

## Alumni Spotlight

Julien Duxin was born in Saint Raphael, France, and came to Missouri State University on a golf scholarship. He received his BS degree in chemistry in 2004, and then entered the PhD program at Washington University in St. Louis, MO, where he graduated in 2011. Subsequently this led to a post-doctoral position in one of the best labs in the world for investigating detailed mechanism of DNA replication repair. He is currently in Johannes Walter's laboratory at the Harvard Medical School investigating the mechanism of replication-coupled repair of specific DNA lesions such as DNA interstrand cross-links or DNA-protein cross-links. In describing his research Dr. Duxin asserts that "before cells divide they need to successfully replicate their DNA so the genetic information can be faithfully transmitted from one cell to the other. Errors that occur during this process can be detrimental and can induce a variety of diseases, including cancer. I am particularly interested in how replication machineries deal with DNA lesions induced by a variety of endogenous or exogenous DNA damaging agents. To study the molecular mechanism of replication-coupled repair, the Walter laboratory utilizes frog egg extracts (from *Xenopus laevis*, the African clawed toad) that have an extraordinary capacity to recapitulate key events of DNA replication and repair."

Dr. Duxin believes that at MSU he received a great education from outstanding professors who were always willing to help. Because he was a member of the golf team, he was constantly missing classes during the semester. His professors were always willing to work around his schedule so that he could perform under the best conditions during the exams and get the most out of the classes. "I remember Dr. Eric Bosch as the best teacher I ever had. He is without a doubt the person who inspired me to become a scientist. And Dr. Tamera Jahnke's constant support was also essential for pursuing a career in science."

Dr. Duxin's life outside of work involves traveling with his wife and discovering new places. After postgraduate studies they took a six-month break to travel around Southeast Asia and South America, something he highly recommends to students who are in between career steps. Sports have always played an important part in his life, but he only gets to play golf when vacationing back home. In Boston he is slowly picking up on tennis and squash and hopes to organize a soccer league soon.

When his post-doctorate work at Harvard is completed, Dr. Duxin would like to stay in academia and run his own laboratory where he can apply the knowledge he's acquired over the years. His intention is to stay in the field of genomic stability in pursuit of better elucidations of the mechanisms by which cells faithfully transmit our genetic information.

### WALL OF FAME

Dr. James O'Brien's career at Missouri State University spanned 34 years. During his tenure at MSU he held the rank of Distinguished Scholar twice and also that of Distinguished Professor. Dr. O'Brien received the Missouri State University Foundation Excellence in Research as well as Excellence in Teaching Awards. He was the recipient of the College of Natural and Applied Sciences Excellence in Research Award. He was honored with the Governor of Missouri's Award for Teaching Excellence. He published 30 peer-reviewed scientific publications and had 84 presentations at professional meetings.



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Dr. O'Brien was a popular tour speaker for the American Chemical Society for over two decades, giving his talks to countless people on "Mad Hatters" and "Chemistry in the Sherlock Holmes Stories." He now has a book being published by Oxford University Press, New York, early in **January**, *The Scientific Sherlock Holmes: Cracking the Case with Science and Forensics*. The book will be sold through Amazon and Barnes and Noble. MSU will have a presentation and book signing on campus sometime after the book is published. Watch the Chemistry Department website for more information.

As his former students will attest, Jim O'Brien had a huge impact on their learning and experiences at MSU while taking his classes and on their future career choices. His classes were described as "challenging, interesting and fun." One former student states, "He was the most influential faculty member at MSU in teaching me chemistry and forming me as a researcher. Dr. O'Brien played the key role in transforming me from a local high school student with no appreciation of higher education into a chemist that applies his education daily to improve global health." Another summed up his perception of Dr. O'Brien. "Jim O'Brien has contributed much to the field of chemistry. However, even more important is his impact on his students. This is the essence of lasting influence as a faculty member."

## FACULTY NEWS

**Eric Bosch** had the following presentations:

(1) "Extrapolation from Small Molecules to Polymers: A Simple and Effective Way to Promote Interest in Both Organic Chemistry and Polymer Chemistry. This paper was presented at the 2012 Biennial Conference on Chemical Education on August 2, 2012, and also at the American Chemical Society National Meeting in Philadelphia, PA, August 20, 2012.

(2) "Elaboration of Weak Intermolecular Forces Involving Terminal Alkynes," was presented at the American Chemical Society National Meeting in Philadelphia, PA, on August 22, 2012.

Two journal articles were also published:

(1) "Synthesis of 1,2-Bis-(8'-quinolinyl)ethyne and X-ray Characterization of Its Rearranged Oxidation Product 2-Quinoline-8-yl-pyrrolo[3,2,1-ij]quinoline-4-one," co-authored with C. L. Barnes, M. Stutelberg, and B. Eichler, **2012**, *Journal of Chemical Crystallography*, 42(10), 1080-1084.

(2) "Coordination Network Formed Between 5,5'-Bipyrimidine and Copper (I) Iodide," **2012**, *Journal of Chemical Crystallography*, 42(5), 455-457.

**Bryan Breyfogle** received a two-year (September, 2012 - August, 2014) grant from the National Science Foundation in the amount of \$289,688, for the project entitled, "Science Experts Teaching Students," which was co-authored with Georgianna Saunders of the Biology Department.

**Nikolay Gerasimchuk** was promoted to the rank of Professor and was the recipient of the CNAS 2012 Excellence in Research Award. He received a grant from

NIH for the project, "Antimicrobial Effect of a New Class of Light Resistant Silver (I) Complexes, Adhesion and Biofilm Studies," in the amount of \$396,264, March, 2012 - March, 2015. He also received an MSU Faculty Research Grant for the project, "Fabrication and Characterization of Polymer Composites Including Antimicrobial and Light-stable Complexes for Application in Indwelling Medical Devices," for January 1, 2012 - December 30, 2012, in the amount of \$6,150. Dr. Gerasimchuk had the following publications:

(1) "Part 1: Experimental and Theoretical Studies of 2-cyano-2-isonitroso," co-authored with J. Ratcliff, J. Kuduk-Jaworska, H. Chojnacki and Victor Nemykin, **2012**, *Inorganica Chimica Acta*, 385, 1-11.

(2) "Part 2: In Vitro Cytotoxicity Studies of Two ML2 Complexes (M = Pd, Pt, L = 2-cyano," co-authored with J. Ratcliff, P. L. Durham, M. Keck and A. Mokhir, **2012**, *Inorganica Chimica Acta; Elsevier*, 385, 11-20.

(3) "Synthesis, Characterization and Studies of Coordination Polymers With Isomeric Pyridylcyanoximes: Route to Metal Ribbons With Very Short Tl---Tl separations," co-authored with D. Marcano, V. Nemykin, and S. Silchenko, **2012**, *Cryst. Growth Des.*, 12, 2877-2889.

(4) "Synthesis, Spectroscopic and Structural Characterization of the First Phenyl Bis-cyanoximes: Non-chelating Extended Ionisable Building Block Ligands for New MOFs," co-authored with S. Curtis, O. Ilkun, A. Brown, and S. Silchenko, **2012**, *Cryst. Eng. Comm.* October, 2012, <http://pubs.rsc.org> | doi:10.1039/C2CE26395E.

**Brian High** was the recipient of the Master Online Course Recognition Award for Technology as well as the CNAS 2012 Excellence in Teaching Award.

**Mark Richter** received a Faculty Excellence Award and had the following publications:

(1) "Electrogenerated Chemiluminescence Quenching of Ru(bpy)<sup>32+</sup> (bpy = 2,2'-bipyridine) in the Presence of Acetaminophen, Salicylic Acid and Their Metabolites," co-authored with H. Catherine, **2012**, *Journal of Luminescence*, 132, 636-640.

(2) "Chemiluminescence from Osmium (II) Complexes with Phenanthroline, Diphosphine and Diarsine Ligands," co-authored with E. M. Zammit, G. J. Barbante, B. Carlson, E. H. Doeven, N. W. Barnett and C. F. Hogan, **2012**, *Analyst*, 137, 2766-2799.

**Kathy Shade** was promoted to the rank of Senior Instructor. She was also the recipient of the CNAS 2012 Excellence in Service Award as well as the Faculty Excellence Award.

**Adam Wanekaya** was promoted to the rank of Associate Professor and had the following articles published:

(1) "Biomolecular Tri-conjugates Formed Between Gold, Protamine and Nucleic Acid: Comparative Characterization on the Nanoscale," co-authored with R. DeLong, L. Cillessen, C. Reynolds, A. Schaeffer, T. Severs, K. Ghosh, S. Barber and K. Flores, **2012**, *Journal of Nanotechnology*.

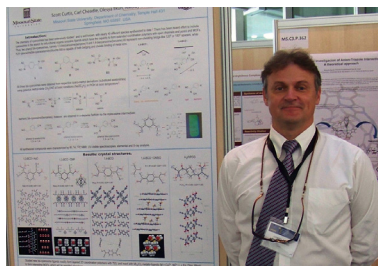
(2) "Association of Poly I:C Onto MnO Nano-rods Mediated by PAMAM," co-authored with

B. Parker-Esquivel, K. Flores, D. Louiselle, M. Craig, L. Dong, R. Garrad, K. Ghosh, and G. Glaspell, **2012**, *Langmuir/American Chemical Society*, 28, 3860-3870.

(3) "Tipping the Proteome With DNA Vaccines: Weighing in on the Role of Nanomaterials," co-authored with K. Flores, M. Craig, K. Ghosh, J. Smith and R. DeLong, **2012**, *Journal of Nanotechnology*, doi:10.1155/2012/843170.

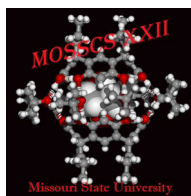
### ICCC-40 - VALENCIA, SPAIN

September 9-13 Dr. Nikolay Gerasimchuk attended



the International Conference on Coordination Chemistry (ICCC-40), which is a biannual event. It was held in Palacio de Congresos de Valencia in Valencia,

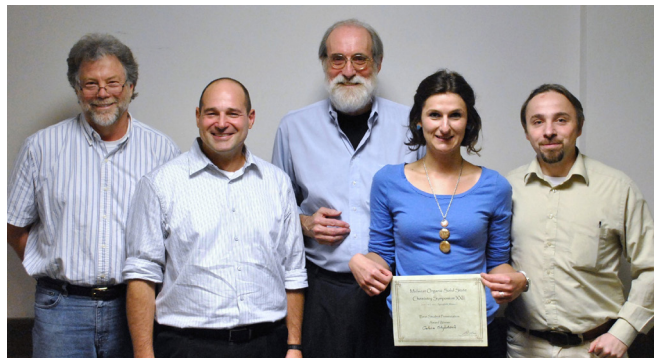
Spain. The organizing committee was chaired by the renowned Professor Eugenio Coronado, a member of Spain Academy of Sciences from the University of Valencia. International Committee members included well known scientists Andy Hor (University of Singapore), Jan Reedijk (Leiden University), Chris Orvig (University of British Columbia) and Masahiro Yamashita (Tohoku University). Overall there were more than 1100 participants from 87 countries and all populated continents. In addition to serving as a judge for the poster session in Multifunctional Materials and Coordination Polymers sections, Dr. Gerasimchuk also made two presentations: "Light-insensitive Silver(I) Cyanoximates: Properties and Remarkable Applications" and "First Bis-Cyanoximes: New Versatile Multidentate Building Blocks for MOFs" co-authored with Scott Curtis, Carl Cheadle, and Olesya Ilcun.



### MOSSCS

In June this year the Chemistry Department hosted the annual Midwest Organic Solid State Chemistry Symposium, which was coordinated by Dr. Eric Bosch. This gathering of organic solid state chemists was first held in 1988 at the University of Illinois and circulates between universities (Kansas State, University of Iowa, Purdue University, University of Nebraska, University of Kentucky and many more) in the Midwest.

This year's conference brought a group of about 50 faculty and students to campus for an intense two days of solid state chemistry. We were fortunate to have three world class plenary speakers, including our very own alum, Professor Jerry Atwood, currently Curators Professor and Chair of the Chemistry Department at

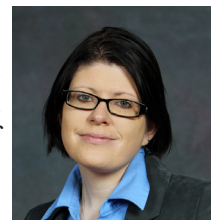


Dr. Eric Bosch, Dr. Len Barbour, Dr. Jerry Atwood, Jelena Stojakovic and Dr. Tomislav Friscic

the University of Missouri. Joining Professor Atwood as plenary speakers were Professor Tomislav Friscic from McGill University in Canada and Professor Len Barbour from Stellenbosch University in Cape Town, South Africa. The conference also serves as a great venue for undergraduate and PhD students to present their research, and we had students from near (University of Missouri) and far (University of Iowa and Oberlin College) presenting. The winner of the "Best Student Presentation" was Jelena Stojakovic of the University of Iowa. Topics presented included the development of low-energy and low-solvent synthesis in the solid state as a green alternative to solvent mediated syntheses as well as studies focused on higher level understanding of crystallization processes. This research impacts many topical areas including the synthesis of organic molecules and cocrystals for pharmaceutical applications and the synthesis of organic molecules and the subsequent preparation of metal-organic materials with porosity for gas storage, gas separation or as nanoscale reaction vessels.

### NEW FACES IN THE DEPARTMENT

**Dr. Katye Fichter, Assistant Professor of Biochemistry**, was born and raised in Cincinnati, OH, and graduated with an AAS (Associate of Applied Sciences) in chemical technology in 1999 from Cincinnati State. While there she interned at Procter & Gamble developing laundry detergents (e.g. Tide). After graduation she obtained a full-time position at Procter & Gamble, working on the formulation of Downy Wrinkle Release. In 2001 she returned to school and in 2004 completed her BS in Chemistry, with a concentration in Biochemistry, at the University of Cincinnati. After graduation she entered their PhD program in Chemistry.



While completing her PhD, Dr. Fichter investigated biochemical properties of "synthetic viruses" for therapeutic DNA delivery (e.g. gene therapy). She gained experience in advanced fluorescence microscopy

techniques and the culturing and assaying of live mammalian cells. This work resulted in publications in highly-ranked journals such as *PNAS*, *JACS*, and *ACS Nano*. Dr. Fichter finished her PhD in 2008 whereupon she moved to Portland, OR for a postdoctoral research position at Oregon Health & Science University in the Department of Biomedical Engineering. There, she used highly-fluorescent quantum dot nanocrystals to track the intracellular movements of neurotransmitter receptors, to inform treatments for neurological disorders, which resulted in another publication in *PNAS*.

Dr. Fichter moved to Springfield, MO in August, 2012 to take a position as an Assistant Professor at MSU. Here she teaches Advanced Biochemistry Lecture and Lab. She also is starting up her new laboratory with the aid of 3 graduate students and 5 undergraduates. She plans to continue her work with quantum dot nanocrystals for application in neurological diseases and gene therapy. Dr. Fichter lives with her husband, Philip Thompson, in downtown Springfield. They have three beautiful cats (Mittens, Molly, and Mephisto) and a snake (Fajita).



**Dr. Matthew Siebert, Assistant Professor of Organic Chemistry**, was born in Lodi, California. Lodi, situated in the northern San Joaquin valley provided a good atmosphere to grow up camping and hiking in the Stanislaus National Forest, and fly-fishing the Mokelumne and Lower Sacramento rivers. Matt's high school chemistry teacher, Todd DeGrandmont, left a strong impression on Matt, but he did not identify chemistry as his passion until one fateful semester during his stint at a local community college.

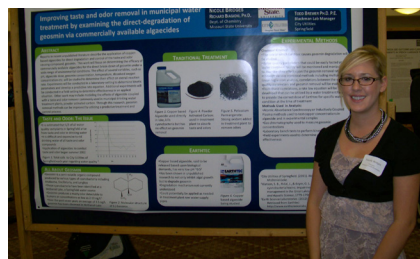
In 2005, Dr. Siebert received his BS in Chemistry from the University of California–Davis, where he studied theoretical chemistry. He stayed at UC Davis to learn how advanced quantum chemical calculations can provide valuable insight into organic chemistry. Dr. Siebert obtained his PhD in 2009 from work carried out in Prof. Dean Tantillo's group. He then looked to expand his computational chemistry knowledge base into the realm of chemical dynamics simulations. In his short stint at Texas Tech University with Prof. William Hase, he carried out work that contributed to several publications. Dr. Siebert plans to take away more from Texas than simply chemical dynamics simulations, as he plans to take his wife, Elizabeth, from Texas in December of 2012.

In fall of 2012 Dr. Siebert joined the faculty of Missouri State University. Here he aims to apply his knowledge of electronic structure theory and chemical dynamics simulations to understand the atomic level

details of reactions in organic, organometallic, and biochemistry. Understanding the atomistic details of reactions that form, break, and otherwise transform carbon bonds is invaluable. Dr. Siebert has started his research investigating select AuCl<sub>3</sub>-catalyzed reactions: 1) cyclopropanation of a propargylic ester, and 2) cyclization of an  $\alpha$ -allenol. In such organometallic chemistry, the combined electronic structure/direct dynamics methodology presents a particularly advantageous approach that has not been given its due attention to date.

**PRESENTATIONS AT THE MSU GRADUATE INTERDISCIPLINARY FORUM, APRIL, 2012**

**Nicole Bridges** and Richard Biagioni, "Improving Taste and Odor Removal in Municipal Water Treatment by Examining the Direct-Degradation of Geosmin via Commercially Available Algaeecides."



**Scott Curtis**, Nikolay Gerasimchuk, Olesya Ilcun and Amy Brown, "First Bis-Cyanoximes: Synthesis, Spectroscopic Studies, Crystal Structures, and Alkaline Metal Complexes."

**Erin Dierker** and Erich Steinle, "Investigations into Erbium (III) Metalloporphyrins in on-Selective Electrodes."

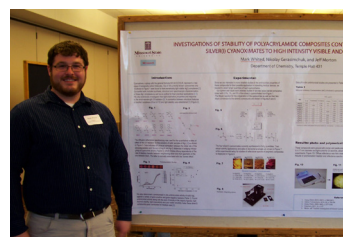
Chad Hagan, "Raman Scattering of Deuterated DNA Nucleosides and Solid DNA Structures."

**Melissa Hayes** and Gary Meints, "Synthesis of Site Specific Deuterium Labeled DNA Nucleosides for Characterization Using Solid-State NMR and Raman Scattering."

**Stephen Kramer**, Gary Meints and Brianna Medrano, "Assignment of Proton Resonances for Damaged DNA Using Two-Dimensional Nuclear Magnetic Resonance."

**Nelson Rono** and Richard Biagioni, "Geochemical Modeling of LaMotte Sandstone for Carbon Sequestration in Missouri."

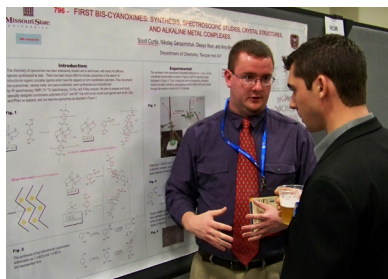
**Lauren Verheyen** and Eric Bosch, "Synthesis of Some New Tridentate Ligands to Complex Silver (I)."



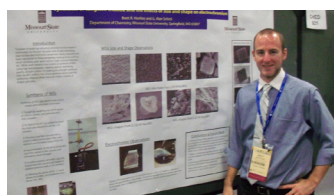
**Mark Whited**, Nikolay Gerasimchuk and Jeff Morton, "Investigations of Stability of Polyacrylamide Composites Containing Antimicrobial Silver (I) Cyanoximates to High Intensity Visible and UV Light."

## ACS NATIONAL MEETING, SAN DIEGO, CA, MARCH 2012

“First Bis Cyanoximes: Synthesis, Spectroscopic Studies, Crystal Structures and Alkaline Metals Complexes,” **Scott Curtis**, Nikolay Gerasimchuk, Olesya Ilcun and Amy Brown.

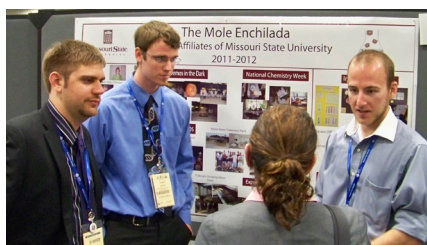


“Investigations of Stability of Polyacrylamide Composites Containing Antimicrobial Silver (I) Cyanoximates to High Intensity visible and UV Light,” **Mark Whited**, Jeff Morton and Nikolay Gerasimchuk.

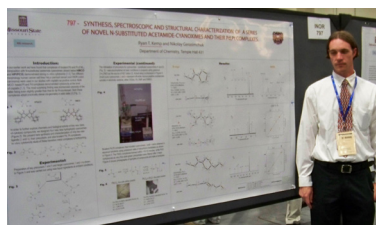


“Synthesis of Tungsten trioxide and the Effects of Size and Shape on Electrochromism,” **Brett Huntley** and G. Alan Schick.

“The Mole Enchilada : Missouri State University Student Affiliates, 2010-2011,” **Eric Tague** and Jason Davis.



“Synthesis, Spectroscopic and Structural Characterization of a Series of Novel N - substituted Acetamide-cyanoximes and Their Pd Pt Complexes,” **Ryan Kemp** and Nikolay Gerasimchuk.



## STUDENTS TRAVEL TO ECUADOR



On August 6, 2012, chemistry students and 4 biology students, along with instructors Dr. Janice Greene (Biology) and Dr. Diann Thomas (Chemistry) embarked on a Study Away course, “Making the

Connections: Environmental Comparisons in North and South America.” The course began at the Bull Shoals Field Station, where students took part in mist netting and bird banding activities, made some measurements of carbon uptake by trees, and measured key water quality indicators in Bull Shoals Lake. Following this, the group traveled to the Amazon Basin in Ecuador to spend 8 days carrying out similar activities along the Napo River and learning about the history and culture of several of the indigenous tribes of the area, including the Quichua and the Shuar. Students were able to learn about the ecology and biodiversity of the Amazon as they explored the differences between primary and secondary rain forests, measured water quality indicators along the Napo and local streams, and got to know the local flora and fauna...occasionally too close for comfort!

The class is being offered again August 2-10, 2013, with the addition of a short visit to the Cloud Forest region of the Andes Highlands in Ecuador.

*Dr. Diann Thomas*

## ECUADOR FROM A STUDENT'S PERSPECTIVE

The week-long trip to Ecuador was an eye opening experience for everyone. I was able to experience things first-hand that I would never have imagined being able to see. It was just a weird feeling to get off the plane and set foot in a totally different country where you are not a citizen. We landed in the industrialized capital city, Quito, but the next day we were immersed in the amazon rainforest, taking a 3 hour long canoe ride up the Napo River. All I could think was, “WOW!, this is really happening.” I was looking at trees that were hundreds of years old, birds everywhere (too numerous to even think about counting), and that was just day two. I think one of the most shocking moments was seeing how the indigenous people of the Amazon live.



We (Americans) get complacent with the rat race of everyday life and forget that there is so much more to life than work, or class, or parties. The people in Ecuador spend many hours a day working on gathering the necessities of life. Many young children were fishing for the night's meal, girls were helping raise siblings, and they were all doing it with a smile on their faces. I don't recall seeing one sad face while walking around the town. People were genuinely happy, and they didn't need much money, TV, or a lot of worldly possessions.

One thing I took home from the trip was to stop trying to do something all the time, but rather take a break and

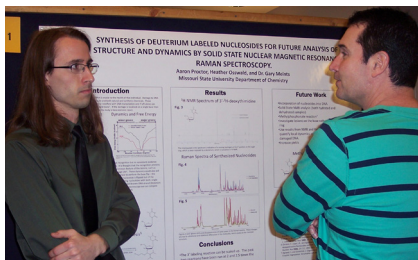
enjoy life as it happens around you. I realized this while sitting in a hammock after lunch. It was siesta time, and EVERYONE was just relaxing and taking a break.

*Eric Tague*

## CNAS UNDERGRADUATE RESEARCH DAY

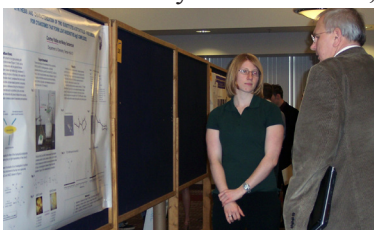
**Anneli Hoggard** and Dean Cuebas, "Simultaneous Simplex and Genetic Algorithm Optimization of Intramolecular Parameters for Aromatic Molecules in the Amber Force Field,"

**Aaron Proctor**, Heather Osswald and Gary Meints, "Investigation of Local Dynamics of Damaged DNA by Analysis of Deuterium Labeled Nucleosides with Solid State Nuclear Magnetic Resonance and Raman Spectroscopy."

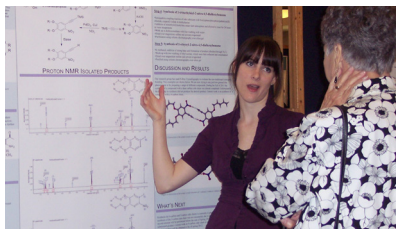


Resonance and Raman Spectroscopy."

**Courtney Riddles** and Nikolay Gerasimchuk, "Synthesis and Characterization of Two Substituted Acetonitriles-Precursor for Cyanoximes that Form Light-Insensitive AG(I) Complexes."

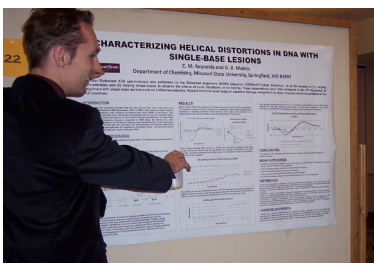


**Brett Huntley** and G. Alan Schick, "Synthesis of Tungsten Trioxide and the Effects of Size and Shape on Electrochromism,"



**Shalisa Oburn** and Eric Bosch, "Synthesis of 1-1-Ethynyl-2-Nitro-4,5-Dialkoxymethylenes."

**Christopher Reynolds** and Gary Meints, "Characterizing Helical Distortions in DNA with Single-Base Lesions,"



## STUDENT AFFILIATES OF THE ACS (SAACS)

The ACS Student Affiliates have been hard at work this semester. The semester started off quickly with our first large event just 2 weeks after school began. The event was called Water Pong for PUR Water and it benefitted the Proctor and Gamble's - Children's Safe



Drinking Water program. This program provides water cleaning packets to third world countries and disaster areas. Through the help of our 10 sponsors we were able to host an event that brought in 60 contestants, which allowed us to donate \$1000 to the program.

During National Chemistry Week we sold baked goods in Temple Hall, held the 2nd annual Mole hunt, and hosted the 2nd annual Demos in the Dark. The Mole Hunt was another huge success because students (and teachers) love the thrill of the hunt--trying to find the hidden moles. Demos in the Dark had another successful year drawing a crowd of around 150 people. Future activities are adopting a highway, chili cook-off, Relay for Life, getting Involved with OTC students, and helping plan for the ACS regional meeting in October, 2013.

The most important event will be attending the ACS National Meeting in New Orleans next spring to accept the Commendable Award our chapter has received from the American Chemical Society. This is an exciting event because our chapter is being recognized on a national level for the work we have put into promoting chemistry.

*Brett Huntley*  
*SAACS President*

## SCHOLARSHIP AND AWARD WINNERS 2012

**Chemistry Department Scholarship**  
Abigail Wheeler

**Chemistry Board of Advisors Summer Fellowship**  
Aaron Proctor, Lauren Verheyen

**Robert S. Christie Memorial Scholarship**  
Kari Burgess, Brett Huntley, Shalisa Oburn

**Robert Lloyd Ernst Summer Graduate Assistantship**  
Jacob Robison

**Wyman & Sue Grindstaff Chemical Education Scholarship**  
Shaina Dunn

**Louise and Roland Harthcock Scholarship**

Shaina Dunn, Nicole Olenski

**William J. Husa Scholarship**

Brett Huntley

**Foundation for Immunotoxicology**

Jennifer Schott

**Doris Lorz Scholarship**

Wesley Dowler

**Emil Lorz Memorial Scholarship**

Michael Coffin

**Dr. & Mrs. Vernon Thielmann Chemical Education**

**Awards** - Elliot Price and Jacob Winders

**Eugene T. Scafe Memorial Scholarship -**

Michael Coffin	Aaron Proctor
Wesley Dowler	Tyler Roe
Courtney Hofstetter	Jennifer Schott
Shalisa Oburn	

**OUTSTANDING STUDENT AWARDS:**

**CRC General Chemistry Achievement -**

Roni Balzam

**ACS Analytical** - Aaron Simpson

**ACS Organic** - Lisa Kirchner

**Biochemistry** - Christopher Willig

**Environmental** - Dustin Perry

**Inorganic** - Wesley Dowler

**Physical** - Aaron Proctor and Eric Tague

**Hypercube Award** - Aaron Proctor

**Outstanding Senior Chemistry Student 2011-2012**

Eric Tague

*2012 Scholarship and Award Winners*



*From left to right, front row: Shaina Dunn, Christopher Willig, Shalisa Oburn, Lisa Kirchner, Jennifer Schott, Brett Huntley, Kari Burgess, Nicole Olenski, Roni Balzam, Courtney Hofstetter. Back row: Aaron Proctor, Aaron Simpson, Michael Coffin, Elliot Price, Tyler Roe Eric Tague, Jacob Robison, Lauren Verheyen, Wesley Dowler*



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### Molecules & Moles

The Newsletter of  
Missouri State University  
Department of Chemistry

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