materials for use as alternative energy sources, e.g. Li-ion batteries, thermoelectrics and hydrogen storage materials. Dr. Choudhury is also responsible for running the single crystal X-ray diffraction facility of the department.

We congratulate both of them and wish them success in their respective careers.

## **2009 Chemistry Phonathon**

Last year's Chemistry Department phonathon was held in April and thanks to all the alumni it was a great success. The Missouri S&T Chemistry Department received pledges totaling \$8,196.00. Thank you to all those who made this possible, and thank you for supporting the students.

This year's phonathon will be held April 16, 19, 20, 21 and 22, 2009. With the economy as it is, please answer your phone 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.

Thank you!!!

**Contributions**

ABBOTT LABORATORIES FUND  
MONSANTO FUND  
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SUN MICROSYSTEMS  
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SHELL OIL COMPANY  
FOUNDATION  
ALBERT C. BEAN, SR.  
SCHOLARSHIP & LOAN  
FOUNDATION  
COATINGS INDUSTRY  
EDUCATION FUND

**Gifts**

ADAMS, JOHN E  
AKERS, DAVID ALLEN  
AKERS, JAMES EDWARD  
AKERS, JILL RENEE  
ALTEPETER MICHAEL A  
ANDERSON DENNIS R  
ANDERSON, HOMER L  
ANDERSON, MYRA S  
ANDERSON, ROBERT K  
ARMBRUSTER, MARC ALLEN  
BANKS, AMY KATHLEEN  
BANKS, MATTHEW WILLIAM  
BARKLAGE, AARON KEITH  
BARKLAGE, AMY LEE  
BARTLETT, RUTH A  
BECKMANN, KAREN L  
BECKMANN, MICHAEL ROY  
BENNETT, GARRY A  
BIERMAN, FREDERICK H  
BOHANON, JOSEPH T  
BRENT, BILL M  
BRUMMEL, ROGER N  
BURCHFIELD, THOMAS E  
BYRD, ALICIA KATHLEEN  
BYRD, SAMUEL MARTIN  
CAPE, CHRISTOPHER C  
CHEN, SZU-CHAIN F

COVAULT, RICHARD A  
CRAIG, MARY R  
CRUMP, JAMIE JOHANNA  
DAVIES, CAROL A  
DEGOOD, JOHN S  
DENSMORE, CRYSTAL GAIL  
DENSMORE, JEFFERY DENNIS  
DONG FENG  
DOWNING, ROBERT G  
DUGAN, DANIEL C  
DUNCAN, PAMELA MARIE  
DUONG, KHANG VAN-SI  
ECKLER, PAUL E  
EVERS, APRIL MARIE  
EVERS, THOMAS MICHAEL  
FAES, JOHN G  
FISCHER, GARY R  
FISCHER, NANCY  
FLAIM, TONY DAVID  
FLORI, BEVERLY J  
FLORI, RALPH E  
FOX, GREGORY JAMES  
GADODIA, SURENDRA K  
GIANINO, JO-ANN MILEVA  
GIANINO, KENNETH M  
GIANNOBILE, WILLIAM V  
GRASDOCK, ORVILLE  
GREGORY, JARED LEE  
GRIFFIN, PAUL D  
HARDER, D'ARCY HOLT  
HARDER, HAROLD M  
HARDIN, DAVID P  
HAWKINS, RODNEY B  
HERITAGE, ROBERT L  
HIGGINS, ARTHUR J  
HIGGINS, PATRICIA A  
HOFFMAN, GLENN W  
HOINESS, DAVID E  
HOLDMAN, JON MARK  
IHMS, ANN A  
IHMS, DAVID W  
IVERSON, JON R  
JAMES, WILLIAM J  
KAPILA, SHUBHENDER  
KIRBY, KURT ALLEN  
KNOX, JAMES R  
KROUTIL, JUDE ANTHONY  
KROUTIL, LISA CAROL  
LEWIS, KEVIN DALE  
LIAN, NORMAN DALE  
LIN, GENG  
LITTLE, BILLY F  
LOVELL, GREGORY M  
LUTZ, DALE R  
MACDONALD, JOHN L  
MAGRUDER, GARY C  
MASON, NICOLE RENEE

MATTIONE, MARILYN J  
MATTIONE, VINCENT G  
MAYER, CLARENCE D  
MENGES, RANDY ALLAN  
MILNE, ANNIE HALL  
MUNSON, ELIZABETH A S  
MUNSON, WILLIAM F  
NAEGER, MELANIE G  
NAEGER, ROBERT J  
NAIR, MANIKANTAN B  
NOEL, KENNETH D  
OTTEN, CAROLYN RACHEL  
PATTERSON, BARBARA R  
PATTERSON, GARY K  
PAYNE, KATHRYN E  
POWERS, TIFFANY ISLE JANET  
PUCKETT, JAMES L  
RIDENOUR, KRISTIN RENEE  
SANDERS, AMELIA G  
SCHROEDER, CHARLES E  
SCHUCKER, GERALD D  
SHACKELFORD, MARSHALL B  
SHERMER, WILLIAM D  
SIERAWSKI, DAVID A  
SILKWOOD, BLAKE E  
SILKWOOD, LAURA ANNE  
SMITH, PAUL J  
SRIRANGAM, UMAMAHESWAR RAO  
STEVEN, ANTHONY A  
STRAIT, DARREL R  
STRAUB, JOHN CHRIS  
STRITE, RUSSELL R  
TABOR, KENNETH E  
TAYLOR, CHRISTINA MARIE  
THOMLISON, CLYDE D  
THOMPSON, LARRY F  
TREASURER, ROBERTA L  
TRUNDLE, HEATHER CHRISTMAN  
VINANSKY, GEORGE  
VOGEL, MATTHEW F  
WARNER, DEANNA LYNN  
WEBB, MRS. WILLIAM (RUBY)  
WETHINGTON, ANN P  
WHITNEY, DENNIS L  
WIDEMAN, LAWSON G  
WILLIAMS, GARY EDWARD  
WILLIAMS, MARGARET LINN  
YEOMAN, SHERREE LEE  
ZIEGER, JAMES B  
ZIENTARA, GINA ANN  
ZWEERINK, GERALD L

Thank you!!!



## GREETINGS FROM THE CHAIR

Wow! 2008 has been a great year for the department and 2009 is looking to be equally good. As you can see we have the pleasure of saying hello to two new faculty members Manashi Nath and Amitava Choudhury, a husband and wife team most recently from Colorado State University and originally from India. We have also had the sad task of saying a final farewell to a long-time member of the department Ray Venable, who passed away in May.

The quality of our undergraduate and graduate students continues to improve and this year, once again, thanks to your generosity we had almost \$90,000 earned from our endowments that could be directed to scholarships for our outstanding students. These scholarships are over and above any financial aid the campus can provide and they are not easy to win or maintain. For your interest I have summarized in the table below the departmental scholarship award criteria.

Scholarship Amount	ACT score	Class rank	GPA	GPA required to retain Scholarship
\$2,000	$\geq 30$	$\geq 80\%$	$\geq 3.6$	3.50
\$1,250	27, 28, 29	$\geq 65\%$	$\geq 3.4$	3.25
\$1,000	25, 26	$\geq 65\%$	$\geq 3.4$	3.00
\$500	23, 24	$\geq 65\%$	$\geq 3.4$	3.00

We continue to be one of the most research productive departments on campus and this year alone we produced greater than 70 peer-reviewed publications and filed 13 invention disclosures. Our largest teaching responsibility is the service chemistry courses that are required by all science and engineering majors on campus. With increasing enrollment these courses generated over 7697 student credit hours (SCH) in 2008. The tuition rate ranges from \$366 to \$735 per SCH, which means that our service teaching load generates approximately \$2,817,102 - \$5,657,295 of income for the campus.

The roller coaster ride of the global economy is certainly being felt on campus but we have recently received assurances from the Governor of Missouri that our current budget will be sustained but not increased in the next fiscal year. Meanwhile I am pleased to share with you that the faculty, staff and students are working together to sustain our effectiveness in these difficult times.

Here's wishing you all a good year ahead and thanking you once again for your continued support.

Best wishes

Phil Whitefield

### Alumni News

**Lynell Gilbert-Saunders** (PhD 2006) Married William "Zane" Saunders living in Carthage, MO and is an Assistant Professor of Physical Science at Missouri Southern State University in Joplin, Missouri.

**Elizabeth (Zuchek) VanHoecke** (BS 2005) Married Brian Van Hoecke (2005 ChE), both are working at Covidien in St. Louis, Missouri.

**Frederick Carman, Jr.** (MS 1969) Retired as lab manager/research coordinator from University of Louisville School of Medicine. Frederick and his wife Virginia, live in Floyd's Knobs, IN and he enjoys golf, fishing and his 5 grandsons.

# Academic Scholars 2007-2008

This recognition is given to full-time students who earned a 3.5 or above GPA for that semester.

## Fall 2007

Babcock, Brett  
Braaten, Karissa  
Burroughs, Pamela  
Campbell, Christopher  
Clark Brandi  
Gramlich, Christina  
Hahn, Taylor  
Hamilton, Bryce  
Kellogg, Joseph  
Koenig, Amanda  
Lauterwasser, Rachel-Anh  
Level, Kimberly  
McPhail, Martin  
Meyer, Laura  
Oldroyd, Megan  
Pena, Jennifer

Pfaff, Annalise  
Porter, Bradley  
Porter, Matthew  
Rader, Ryan  
Rudolph, Angela  
Smiley, Timothy  
Speorl, Emily  
Su, Yi Jen  
Velez, Stephanie  
Windhausen, Alan  
Wolfe, Rachel

## Spring 2008

Babcock, Brett  
Burrough, Pamela  
Clark Brandi  
Hahn, Taylor

Hamilton, Bryce  
Kellogg, Joseph  
Koenig, Amanda  
Kurath, Dustin  
Lauterwasser, Rachel-Anh  
McPhail, Martin  
Meyer, Laura  
Moore III, James  
Oldroyd, Megan  
Pfaff, Annalise  
Porter, Bradley  
Porter, Matthew  
Rader, Ryan  
Rudolph, Angela  
Su, Yi Jen  
Wessel, Andrew  
Windhausen, Alan  
Wolfe, Rachel

## 2008-2009 Scholarship Recipients

### Bean Scholar

James, Christopher  
Kellogg, Joseph

### Wouter Bosch Scholarship

Babcock, Brett  
James, Christopher  
Kurath, Dustin  
Marting, Caleb  
Mentis, Dava  
Pfaff, Annalise  
Porter, Matthew  
Porter, Bradley  
Willmering, Matthew  
Kellogg, Joseph

### KCST Scholarship

Porter, Bradley

### Davis Scholarship

Wilmes, Joshua

### William & Arlene James Scholarship

Acar, Selin  
Barbie, Erin  
Clark, Brandi  
Green, Ashley  
Hamilton, Bryce  
Jentsch, Nicholas  
Khomeis, Shahad  
Level, Kimberly  
Meyer, Laura  
Mollhagen, Ariel  
Moore, James  
Smiley, Timothy  
Stechschulte, Jarrett  
Walsh, Kelly

### Pietsch Scholarship

Brace, Jonathan  
Rader, Ryan  
Su, Yi-jen  
Windhausen, Alan

### Stoffer Scholarship

Moore, Aubrey

### William H. Webb Scholarship

Anderson Jr., Charles  
Burroughs, Brooke  
Comage, Adrienne  
Hahn, Taylor  
Koenig, Amanda  
Lauterwasser, Rachael  
McPhail, Martin  
Oldroyd, Megan  
Pena, Jennifer  
Wessel, Andrew

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

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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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