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Alumni Reunion 2010, August 5–7 Chemistry Events

Chemistry Alumni Social

A. E. Seaman Mineral Museum
Thursday, August 5, 5:30 PM–7:00 PM

Chemistry Alumni KBC Brewery Tour

South Range Brewery
Friday, August 6, 3:00 PM



Letter from Sarah

This spring we graduated sixteen BS students across our four degree programs. While they are all off to great new things, we hope all of you will

come back to visit us for the first Chemistry Reunion at Michigan Tech! Tech is 125 years old, and our department just turned twenty.

The last year has been an eventful one in the department. In the last eighteen months, we have welcomed four new faculty members and bid a happy retirement to Marshall Logue.

Our students continue to amaze me with their accomplishments and activities. Here are just a few examples that are not listed elsewhere in the newsletter: Many students delve into research projects during the summer, either at Tech or through the many competitive opportunities around the country, including Stanford, the University of Chicago, and the University of Kansas.

Others found positions in companies such as Dow Corning, Kimberly-Clark, and other firms. Tanya Johnson traveled to Costa Rica on a study abroad program and Talisha Sutton is headed there this summer. Kelli Whelan joined Engineers Without Borders on a work visit to Guatemala and is continuing that project as she prepares to join the Tech Peace Corps Master's International (PCMI) program in the fall. Wilbel Brewer spent last summer at Toyota in the environmental affairs department.

Among our recent graduates: Bret Wazny '08 stopped by to tell me how useful his Michigan Tech skills are in his

job at Holcim, Inc. Sarah Weinreis '08 has received a Noyce Fellowship to return to Tech and earn her teaching credentials. Katy Smith '08 is studying the chemistry of volcanoes at the University of Wisconsin, Madison. Tony Markon '08 is in Uganda, preparing to teach chemistry as a PCMI student in applied science education. Sandra Orłowski '08 is excited to begin a new job at the MSP Forensic Science Division in Marquette.

I've also had great visits recently with some earlier graduates around the Midwest and elsewhere. Last fall, I had a wonderful few days in the Bay Area, seeing Lena Toskovich '48, Elton Cairns '55, David Horsma '62 and his wife, Geri, as well as Kexue Li '02, and Xiaofen Li '02 with their daughter, Anna '26. I met Stephen Hahn at the annual meeting of the Council for Chemical Research, where he received the Collaboration Success Award for cross-sector collaboration in research.

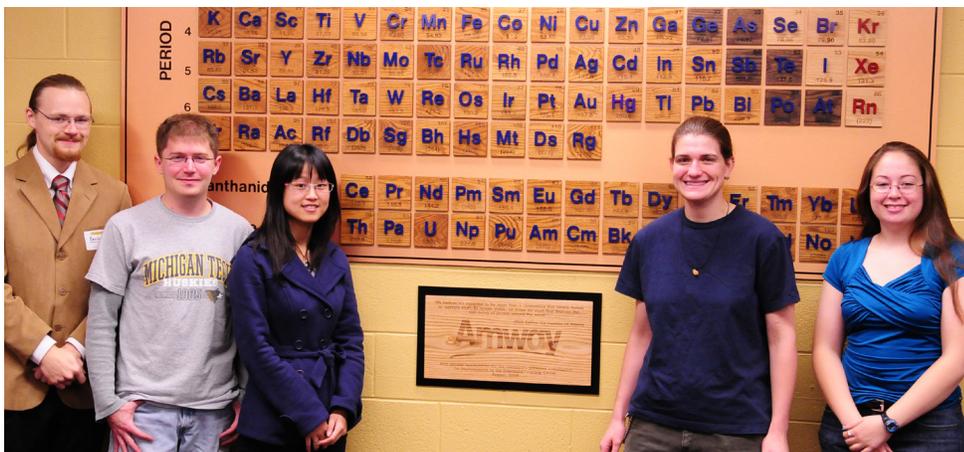
David Pruett and his wife, Valeria, came by to visit one dreary rainy day in September, and then surprised the department with a very generous gift to support a postdoctoral research fellowship. The first recipient of the Pruett Fellowship is Shavashish Kundu, who will begin working with Lynn Mazzoleni in a few weeks. Postdoctoral scholars bring valuable experience and energy to new research programs so it's exciting to see their number increasing.

And what are you up to? Have you changed jobs? Are you still in that graduate program you entered thirteen years ago? Are you sending your children to Tech? Please let us know!

Sarah Green
Department Chair

CLC Renovations

Director Lois Blau is enjoying the recent renovations to the very busy Chemistry Learning Center (CLC). Beginning in fall 2009, students were tutoring and studying while enjoying the freshly updated and more welcoming CLC. The changes were made possible with a generous donation from the Amway Corporation.



Statistical information (as of fall 2009)

- 30 graduate students in chemistry
- 52 undergraduate majors in chemistry
- 29 majors in pharmaceutical chemistry
- 22 majors in biochemistry and molecular biology
- 2 majors in cheminformatics
- 12 bachelor of science graduates in 2009–10

Faculty

The department welcomed four new faculty members this year.



Lynn Mazzoleni

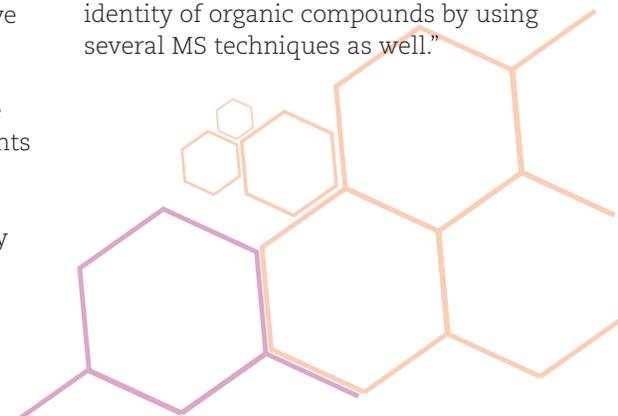
Spring 2009

Atmospheric/Analytical Chemistry

Lynn earned her PhD at the University of Nevada, Reno, and comes to us from the Los Alamos National Laboratory. Prior to joining Los Alamos, she held a postdoctoral position at Colorado State University in the Department of Atmospheric Science and Cooperative Institute for Research in the Atmosphere.

“My primary research interests are to identify organic aerosol constituents from a variety of atmospheric environments. For identification, we use advanced liquid chromatography (LC) separations and advanced mass spectrometry (MS) techniques.

Hydrophilic organic compounds are some of the toughest organic compounds to separate by traditional LC techniques. We are currently exploring new LC column chemistries with ultrahigh pressure pumps for fast and thorough separations. We exploit the identity of organic compounds by using several MS techniques as well.”





Jin Chen

Summer 2009, Organic Chemistry

Jin earned her PhD at State University of New York-Stony Brook. She comes to us from Memorial Sloan-Kettering Cancer Center where she served as a postdoctoral scholar.

Jin's research interests in organic, medicinal, and pharmaceutical chemistry encompass the design, synthesis, and biological evaluation of tumor-targeting drug-delivery systems; synthesis of biologically interesting natural products; research at the interface of organic chemistry and medicinal chemistry; development of efficient medicinal chemistry-based methods and technologies for productive drug discovery and drug delivery; and application of comprehensive synthetic tools and advanced materials in combination with biochemical and biophysical techniques to address medicinal challenges.

Ashutosh Tiwari

Summer 2009, Biochemistry

Ashutosh earned his PhD at Jawaharlal Nehru University, New Delhi. He joins us from the University of Massachusetts Medical School, where he has held positions as a postdoctoral research fellow and, most recently, as a research assistant professor.

"My research interest lies in the area of 'protein misfolding diseases' with special emphasis on neurodegenerative diseases. The long-term goals of my laboratory are to analyze the biochemical and biophysical properties, including stability and posttranslational modifications of proteins involved in neurodegenerative diseases such as amyotrophic lateral sclerosis, Alzheimer's disease, Parkinson's disease, prion diseases, and Huntington's disease, which misfold and show intracellular or extracellular aggregates at the end-stage of the disease. Characterization of unique properties of these proteins may help us understand how these proteins may affect the overall health of a cell."

Darío Stacchiola

Summer 2009, Physical Chemistry

Darío earned his PhD at the University of Wisconsin-Milwaukee and joined us from the Brookhaven National Laboratory (BNL). Prior to that, he held a postdoctoral position at the Fritz-Haber Institut, Max Planck Society.

He was with the department for just one year before being snatched back to a permanent job at BNL. He did a fine job teaching p-chem, and established collaborations at Tech, which we hope will be ongoing.

Promotions

Haiying Liu, Marty Thompson, and Shiyue Fang were promoted to associate professor with tenure between spring 2008 and spring 2010.



Research Funding

Research Center Receives \$1.2 Million

Michigan Tech's Center for Fundamental and Applied Research in Nanostructured and Lightweight Materials has been awarded \$1.23 million in continuing funding from the US Department of Energy, bringing its total DOE support since 2004 to nearly \$3 million. Since it received its first \$1.1 million in 2004, the center has assembled the talents of several researchers working on a variety of projects, such as the nickel hydride battery electrode that can deliver more power than the batteries now in use at half the weight, for which Chemistry Professor **Bahne Cornilsen** and Chemical Engineering Professor **Tony Rogers** have received a patent.

Other Funding News

Shiyue Fang received \$35,000 from the University of Michigan, Michigan Universities Commercialization Initiative (MUCI), for "Michigan University Commercialization Initiative: A Proposal for Purification of Oligonucleotides."

Pushpalatha Murthy and **Marty Thompson** received \$149,410 from NSF for a two-year project, "Enhancing Active

Learning: An Inquiry-Based Laboratory in Biomolecular Chemistry."

Chemistry faculty received awards from the Michigan Space Grant Consortium (MSGC). Assistant Professor **Lanrong Bi** was awarded \$5,000 for "Antioxidants for Astronauts? Development of Novel Antioxidants Against Oxidative Damage During and After Spaceflight." Professor **Patricia Heiden** and undergraduate student **Bill Grant** received \$2,500 for "Preparation of Novel Polyimide and Epoxy Nanocomposites."

Lanrong Bi also received \$202,263 from NIH for a three-year project, "Enhancing the "Barcode" Readability of Color-Labeled Molecular Tags by Linker Engineering to Facilitate Genetic Analysis."

Lynn Mazzoleni received \$39,659 from NSF for a one-year project, "Collaborative Research: Hygroscopic Properties of Aerosol Organics."

Lynn Mazzoleni also received \$45,508 from the Los Alamos National Laboratory for a one-year project, "Isotopic Tracer for Climate-Relevant Secondary Organic Aerosol Components."

Vice President for Research Office Research Excellence Funds (REF)

REF Research Mentoring Grant

2009: **Lanrong Bi**, \$16,000 for "Mentoring Program to Develop Novel Therapeutic Agents Against Free Radical-Related Diseases."

REF Infrastructure Enhancement Grant

2009: **Sarah Green**, \$15,257 for "Acquisition of a DNA Synthesizer for Research Applications in Chemistry and Biochemistry."

2010: **Sarah Green, Patricia Heiden, Jin Chen** \$34,000 for a Cryo Ultramicrotome System for Microscopy.

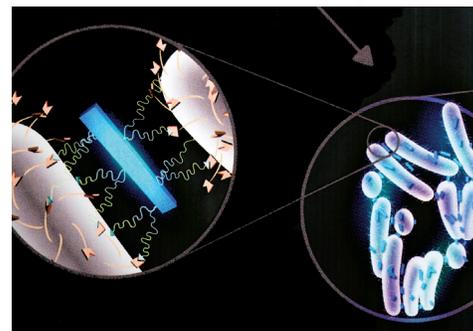
REF Research Seed Grants

2009: **Lynn Mazzoleni**, \$34,690 for "Identification of Atmospheric Organic Matter by Multi-step Mass Spectrometric Analysis."

2010: **Lanrong Bi** \$15,500 for "Slowing DNA Transportation in Nanopore using Molecular 'Brake.'"

Jin Chen \$15,500 for "Tumor Targeting Drug Delivery Systems Based on Polyelectrolyte Complexes."

Lynn Mazzoleni was also part of a group that received funding from the Century II Campaign Endowed Equipment Fund (C2E2) for a Submicron Aerosol Generator for Interdisciplinary Research Applications in 2009.



Making E. coli Glow

Associate Professor of Chemistry **Haiying Liu** led a team of Michigan researchers who have discovered how to make a strain of E. coli glow under fluorescent light. The technique could eventually be used to track down all sorts of pathogens and even help in the fight against breast cancer.



First Graduates in Biochemistry and Molecular Biology

Four of the students with the new degree graduated summa cum laude, earning GPAs of 3.9 or higher, and all four have received the department's Outstanding Senior Award.

Kyrie Pappas will enroll at New York's Columbia University this fall, where she expects to earn a PhD in Pharmacology and Molecular Signaling. "I hope to do my PhD work on developing cancer therapeutics," she said.

Goldwater Scholar **John Gubatan** is heading to Harvard Medical School to enroll in the New Pathway MD program. "I hope to pursue a multifaceted career in academic medicine and biomedical research as a physician-scientist to understand the biochemical and molecular basis of various diseases," he said.

Samantha Stam will be pursuing a graduate degree in biophysics at the University of Chicago. "I think that one of the things about Tech that prepared me for grad school is the fairly small classes of strong students," she said. "This created an environment that really pushed me to do well."

Jennifer Liu is a double major (with mathematics) and will work on a master's in student affairs administration in higher education at Western Washington University. "I worked for many years in the orientation program here at Tech, and it was there that I realized how much I love orientation, working with people, and student affairs," Liu said.



Spring Awards Program

Each year at our annual spring awards banquet, the department recognizes students for academic achievements and service to the department. Spring 2010 awardees included—

CRC Press Freshman Chemistry Achievement Award Chelsea Uganski

Doc Berry Award Kyrie Pappas

Undergraduate Award in Analytical Chemistry Brent Halonen

Biochemistry Research Award Samantha Stam

Studio Lab Endurance Awards Morgan Owen-Cruise, Chelsea Uganski, and Jayna Winegarden

Leslie Leifer Award in Physical Chemistry Katlyn Mehne

Outstanding Senior Award Kyrie Pappas, John Gubatan, Samantha Stam, and Jennifer Liu

Outstanding Lower-Division Chemistry Teaching Assistant Ning Chen
Also recognized for their outstanding work as teaching assistants in the first-year program: Sara Nutt, Nicholas White, and Jeremy Brown.

Outstanding Upper-Division Chemistry Teaching Assistant Louis Pignotti

Outstanding Graduate Student Ning Chen

Ray E. Cross and Eleanor K. Cross Endowed Graduate Fellowship in Chemistry Nazmiye Akca

David J. and Valeria L. Pruett Summer Undergraduate Research Fellowship Nicklaus Maynard

Sandretto-Stackhouse Fellowship Wilbel Brewer

Departmental Scholar Claire Drom
Women of Promise Program Participant Annie Putman

Student Employee Recognition Stephen McLenithan, Kyle Williamson, Jessica Martin, Katrina Bugielski, Michelle Chiodi, Andrew Dorton, Jill Kivisto, Jacob Kurka, John Neuman, Sandra Orłowski, and Benjamin Vindedahl

Department of Chemistry Ambassador Awards Kyrie Pappas, Ashli Fueri, Nick White, Graham Gould, Andrew Chapp, Ryan Albee, Amanda Bybee, Carol Chen, Adam DeSalvo, Kali McEntire, Phillip Olivares, Morgan Owen-Cruise, Chelsea Uganski, Zhiwei Ma, Mimi Yang, John Gubatan, Tanya Johnson, and Gregg Hasman

ACS Student Affiliate Officers
We would like to thank the 2009–10 officers President Claire Drom, Vice President Tanya Johnson, Treasurer Andrew Kennedy, Secretary Nick Bauman and welcome the 2010–11 officers, President Gregg Hansman, Vice President Tanya Johnson, Treasurer Andrew Kennedy, and Secretary Claire Drom.

Graduate Student Safety Committee
We would like to recognize the 2009–10 committee, Jeremy Sandrik, Xiang Zhang, Mimi Yang, and Na Hu.

Surf Award Winner Morgan Owen-Cruise
Undergraduate Expo Poster Winners Kyrie Pappas (Biochemistry and Molecular Biology) and Xiang Zhang (Organic Chemistry)



Student Recognition

Graduating senior **Annie Putman** received a fellowship for undergraduate environmental study from the Environmental Protection Agency through its Greater Research Opportunities program, which covered Putman's tuition, additional expenses for her last year at Tech, as well as a three-month internship at an EPA facility. Only fifteen of these fellowships are awarded annually.

John Gubatan was named a Goldwater Scholar by the Barry M. Goldwater Scholarship and Excellence in Education Foundation. Gubatan is a biochemistry and molecular biology major with a double minor in French and Spanish. With his eye on a career as a physician-scientist, Gubatan has already conducted cutting-edge research at some of the nation's premier research institutions, including Harvard Medical School and Baylor College of Medicine. In summer 2009, he conducted research as an Amgen Scholar at Stanford University School of Medicine in the lab of Marlene Rabinovitch, MD. The project investigated the role of infiltrating B cells in the molecular pathogenesis of pulmonary vascular disease in mice models.

Goldwater scholarships were established by Congress to honor the late Senator Barry M. Goldwater and are based on academic merit, research experience, and intent to pursue a career in science, engineering, or mathematics.

Student-Athletes Win Awards

Molly Wiltzius was named the most valuable athlete for the women's track and field team in 2009 after shattering the school record in the discus with her throw of 139' 4" to finish fourth at the GLIAC Championships.

Samantha Stam, a member of the women's cross country team, was one of seventy-one Michigan Tech student-athletes who were honored for their academic success by the GLIAC.

Sandretto-Stackhouse Summer Research Fellowships

The Sandretto-Stackhouse Summer Research Fellowships are made possible by a gift from the estate of Rebecca M. C. Sandretto and were awarded to **Nicholas Bauman** in 2009 and **Wilbel Brewer** in 2010.

David J. and Valeria L. Pruett Summer Undergraduate Research Fellowship

In 2010, we awarded the first Pruett Summer Undergraduate Research Fellowship to **Nicklaus Maynard**.

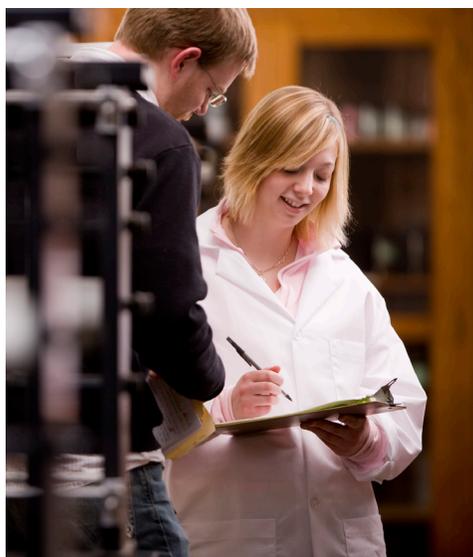
SURF Awards

Michigan Tech's Summer Undergraduate Research Fellowship (SURF) program awards funds from the Vice President for Research and the Honors Institute to undergraduate students.

In 2009, two biochemistry and molecular biology (chemistry concentration) students received SURF awards—**Sarah Hopson**, for "The Optimization of the Heterologous Production of Alkaline Phytase in the Yeast *Pichia pastoris*" with Professor Pushpalatha Murthy; and **Kyrie Pappas**, for "Selective Acylation of Polyamines at Ambient Temperature" with Assistant Professor Shiyue Fang.

In 2010, first-year student **Morgan Owen-Cruise**, won a SURF Award for "Synthesis of Structured Nanoparticles" with Professor Pat Heiden.





Alumni Updates

Angela Karash

(BS '81/MS '84) has been at Midwestern University in Downers Grove, Illinois, for seven years. She is an instructor in the pharmaceutical science department, where she lectures in the medicinal chemistry sequence and the pharmaceutical compounding laboratory (via email).

Erica Valencia McDonald

(BS '03, DDS '07 University of Detroit Mercy) married James McDonald in 2007 and currently resides in Lubbock, Texas, where she is a full-time dentist (via email).

Kristen Semlow

(BS Pharmaceutical Chemistry '08) is employed by Dow Corning as an associate development chemist. She resides in Midland, Michigan (via email).

It was a great privilege to induct **Ming Ming Zhou** (MS '88), Department Chair, Structural and Chemical Biology Department, Mount Sinai School of Medicine, to the Michigan Tech Academy of Sciences and Arts in September. We very much enjoyed Zhou's visit; it is always an honor to celebrate the successes of our alumni.

Please send your updates to chemistry@mtu.edu or post updates on HuskyLink at www.huskylink.mtu.edu.

Giving

Sandretto-Stackhouse Gift

Michigan Tech received a gift of just over \$280,000 from the estate of Rebecca M. C. Sandretto that will benefit a wide range of student programs.

"The thoughtful allocation of these gift funds by her daughter and son-in-law, Sue and Steve Stackhouse, will help us deliver a first-rate education to a great number of students," said Eric Halonen, director of major gifts and gift planning at Michigan Tech's Office of Development.

Over the years, Mrs. Sandretto was always interested in and very impressed with the many accomplishments of the unique student projects across the campus. A longtime friend of Michigan Tech who died on December 25, 2007, she had expressed the wish that her gift be used to support these student endeavors. "Her generosity means more opportunity for our students," Halonen said in announcing the gift. In the Department of Chemistry, the Sandretto-Stackhouse Fellowship will support summer research.

David J. and Valeria L. Pruett Gifts

David J. and Valeria L. Pruett have made a generous donation to the chemistry department that will provide much needed funding for its postdoctoral fellowship and summer undergraduate research fellowship programs.

The postdoctoral fellowship program attracts experienced scientists who will bring new ideas and techniques to the department. The program will also provide a professional bridge for them as well as a strong ambassadorship for the department and Michigan Tech when these individuals leave the University.

The summer undergraduate research fellowship provides undergraduate students with an employment experience in a research environment. This research experience is excellent preparation for a variety of careers or continuing studies, again providing an ambassadorship for the department and Michigan Tech.

In October 2009, we learned that **Ingrid Kling Markul '45** left \$100,000 to the department, a terrific boost to our program.

The Department of Chemistry is grateful for all donations from friends and alumni. Your gifts help support many professional activities and can be designated to one of the opportunities below:

Chemistry Learning Center—Provides support for the CLC coaching services for students in first-year, organic, and physical chemistry courses. These services have a substantial impact on student success and retention.

Undergraduate research—Provides support to undergraduates for research opportunities to develop their professional skills early in their career.

Graduate research—Supports graduate student research, travel, and professional development activities.

Elements of Success—Enhances the department's educational and research activities that support student and faculty success.

Michigan Tech
Create the Future

To make a gift to one of the choices above, visit www.mtu.edu/giving or use the enclosed envelope.

1885 – 2010

Michigan Tech

CELEBRATING 125 YEARS

Michigan Technological University
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Do you recognize any of these people (ca. 1970s) from the department?

Photo source is unknown.