



# CHEMMUNICATOR

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2013 Spring Semester

## Woelk To Serve As MLC Scholar

Dr. Klaus Woelk, Interim Chairman and Associate Professor of Chemistry, was one of four faculty members selected by the Missouri Learning Commons (MLC) project to serve as an MLC Scholar for the 2013 calendar year.

Experienced in course redesign, MLC Scholars will support active-learning strategies on their own and other campuses. They provide one-on-one support and hold workshops to help faculty members redesign courses. MLC Scholars are also available for consultation by phone.

The MLC Program (<http://missourilearningcommons.org>) is part of a major course redesign initiative of the Missouri Governor and Missouri's thirteen public four-year universities to improve learning outcomes and save instructional costs through technology-supported active learning strategies.



Dr. Klaus Woelk

## Dr. Harvest Collier-retirement

After 30 years of service to the university, Dr. Harvest Collier retired on September 1, 2012.

As vice provost for undergraduate studies and a chemistry professor at Missouri S&T, Dr. Collier initiated and led several programs designed to improve student learning, particularly in the areas of science, technology, engineering and mathematics. An advocate of collaborative learning and the use of technology in the classroom, Collier was also instrumental in developing programs such as **Hit the Ground Running** to help incoming freshman make the transition from high school to college.

"Harvest turned his passion for student success into one of the main missions of the university," says Missouri S&T Provost Warren K. Wray. "The rise in student retention is a testament to the success of his leadership and hard work. He will be missed by colleagues, peers and students, alike."

Collier, who holds bachelor's, master's, and Ph.D. degrees in inorganic chemistry, joined the Missouri S&T faculty in 1982 as an assistant professor of chemistry. He was promoted to associate professor in 1988 and professor in 1994. From 1996-1999 he served as chair of the chemistry department and from 1999-2002. He was associate dean for the College of Arts and Sciences. He was named vice provost for undergraduate and graduate studies in 2001 and in 2007 became vice provost for undergraduate studies.

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## GREETINGS FROM THE CHAIR



Missouri S&T's chemistry department might be illustrated by two simple terms, "longevity" and "change." While these terms appear to describe opposites, they characterize well what is happening at Schrenk Hall in Rolla. Let me start with the latter of the two, which is change. The retirements of key players in the department left a gap that is not easy to fill. Harvest Collier, for example, has been a great connection for the department to the upper campus administration. Chemistry at S&T benefitted much from his ideas and influence, and has become a state-wide model department for teaching large entry-level courses, such as Chem 1, with technology-supported active learning strategies. Time will tell how we stay on top of challenges that come with Massive Open Online Courses (MOOCs), online universities, and alternative certifications (badges) of successful course completion. There are signs that we are well positioned, and I am confident that our team is working hard to keep the chemistry learning experience at S&T a very special one. Our faculty members Emma Satterfield and Cyndie Bolon received S&T mini-grants to test new instructional ideas for enhancing student engagement, senior scientist

Rex Gerald converted Chem 242 and Chem 244 into a truly exploratory physical-chemistry lab experience, and the Learning Commons Initiative of the Missouri Governor has brought exciting new options to Chem 1, the largest course on campus. The website <http://classes.mst.edu/chem1> provides an introduction as well as pictures and short videos to exemplify S&T's new ways of student engagement inside and out of class.

The retirement of our department office personnel, Carol Rodman and Donna Riggs, within one year is another challenge we have to overcome. Generations of students, undergraduate and graduate, will remember the professional yet always friendly and caring service of these very dedicated department employees. Our new staff members, Shannon Roark and Yvonne Hardesty, are not newcomers to departmental office service but realize that they have big shoes to fill. They work hard to give our current generation of students, staff, and faculty a similar familiarity even though some structural changes and redistributions of office tasks are currently discussed.

The points above refer to changes we currently feel in our every-day operation at Schrenk Hall. There is more to come such as the construction of Bertelsmeyer Hall, the new building for chemical and biochemical engineering. We fear that we will somewhat lose the every-day interaction with our colleagues but, on the other hand, can't wait to gain more space for ourselves. A major renovation of Schrenk Hall is currently discussed at all levels, and we will keep our fingers crossed. As much as the big overhaul is needed, it has not kept us from small but steady improvements to the department's equity. The freshman teaching labs have been equipped with new computers and individualized fume-extraction arms, the Webb reading room (chemistry student lounge) and two faculty office areas were renovated, and our new NMR spectrometer resides in a completely refurbished lab with windows to the hallway allowing everyone to get a glimpse of the state-of-the-art research that is conducted.

This brings me to longevity. With all the changes that occur at Schrenk Hall, we continue to stay at the forefront of exciting research. Our scholarly productivity is consistently high and our research projects continue to be funded in large numbers. Many undergraduates benefit from our projects because we keep on offering numerous OURE (opportunity for undergraduate research experience) projects, summer internships, and co-op programs with industrial partners. It gives them the opportunity to experience firsthand what it takes to explore the world of chemistry and work for the benefit and advancement of our society. In the end, this is exactly what most employers look for.

Enjoy reading this edition of "Chemcommunicator", catch up on what's going on in Rolla, and reminisce about your time as a student. I thank you for your continued support and wish you a successful and pleasant year,

Klaus Woelk

### 2012 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 \$10,880. Thank you to all those who made this possible, and thank you for supporting the students.

This year's phonathon will be held May 1, 2, 5 and 6. 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.

## Welcome!

### Yvonne Hardesty

The chemistry department is pleased to welcome Yvonne to the department as administrative assistant. Yvonne has worked on campus for 14 years and comes to us with a wealth of knowledge. We are excited to have Yvonne as a member of our team.

### Shannon Roark

The chemistry department is pleased to welcome Shannon to the department as senior secretary. Shannon worked on campus for 5 years prior to moving to Texas for a short while to allow his wife to live a dream. After returning to Missouri, he returned to the S&T campus. We are excited to have Shannon as a member of our team.

### Dr. Honglan Shi

The Chemistry Department is pleased to welcome Dr. Honglan Shi, Associate Research Professor as a new faculty member, in the Spring 2013 semester. Dr. Shi has worked earlier for the chemistry department and the environmental research center in a 2-year term position as Assistant Research Professor and was the successful candidate of a national search for a faculty member in environmental analysis, bio-analytical chemistry and analytical instrumentation. She received her Ph.D from Missouri S&T in 2010. Dr. Shi's research focuses are drinking water emerging contaminants, soil contaminants, and biomedical techniques. We are excited to have Dr. Shi join our team.

## Alumni News

**Dr. Jake Grubbs** (BS '08) is now working for Georgetown University in Washington D.C. at the DvD Bone Marrow Donor program.

*Share your news with us . . . . . Just fill out the form on the back of this newsletter and mail it in!*

### May 2012

Acar, Selin BS  
Bradley, Jeanine BA  
Curtin, Brice BS  
Mentis, Dava BS  
Ramsey, Tiffany BS  
Stanley, Patrick BS  
Willmering, Matthew BS

Anderson, Kyle PhD  
Carey, Joshua PhD  
Gamagedara, Sanjeewa PhD  
Oh, Woon Su PhD  
Zhang, Xinsheng PhD

## GRADUATES!



## CONGRATULATIONS

### July 2012

Saha Ray, Arunendra MS  
He, Zhen PhD

### December 2012

Homan, Jonathan, BA  
House, Kristi, BS  
Moore, Aubrey, BS  
Vernon, Hamilton, BS

Mistry, Jigar, PhD  
Mohite, Dhairyashil, PhD

\* There were 35 students who were awarded a minor in chemistry in 2012.

## Casey Burton: A craft-y magazine editor

When he isn't busy studying chemistry or researching how to improve screening methods for prostate cancer, **Casey Burton**, a senior in chemistry works on his magazine for the wildly popular video game Minecraft.

And this "fanzine" publisher isn't even a fan of the game. A couple of his friends introduced him to Minecraft in December 2011 during the break between semesters.

Minecraft, at its core, involves placing virtual blocks to build structures, mines, environments or anything else the player can imagine. "It's kind of like Legos for the computer," says Burton, a senior from Lake Ozark, MO. Even the design is a throwback to an earlier era, with clunky, square building blocks instead of the sleek graphics of more realistic-looking games. "It looks like a game from the '90's," says Burton.

Even with its crude graphics, Minecraft is a hit in the gaming world. More than 35 million people have signed up to play the game at its official website, and PCMag.com recently reported that sales of the Xbox 360 version, which came out in May 2012, had topped 3 million in July.

Burton is not one of the gaming fanatics. "I'm not really a gamer," he says. "I'm usually too busy with classes and research." But he did see an opportunity to create an online publication for Minecraft aficionados. And so he started MCQuarterly. The first issue was published June 1 and is available in print as well as online.

"There has been a lot of support" for the publication, Burton says. His website and publication are supported through sponsorships from companies that provide server space for Minecraft games, and from the players, who contribute content. On his website, Burton says he started MCQuarterly "with the goal of unifying the online Minecraft community while contributing to it via donations. In our quarterly issues, we provide to you real relevant information from the entire Minecraft spectrum-the players and server administrators-with articles pertaining to gameplay styles, predominant server trends, server highlights and releases of new plugins and platforms.

Burton recently teamed up with some of the game's community leaders to create a broader online community under the MCQuarterly umbrella. Based on additional support and contributions to his effort, the quarterly publication may soon become monthly.

Burton also plans to publish a print version of the magazine. He will use proceeds from the sale of the print version to support Child's Play, a charity supported by the gaming industry to provide toys and games to hospitals worldwide.

## Abrasive drilling with liquid & supercritical carbon dioxide

**Dr. Klaus Woelk** is among the inventors of a novel jet-assisted drilling and cutting method and apparatus that increases the efficiency and ease of removal of the cutting debris. He developed this patented technology together with Drs. David Summers and Grzegorz Galecki of the Rock Mechanics & Explosives Research Center and Kenneth Oglesby from Regency Technologies, LLC, Tulsa OK, which is aimed at utilizing liquid or supercritical carbon dioxide carrying abrasive solids as a drilling/cutting fluid. The technology has been licensed to an outside company.

## Kapila receives IEC award

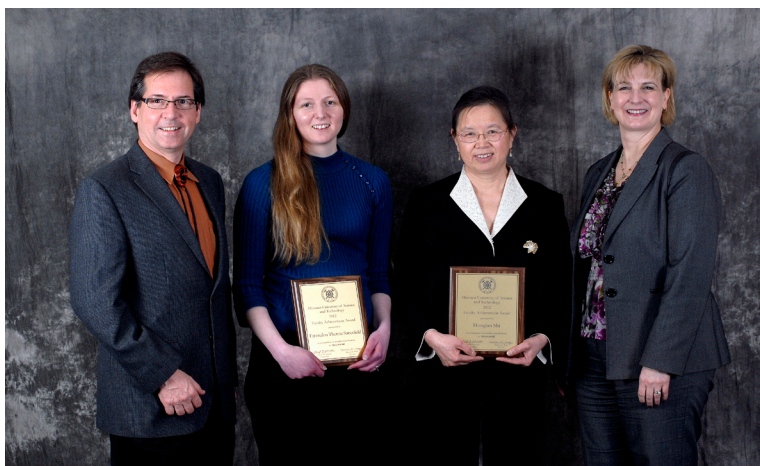
**Dr. Shubhender Kapila**, professor of chemistry, recently received the 1906 Award from the International Electrotechnical Commission (IEC) for his contributions to standardization of fluids for electrotechnology applications. The 1906 Award commemorates the founding of the IEC and honors those who recently made exceptional technical contributions to the specific IEC project.

## CONGRATULATIONS

**Dr. Yinfa Ma:** the story of his research, “**Sunscreen Ingredient May Pose Cancer Risk**”, was the most viewed stories on the Missouri S&T news site during the 2012 calendar year. His story received 6,887 pageviews total and 6,632 of those pageviews came from off-campus visitors.

**Dr. Nuran Ercal:** the story of her research, “**Antioxidant May Prevent, Even Cure, Cataracts and Other Degenerative Eye Disorders**”, was the second most viewed stories on the Missouri S&T news site during the 2012 calendar year. Her story received 2,008 pageviews total and 1,814 of those pageviews came from off-campus visitors.

**EmmaLou Satterfield, Assisant Teaching Professor** and **Dr. Honglan Shi, Associate Research Professor**, both received the 2012 Faculty Achievement Award, the highest campus award for non-tenure-track faculty members. Emma received this award for her outstanding contributions to the undergraduate general-chemistry teaching mission, while Dr. Shi’s extrordinary research productivity in environmental analysis and bio-analytical chemistry was acknowledged. Receiving this award speaks highly of their contributions in the fields of teaching and research at Missouri S&T.



Pictured: Klaus Woelk, EmmaLou Satterfield, Honglan Shi and Chancellor Cheryl B. Schrader at the faculty award banquet.

## RETIREMENTS

**Carol Rodman**, administrative assistant of the chemistry department, retired in June 2012 after more than 40 years of service to the department. With Carol’s retirement, a multitude of experience and many memories left the department. Carol not only served the department as administrative assistant but has been a great mentor for many department and committee chairs. She now has more time to enjoy her passion for line dancing and travelling. We wish her the best in her well-deserved retirement.

**Donna Riggs**, senior secretary for the chemistry department, will retire at the end of April 2013. Because of her accumulated personal and vacation time, her last day of work was February 28. Donna has worked in the chemistry department office for almost 18 years being the first point of contact in assisting chemistry students, staff, and faculty. Her wealth of knowledge and experience has been a great help for all who worked at the chemistry department or visited. Donna plans to spend more time with her children and grandchildren, and we wish her the best in the years to come.

## Academic Scholars 2011-2012

This recognition is given to full-time students who earned a 3.2 or above GPA for that semester.

### Fall 2011

Acar, Selin  
Babcock, Brett  
Bass, Kelsey  
Burton, Casey  
Choi, Jihee  
Clark, Kevin  
Collin, Aline  
Crossen, Kelsey  
Curtin, Brice  
Dachroeden, Karl  
Dwilewicz, Adam  
Greenwood, Amanda  
Higgins, Katherine  
Hines, Connor  
Hull, Caleb  
LaHue, Hope  
Mann, Easton  
Miller, Andrew  
Miller, Joshua  
Nocito, Dominique  
Patterson, Matthew  
Pensel, Morgan

Pfaff, Annalise  
Pringle, Gavin  
Puleo, Emily  
Vernon, Hamilton  
Vollertsen, Steven  
Williams, Abigail  
Willmering, Matthew  
Zimmerman, Casey

### Spring 2012

Acar, Selin  
Armstrong, John  
Bass, Kelsey  
Bergthold, Marissa  
Burton, Casey  
Bush, Frederic  
Choi, Jihee  
Clark, Kevin  
Czeschin, Kathryn  
Dachroeden, Karl  
Digennaro, Isaac  
Dwilewicz, Adam

Ellison, Amanda  
Fouke, Micah  
Frye, Hannah  
Harvey, Erin  
Hull, Caleb  
Jentsch, Nicholas  
Kosbar, Autumn  
Landers, Alan  
Manahan, Kevin  
Mann, Easton  
Mentis, Dava  
Miller, Andrew  
Mollhagen, Ariel  
Nocito, Dominique  
Patterson, Matthew  
Pensel, Morgan  
Puleo, Emily  
Schuller, Megan  
Simone, Lisa  
Willmering, Matthew  
Zimmermann, Casey

## 2012-2013 Scholarship Recipients

### Bean Scholar

Jentsch, Nicholas  
Williams, Abigail

### Wouter Bosch Scholarship

Bowen, Weston  
Buchheit, Abigail  
Burton, Casey  
Hart, Alison  
Hendrix, Rachel  
Hull, Caleb  
Meyer, Henry  
Miller, Andrew  
Putman, Mary  
Williams, Abigail

### Davies Scholarship

Upschulte, Ashley

### William & Arlene James Scholarship

Castro, Alyssa  
Choi, Jihee  
Cox, Olivia  
Czeschin, Kathryn  
Kosbar, Autumn  
Martin, Tammy  
Miller, Joshua  
Nayak, Pranita  
Zimmerman, Casey

### Pietsch Scholarship

Bergthold, Marissa  
Dachroeden, Karl  
Donovan, Ariel  
Jentsch, Nicholas  
Mann, Easton  
Pereira, Drew  
Schuller, Megan

### William H. Webb Scholarship

Bass, Kelsey  
Boys, Nathan  
Buckner, Stephanie  
Choi, Sunghee  
Clark, Kevin  
Frye, Hannah  
Nocito, Dominique  
Puleo, Emily  
Walker, Jessica

### Stoffer Scholarship

Armstrong, John

*Thank you!!!*

## Contributions

ALBERT C. BEAN SR. SCHOLARSHIP &  
LOAN FDN.  
ALLIANCE FOR ADVANCED COATINGS  
RESEARCH  
BASF CORPORATION  
CATERPILLAR FOUNDATION  
CHEVRON CORPORATION  
DOW CHEMICAL COMPANY FOUNDATION  
FIDELITY CHARITABLE GIFT FUND  
HALLMARK CORPORATE  
FOUNDATION  
MONSANTO FUND  
NORTHERN COATINGS & CHEMICAL  
CO.  
ORACLE CORPORATION  
SANOFI-AVENTIS  
SHELL OIL COMPANY FOUNDATION  
UNION PACIFIC CORPORATION  
WYZLIC TAX SERVICE

## Gifts

AKERS, DAVID ALLEN  
AKERS, JAMES EDWARD  
AKERS, JILL RENEE  
ALTEPETER, MICHAEL A  
ANDERSON, DENNIS R  
ANDERSON, HOMER L  
ANDERSON, MYRA S  
ANDERSON, ROBERT K  
AUBUCHON, AMY E  
BAER, TED A  
BARKLAGE, AARON K  
BARKLAGE, AMY L  
BARTLETT, RUTH A  
BEESON, JAMES J DR  
BENNETT, MARTHA A  
BIERMAN, FREDERICK H JR  
BOHANON, JOSEPH T  
BRENT, BILL M  
BURCHFIELD, THOMAS E  
BYRD, ALICIA K  
BYRD, SAMUEL M  
CARMAN, FREDERICK R  
CHEN, SZU-CHAIN F  
COVAULT, RICHARD A  
CRAIG, MARY R  
CREECH, GEORGE E  
CROWDER, CYRUS E  
DAVIDSON, TODD A  
DAVIES, CAROL A  
DEGOOD, JOHN S  
DOVER, GEORGE MARTIN  
DUER, WAYNE C DR.

DUGAN, DANIEL C  
DUONG, KHANG VAN-SI  
ECKLER, PAUL E  
EVERS, APRIL MARIE  
EVERS, THOMAS MICHAEL  
FLAIM, TONY DAVID  
GOLD, ROY J  
GRANNEMANN, HARRY NEAL  
GRANNEMANN, LYNN  
GRASDOCK, ORVILLE  
GRIFFIN, PAUL D  
HARDER, D'ARCY HOLT  
HARDER, HAROLD M  
HARDIN, DAVID P  
HAWKINS, RODNEY B  
HAYNES, MICHAEL A  
HIGGINS, ARTHUR J  
HIGGINS, PATRICIA A  
HOFFMAN, GLENN W  
HOLDMAN, JON MARK  
IHMS, ANN A  
IHMS, DAVID W DR  
JAMES, WILLIAM J  
44 JOE MINER  
KAPILA, SHUBHENDER  
KNOX, JAMES R  
LAEGELER, ANDREW P  
LAEGELER, MOLLY T  
LANGE, DONALD H DR  
LIN, WEISHENG  
LITTLE, KATHRYN S  
MAGRUDER, GARY C  
MASON, NICOLE RENEE  
MAYER, CLARENCE D  
MILNE, ANNIE H  
MUNSON, ELIZABETH A S  
MUNSON, WILLIAM F  
NAEGER, MELANIE  
NAEGER, ROBERT J  
NIERMAN, DONALD A  
NOLAND, PATRICK A  
OSBORNE, CAROL JEAN  
OSBORNE, DAVID WADE  
PATTERSON, BARBARA R  
PATTERSON, GARY K  
POWELL, JOHN D  
RATKEY, CRAIG M  
RATKEY, CYNTHIA DIANNE  
REDMAN, WILLIAM L  
REIMER, MICHAEL T  
REISSEN, MARY B

RIDENOUR, KRISTIN R  
ROBINSON, POLLY G  
SANDERS, AMELIA G  
SANDERS, DARIN RAY  
SCHROEDER, CHARLES E  
SCHUCKER, GERALD D  
SCHUMAN, THOMAS  
SHACKELFORD, MARSHALL B  
SHAVER, BRIAN J  
SHERMER, WILLIAM D  
SILKWOOD, BLAKE E  
SILKWOOD, LAURA A  
SIX, RONALD K  
SMITH, PAUL J  
SNARRENBURG, JAMES D  
SPINDLE, SHIRLEY K  
SRIRANGAM, UMAMAHESWAR R  
STEVENS, ANTHONY A  
STEVENS, LEISA C  
STRAUB, JOHN CHRIS  
STRITE, RUSSELL R  
SWEENEY, EDWARD G  
TAYLOR, CHRISTINA M  
THOMPSON, LARRY F  
THORNTON, KAY E  
TREASURER, ROBERTA L  
TRUNDLE, HEATHER C  
VINANSKY, GEORGE  
VITEK, RICHARD K  
WANG, JOHN J  
WEBB, MRS. WILLIAM (RUBY)H  
WIDEMAN, LAWSON G  
WILSON, MELISSA R  
WYZLIC, GERALD W  
YANG, YUN  
YEOMAN, SHERREE L  
ZIENTARA, GINA ANN  
ZWEERINK, GERALD L

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Name \_\_\_\_\_ Year attending UMR/Missouri S&T \_\_\_\_\_

Current activities/interests \_\_\_\_\_

\_\_\_\_\_

Family \_\_\_\_\_

\_\_\_\_\_

News/Plans \_\_\_\_\_

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