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Building up STEAM in Ardolf Science Center

By Ari Roane

Jasmine Tutol, Chem '16 and **Frantz Soiro, Chem '16** led an interactive silly putty polymer experiment for the local Discovery Community School's 5th grade class March 26th. The experiment was part of a wider STEAM (Science Technology Engineering Art Math) event held at the College

of Saint Benedict to encourage young kids to think about what they would like to do in the future. Almost 100 children attended, cycling between different activities hosted throughout CSB.

The experiment centered on the concept of a polymer. After a discussion on lab safety, and the donning of gloves

and safety glasses, Tutol and Soiro gave an interactive explanation of the formation of a polymer, asking the children for their definitions of it and forming a human chain to illustrate polymer properties. Taking Elmer's glue, borax, and food coloring, they made a batch of silly putty and let the
(continued page 10)

Ross Rides into the Sunset

Legacy is a Legion of Loyal Students



Dr. Mike Ross

A key figure through the years in chemistry, computer science and environmental studies



Ross and students

Dr. Mike Ross is retiring after 34 years of teaching at CSB/SJU. His responsibilities included teaching analytical chemistry, general chemistry, computer science, environmental science and, in recent years, the new macroscopic chemical analysis course.

The Idaho native got an early exposure to the importance of analytical chemistry at a mining site where his father was a foreman. There, ore samples were routinely analyzed on-site. The wonder at seeing the secrets of nature revealed so exactly inspired him to pursue a chemistry degree at Sioux Falls College in South Dakota. In 1969, immediately after graduation, he took a job at 3M in St. Paul, where he was assigned to product development in the Adhesive Coatings and Sealers Division.

“Most of my work was involved in reformulating existing products to meet changing demands in the market,” said Ross. Primarily, that meant working on applications for the automotive industry, but he also spent time trying to make solvent-based adhesive systems more environmentally friendly.

“It was here that I got my hands on my first GC,” added Ross. Former students will appreciate that this statement can probably best be translated as “took completely apart, carefully labeled and arranged individual pieces across the bench top, then reassembled to provide an improved, working instrument.”

After four years with 3M, Ross took a position teaching college algebra, general and organic chemistry at Mount Saint Clare College in Iowa, a small, Franciscan school. In 1976, he started graduate studies at the University of Minnesota. He began teaching at CSB/SJU in fall, 1980, just a few months before defending his Ph.D. thesis.

Over his years at CSB/SJU, Ross observed that one of the most unique aspects of the institution was a sense of openness. Colleagues in different departments supported his exploration of a range of professional activities. He was involved in the Chemistry, Computer Science and Environmental Studies Departments; he served as chair of the former two departments and was one of the architects of the original Environmental Studies Minor. At one time, he was also Coordinator of Academic Computing.

Ross was also able to conduct research in both computer interfacing and environmental chemistry. Over the years, he mentored over 40 research students, several of whom went on to become faculty members at other colleges. Ross considers his students his most significant legacy, whether they are from the classroom, lab, or his research team. He explained, “Watching them grow in their knowledge and see their successes in their chosen careers lets me think that I have had at least a small impact on the world around me.”

Ross’ connections on campus extend beyond the sciences. He has volunteered at CSB Blazers basketball games for (*continued page 10*)

Jochman to Retire from the Stockroom

Mrs. Nikki Jochman, the longtime manager of the chemistry stockroom, will be retiring in May. For over 35 years, she has been preparing materials for laboratories, handling the ordering of chemical supplies and equipment from vendors, overseeing waste disposal and hiring and managing chemistry teaching assistants.

The Wisconsin native graduated from St. Norbert College with a B.S. in biology in 1970, followed by an M.A. in biology from University of Kansas in 1973. She continued on at the University of Kansas until 1977, working in the research animal care unit. During that time, her husband, **Dr. Richard Jochman**, finished Ph.D. studies in medicinal chemistry. When he accepted a position teaching in the CSB/SJU chemistry department, Mrs. Jochman arrived as well.

After working for a year at the CSB Media Center, Jochman accepted a new position as the first stockroom manager for the growing CSB/SJU Chemistry

department. The situation on campus was very different then; chemistry was located in what is now Peter Engel Science Center at SJU. In those days, Jochman was office neighbors with Bob Dumonceaux in math, as well as neighbors in rural St. Joseph, and they shared frequent stories about family life. She also learned about the unique nature of the schools, and about Benedictine values, from religious members of the faculty, such as **Abbot John Klassen** and **Sr. Carleen Schomer** in chemistry and Fr. Mel Freund in mathematics and astronomy.

When asked about memorable events over the years, Jochman immediately brought up the move to Ardolf Science Center at CSB, which she described as “exciting and terrifying.”

“We had so much equipment, chemicals, and glassware that had to be packed and transported to the new building,” she explained.

Her longer-term impressions of the job are centered on the people she has worked with. She appreciates the dedication of the



faculty, who put a great deal of time, energy and attention to detail into preparation for classes and labs. However, her deepest feeling is for the students.

“I have been so impressed over the years with the quality of the students who choose to major in chemistry and biochemistry,” she said. It has been even more interesting to watch them support each other and grow, she added, pointing out “how mature and poised they are when they graduate.”

Nikki and Rick Jochman met while in high school, although they didn’t start dating until college. Nikki Jochman remembers a day when the high school students were allowed to take over the school, and Rick became (*continued page 13*)

Students and Alumni Respond to Retirements

Students responded to the retirements of Mike Ross and Nikki Jochman with a number of reminiscences.

A few recalled Ross’ sense of humor. **Carla Saunders ’14** remembered that if students tried to play music in lab, Ross would cover his ears and proclaim, “I’d rather listen to Enya than that!” **Erin**

Wissler ’14 recalled his wisdom. “Sit down and stay a while, and you will always learn something, about chemistry, about making deck chairs, the best places to go in Australia, or about life.”

The stockroom workers and TAs will miss Mrs. Jochman; her employees always held her in great affection. **Brianne Gibson, Chem ’15** describes her as always

caring about how her employees are doing. “She always makes every person feel like their job is worthwhile and important,” added **Emma Johnson, Chem ’16**. **Anna Luke, Chem ’15**, said, “I can truly say that I have never met a more patient or compassionate person so dedicated to helping others in any way possible.”

Muldoon to be Made Professor Emeritus



Dr. Bill Muldoon

**A
transformative
impact on the
chemistry
department**

Dr. Bill Muldoon, formerly Professor of Chemistry, has been awarded the distinction of Professor Emeritus. This award was based upon the years of distinguished service that Muldoon has given to the department and the campus community.

Muldoon retired early, in 1996, citing excessive fatigue that interfered with his ability to contribute to the department. A few months later, he suffered a massive heart attack. He regained consciousness to discover a former student from organic chemistry lab preparing for surgery.

Muldoon had a transformative impact on the chemistry department in many ways. Long before sustainability became a campus buzzword, he led the effort to move to microscale laboratories. The microscale movement offered greener and more economical practices than were common at the time. From its inception in 1980, this movement met significant resistance nationwide. However, Muldoon saw a good fit

with Benedictine ideas of environmental stewardship as well as budgetary effectiveness.

Muldoon was also a leader in the departmental effort to seek outside accreditation for the chemistry program. The American Chemical Society is a non-profit organization chartered by the US Congress; it is also the world's largest scientific society, with over 161,000 members. The ACS Committee on Professional Training offers accreditation to college chemistry departments that can demonstrate they have met appropriate standards. Muldoon and other department members felt very strongly that a move toward accreditation was crucial for the department to offer credible and competitive educational opportunities to students.

In the early 1990's, Muldoon also co-lead the effort to design the new Ardolf Science Center, along with his colleague, **Dr. Richard White**. This ambitious project would relocate the chemistry department from SJU and a few offices in HAB to one location on the CSB campus, where it would be housed with its sister department, Nutrition and

Dietetics. When it was opened in 1993, the building earned an award from the American Chemical Society, citing "Most Comprehensive Program of Chemical Laboratory Safety". On numerous occasions since Ardolf was built, representatives from other chemistry departments have visited in order to get ideas for their own building renovations.

In addition to his reliable work in the classroom and teaching laboratory, Muldoon built deep connections on campus. He was a steadfast participant in undergraduate research, mentoring students in organic and medicinal chemistry. He has continued to support the LGBT community here through his attendance at Lavender Graduation almost every year.

Despite his origins in working class Boston, Muldoon has been a committed donor to the college, starting when he was a professor. Muldoon felt it was unfair that a scholarship recognized a junior SJU chemistry major whereas CSB students went unrecognized. Family gifts established *(continued page 10)*

Students Storm Denver for 249th ACS Meeting



CSB/SJU chemistry and biochemistry students presented at the 249th National Meeting and Exposition of the American Chemical Society, held March 22nd to 26th in Denver, CO.

Support for the trip was provided by grants from the CSB/SJU Undergraduate Research Office and the CSB/SJU Student Senate.

Presenters included (rear, l-r) **Lorien Rusch, Chem '16**; **Asha Kopp, Bchm '16**; **Samantha Hurrle, Bchm '15**; **Anna Luke, Chem '15**; **Jeff Bowers, Chem '15**; (middle) **Brianne Gibson, Chem '15**; **Clare Johnston, Chem '15**; **Tom Steichen, Chem '15**; **Erica Sinner, Chem '15**; (front) **Autumn Flynn, Chem '15**; **Sam Klinker, Chem '15**; and **Gabe Amon, Chem '15**.

Two Amazing in Moorhead

Asha Kopp, Bchm '16, and **Autumn Flynn, Chem '15**, presented at the Undergraduate Research in Molecular Sciences Conference at the University of Minnesota, Moorhead on October 10 and won the single poster award. They also earned a \$400 travel grant to the spring ACS meeting in Denver.

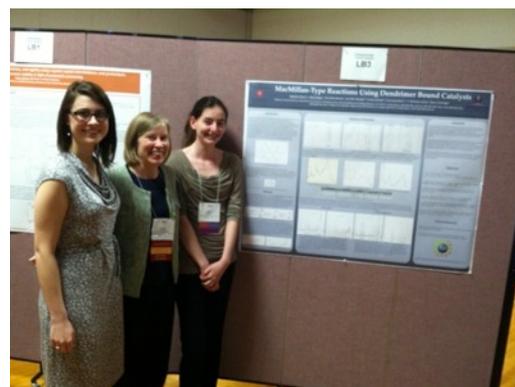
Flynn and Kopp have been working on a collaborative project involving **Dr. Nicholas Jones'** lab at CSB/SJU. Jones' students spend part of their summer working in the lab of Dr. Mary Cloninger at Montana State University, then return to Minnesota to continue work.

The goal of the project is to attach catalysts to dendrimers (branching polymers) in order to make a sequence of reactions work more efficiently. The pair have had initial success.

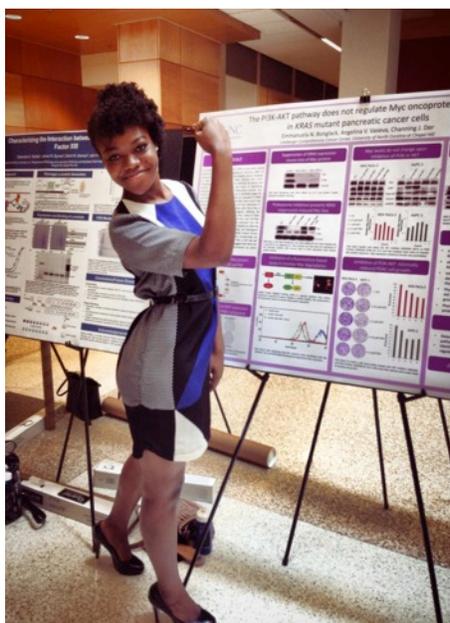
The two-lab arrangement offers

unique benefits to students. Chiefly, they can see how a lab operates at a research institution, getting a taste of life in graduate school.

Flynn, Cloninger & Kopp



Bold Stand in San Antonio



Bonglack presents at CSB

Emma Bonglack, Bchm '17, won a presentation award at the Annual Biomedical Research Conference for Minority Students in San Antonio Texas on November 15. She was one of 20 award winners (out of about 3000 attendees) for cancer research she did last summer at University of North Carolina, Chapel Hill.

Bonglack has been featured on the main CSB/SJU homepage (<http://www.csbsju.edu/emmabonglack>).

Top Students Recognized



Claire Buysse

The Chemistry Department's Annual Awards Ceremony was held on Campus Scholarship & Creativity Day, April 24. The awards honor students who have distinguished themselves in the field of approximately 500 students who take courses in the department each year. The CRC First-Year Chemistry Achievement Award, sponsored by CRC Industries, was presented to **Bridget Ebert, Hannah Holst, Annette Klomp, Anna Rahrack, Brandon Thauwald, and Samantha Tinucci '18.**

by a donation from **Dr. Paul Zenk '78**, was presented to **Claire Buysse, Chem '17** and **Thomas O'Toole, Bchm '17**. The CSB|SJU Chemistry Department Award for Distinction in Chemical Reactivity was given to **Emmanuela Bonglack, Sarah Clark, Adam McVey, Luke Morrey, and Catherine Pettinger Bchm '17, Scott Echternacht, Bchm '16, and Ryan Johnson, Faith Kersey-Bronec, and Raymond Twumasi, Chem '17.**



Thomas O'Toole

The CSB|SJU Chemistry Department Award for Distinction in First Year Chemistry was given to **Jaclyn Bauth, Matthew Burgstahler, Simone Creed, Alexandria Daggett, Jordan Danielson, Jack Fiecke, Stephanie Jean, Jenna Lee, Grant Olson, Riley Swenson, and Madison Victorian '18.**

Among the most prestigious awards in an experimental and technical field are those that recognize laboratory performance. The **Abbot John Klassen** Summer Research Award was established through a donation by **Dr. Steve Holmgren '89** and his wife, Dr. Mary Cloninger. This year the award was shared by **Clare Johnston, Chem '15** and **Asha Kopp, Bchm '16.**

The **Richard L. Jochman** Scholarship for Achievement in Organic Chemistry, made possible

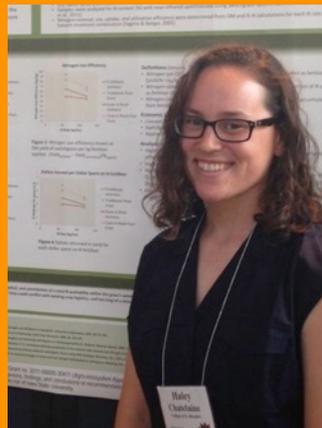
The **Father Matthew Kiess** Scholarship, given in recognition of *(continued next page)*



Hieu Van



Clare Johnston



Haley Chatelaine



Emma Bonglack



Carmen Probst



Levi Salzl



Autumn Flynn



Emmanuel Freeman



Brianne Gibson

high aptitude for laboratory work, went to **Emmanuela Bonglack, Bchm '17**.

The **Sister Rogatia Sohler** Scholarship, funded by the family of retired faculty member **Dr. William Muldoon**, is given to the outstanding CSB junior in the department. **Hieu Van, Bchm '16** earned the award. The SJU counterpart is the Glen E. Arth Award, established by colleagues at Merck, Sharp & Dohme upon the retirement of **Glen Arth '33**. The award was given to **Adrian Demeritte, Chem '16**.

Several divisional awards recognize students with specific aptitudes. The Analytical Chemistry Award, from the eponymous Division of the American Chemical Society, was

shared by **Zachary Brown** and **Haley Chatelaine, Chem '16**. **Carmen Probst** and **Levi Salzl, Chem '15** won the ACS Undergraduate Award for Inorganic Chemistry. The ACS Undergraduate Award for Organic Chemistry, given to a senior who shows promise for a career in organic chemistry, went to **Autumn Flynn, Chem '15**.

In a crowning achievement, **Erica Sinner** and **Alex Frie, Chem '15** shared the American Institute of Chemists Award for achievement and potential advancement in the chemical professions.

Emmanuel Freeman, Bchm '15 and **Brianne Gibson, Chem '15** shared the CSB|SJU Chemistry Department Distinguished Service Award.

Honors Societies Replete with Chemists, Biochemists

A number of chemistry and biochemistry students were recognized this year by induction into Phi Beta Kappa, the national honor society.

Senior members associated with the department now include **Ellen Black, Bailey Drewes,** and **Justin Sachs Bchm '15;**

Gabe Amon, Jeff Bowers, Autumn Flynn, Alex Frie, Clare Johnston, Sam Klinker, Anna Luke, and Erica Sinner, Chem '15.

Juniors in the society include **Sam Hager** and **Hieu Van, Bchm '16,** as well as **Haley Chatelaine, Chem '16.**

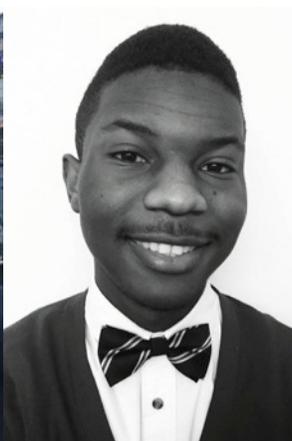
Phi Beta Kappa, founded in 1776, is the nation's oldest academic honour society. It is also worth noting that Sinner, Chatelaine and Luke are members of Delta Epsilon Sigma, the national Catholic Honor Society.



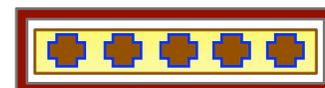
Erica Sinner



Zach Brown



Adrian Demeritte



Annette Raigoza Honored

Society Award Recognizes Potential

By Brian Johnson



Dr. Annette Raigoza

Dr. Annette Raigoza has been selected to receive the MFESTS (MN Federation of Engineering, Science and Technology Societies) Young Science and Technology Professional of the Year Award for 2015. This award is designed to recognize outstanding achievements by a science or technology

professional who is less than 35 years of age.

Nominees are judged on the basis of educational and collegiate achievements; professional society activities; technical society activities; civil and humanitarian activities; continuing competence; engineering achievements; and professional experience.

Three Earn Sabbaticals

Sabbaticals have been approved for **Dr. Anna McKenna**, **Dr. Ed McIntee** and **Dr. M. A. Fazal** for the 2016 academic year. These awards, for which faculty members are eligible every seven years, provide a chance for research and professional development.

Fazal's project focuses on characterization of super-paramagnetic iron oxide nanoparticles (SPIONs) and their effects on human hemoglobin. As the use of nanoparticles becomes prevalent in health care, there is growing interest in understanding their long-term health effects. To do so, scientists like Fazal are developing better ways to study these

effects.

McIntee's laboratory work develops inhibitors for Low Molecular Weight Protein Tyrosine Phosphatase (LMW-PTP). LMW-PTP is a target in cancer research. The goal of this project is to finish synthesizing and biologically testing metabolically stable analogs of pyridoxal 5'-phosphate.

The ChemTutor modules developed by McKenna are currently used by over 400 CSB/SJU students in Chem 125. Her project will develop new modules for the course for content not currently covered.

Summer Awards Announced

Four chemistry professors have been awarded Summer 2015 Student-Faculty Collaborative Grants. Project titles are listed below.

Dr. M. A. Fazal: Spectroscopic investigations of nanodiamonds and human hemoglobin interactions.

Dr. Alicia Peterson: Degradation of toxic, carcinogenic, and bioaccumulative environmental pollutants.

Dr. Annette Raigoza: Mediating protein binding using gold nanoparticles with tailored surfaces.

Dr. Christen Strollo: Transformation of atmospheric pollutants and their effect on climate.

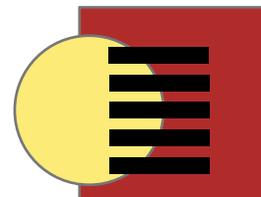
In all, twelve faculty members from eight different departments on campus received funding. Chemistry continues to be a driving force for summer research on campus.



Strollo, Peterson, Raigoza, and Fazal



Fazal, McKenna, and McIntee

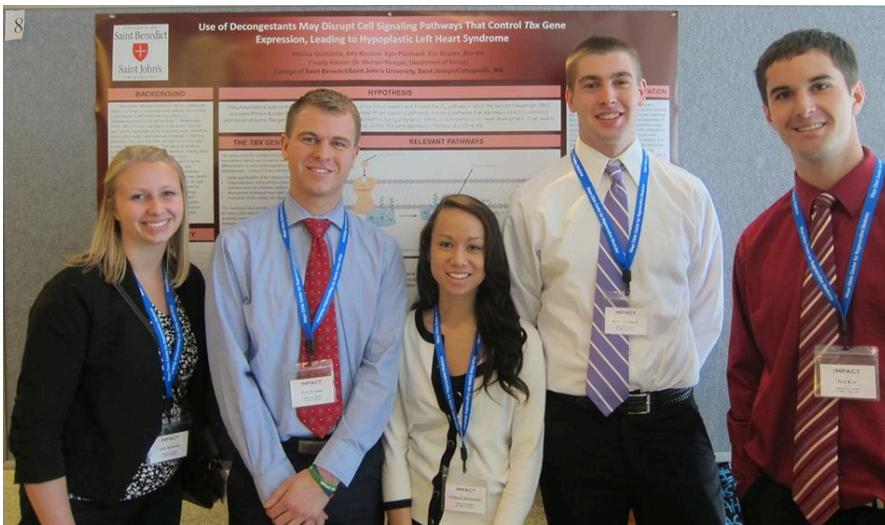


Students Take Bronze in Mayo's Project IMPACT

By *Jamia Moss*

This year, CSB/SJU students competed in Mayo Clinic's Project IMPACT and walked triumphantly away with third place. The 2015 team consisted of five members – **Mel Quintanilla, Chem '15**; **Amy Knutson, Bchm '15**; **Kyle Pundsack, Bchm '15**; **Ben Kor, Chem '15**; and Eric Boysen, Biol '15.

According to Quintanilla, "IMPACT stands for Innovative Minds Partnering to Advance Cardiotheranostics. It is a competition through Mayo Clinic that is sponsored by the Todd and Karen Wanek Family Program for HLHS. The competition invites teams and individuals from any undergraduate major to submit novel hypotheses about what



causes hypoplastic left heart syndrome (HLHS)."

The students were inspired to participate in Project IMPACT by CSB alum **Katie (Hartjes) Campbell '10**. Campbell serves as the Project IMPACT coordinator while completing PhD research

into HLHS at the Mayo Clinic Graduate School. In December she came back to CSB and SJU to discuss the program and encourage current students to participate. After hearing her talk, the five students expressed interest in the program and formed a team for the competition. (*continued page 13*)

Chem Club: Nearing the Close of Another Full Year

The Chem Club has had an active year. The group held a bingo night in September and entertained 60 people at a Chem Trivia / LN2 ice cream bash for Mole Day, October 23rd. The group also sponsored a "Meet the Seniors" event in the fall. In the spring, the club held a Valentine's Day Pancake Brinner. The Chem Club was also a co-sponsor of a "Pennies for Your Thoughts Debate: Does the Government Own Your Genes", along with the McCarthy Center.

The group is on facebook as Csbsju Chemistry Club.



Bingo! Alex Madsen, Chem '17 (front); with (l-r) Rejene Giinther, Chem '17; Lorien Rusch, Chem '16; Faith Kersey-Bronec, Chem '17; Meredith Liu, Chem '17; Dr. Annette Raigoza; Claire Buysse, Chem '17; (back) Jasmine Tutol, Chem '16; Brianne Gibson, Chem '15; Jamia Moss, Bchm '15.

Mohs Moves West *Pharmaceutical Chemist Recruited by UNMC*

Aaron Mohs '02 recently accepted a new faculty position at the University of Nebraska Medical Center (UNMC), where he will be housed in the Pharmaceutical Sciences Program of the College of Pharmacy. Mohs will relocate his lab from Wake Forest University in North Carolina.

"I really enjoyed my time at Wake Forest," said Mohs. "But we wanted to get back near family and I wanted to be in a department that was much more focused on drug and imaging agent delivery."

Ross Retires

(from page 2) many years, working as a scorekeeper.

For the past few years, Ross has been teaching only during spring semesters. That arrangement has allowed him to explore some other interests. He spent a month exploring the history and geology of Australia with Johanna and Larry Davis (CSB/SJU scholarships and geology, respectively). At home, he has developed his woodworking skills, completing a new kitchen table with matching benches. In retirement, Ross looks forward to the time to pursue more activities.

"This coming fall I plan to spend a month volunteering at Bryce Canyon National Park," he said, "and will look into other opportunities of that nature closer to home. No doubt he will continue to teach, informally, for years to come."

UNMC offered a very generous package for the establishment of the new lab. In addition, Mohs was awarded a \$1.37 million grant in September from the National Institutes of Health / National Institute of Biomedical Imaging and Bioengineering. These funds are marked for the further development of polymeric nanoparticles that could entrap either imaging dyes for image-guided surgery or drugs for improved chemotherapy. (For an example of a recent publication, see Mohs *et al*, Indocyanine Green-Loaded Nanoparticles for

Image-Guided Tumor Surgery. *Bioconjugate Chem.*, **2015**, 26 (2), 294–303.)

Mohs is enthusiastic about the prospects. "We will have state of the art synthesis, spectroscopy, and imaging equipment in our group in addition to tremendous collaborative colleagues."

Currently in the midst of the relocation, Mohs is actively recruiting students to begin work in the summer and fall.

Building STEAM

(from page 1) children see the chemistry taking place before their eyes.

"The kids were very enthusiastic and had a great time playing with the silly putty," said Tutol. "The silly putty allowed them to get their hands dirty and actually feel how the chemical reaction had changed the glue to silly putty."

Some children expressed an interest in studying chemistry after the experiment. One even decided she wished to major in it.

"Events such as these are important because they give young children a chance to stay on the right track with education, to have hopes," said Soiro.

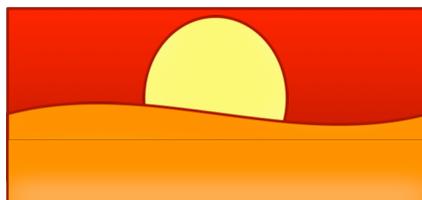
Both Tutol and Soiro are involved in the FoCuS (Future Chemist Scholarship and Support) program and have worked closely before with the Boys and Girls Club in St. Cloud.

Muldoon Honored

(from page 4) the **Sr. Rogatia Sohler** Award to a CSB junior chemistry major. Since the establishment of a biochemistry major, biochem students have also been eligible for the award.

In addition to his work with the colleges, Muldoon also developed positive relationships with both monastic communities. He continues to serve as an oblate at St. John's and regularly returns for events at St. Benedict's.

Muldoon will be recognized at the Academic Affairs Awards and Recognition Ceremony in May. Mike Ross, retiring this year, will also be named Professor Emeritus.



Postcards from Abroad



Becca Flynn, Chem '16: "I am currently studying in Port Elizabeth, South Africa, at Nelson Mandela Metropolitan University. While here, I am volunteering two days a week at Missionvale Care Center, where I get to meet a ton of amazing people. We also do a lot of traveling throughout South Africa. We went on a safari, bungee jumped off the highest bungee bridge in the world, climbed Table Mountain, and saw Nelson Mandela's prison cell. The picture is of me on top of Table Mountain, one of the new 7 wonders of the world."



Emma Johnson, Chem '16: "Studying abroad in Cork, Ireland, has been the greatest blessing and adventure! I've been able to travel around the island, learning Irish music and culture while meeting some of the friendliest people. Some favorite weekend trips have been to Belfast, Galway, Killarney, Kinsale, and Tramore. This photo was taken at the Cliffs of Moher on the Atlantic Coast of Ireland, and it is just one snapshot of the beauty of this place!"



Meghan Glasgow, Chem '16: "I have been living in Segovia, Spain. My travels have taken me from Burgos to Barcelona, from Madrid to Morocco, from Valladolid to Venice and many other cities. However, this picture is from the city closest to my heart, Segovia. In this photo, I am standing on top of the Alcazar (castle) in Segovia. Behind me is a view of the cathedral of Segovia as well as the main part of the city! Segovia truly feels like home to me!"

The Art of Chemistry

Element, the dance team that features a strong mix of chem and biochem majors, continues to be a draw at campus events this spring.

Black Students' Association Talent night in March as well as Africa Night in April. They will also perform at 15 Pines April 28th.

Emmanuel Freeman, Bchm '15; Brianne Gibson, Chem '15; Frantz Soiro, Bchm '16; Emma Bonglack, Bchm '17; Claire Buysse, Chem '17; and Simone Creed, Bchm '18. Former members also include **Ian Manion, Chem '15.**

The group performed at the

The team includes founder,

Chem & Biochem Representation Strong at Africa Night

In addition to an appearance by *Element*, Africa Night featured dance performances that included **Emmanuel Freeman, Bchm '15; Raymond Twumasi, Chem '17, and Emma Bonglack, Bchm '17. Adrian Demeritte, Chem '16,** gave a strong spoken word performance. Bonglack also served as an emcee for the event.



Element

Nationwide, re-
invigorating the
chemistry major

Curricula Receive National Media Attention

Recent news reports have highlighted developments in the college chemistry curriculum, including changes at CSB/SJU. Stories have appeared in the chemistry trade magazine, *Chemical & Engineering News*, as well as a major newspaper, *The Wall Street Journal*. Both articles also mentioned work being done at Davidson College and at Emory University.

The *Wall Street Journal* article (April 13) focused on the concerns of science policy experts that too few graduates are being produced in STEM fields. It noted that Davidson and CSB/SJU

have seen promising increases in the number of chemistry and biochemistry majors over the past couple of years.

What both programs have in common is a series of innovative “in-depth courses”, taken by juniors and seniors. Topics at CSB/SJU, for example, include Climate and Habitat Change, Medicinal Chemistry, and Nanomaterials. These choices are credited with generating increased interest in the field among students.

Although Emory’s new program is not slated to be rolled out until the fall of 2016, it will incorporate more aspects of current research into

“foundation courses”, taken in the first couple of years of college. That approach is also reflected in the CSB/SJU model.

The *C&EN* story (Mar. 2) was able to address more technical aspects of these curricula. It described the blending of traditional subdisciplines, like organic, inorganic, and biochemistry, into new foundation-level topics at CSB/SJU. Those three domains are taught together in the Reactivity sequence; analytical and physical chemistry appear in the quantitative Macroscopic and Microscopic Analysis courses.

Alumnus Returns for Seminar



Mary Claire and
Wallace Fu

Wallace Fu '67 returned to campus this spring to provide a career retrospective. Fu left SJU to pursue a Ph.D. at Marquette University, followed by post-doctoral studies in synthetic organic chemistry at Cornell. He was then hired by Union Carbide, and he stayed there for ten years, developing a number of patents in agricultural

products. A mid-career move took him to Pfizer / Parke-Davis, first as a process development chemist and eventually as a senior manufacturing associate and technical leader.

While working at Parke-Davis, Fu began to get involved in outreach programs for grade schools and other educational activities. That experience led to a second career, teaching

and conducting research at Hope College. He also did some short-term positions at other colleges, including Grand Valley State University and Amherst College. In addition to these activities, Fu consulted for the US Chemical Safety Board.

In retirement, Fu has had the opportunity to speak at a number of small colleges.

Biochem, Chem, Biology Students Rock Competition

(from page 9) Knutson explained that after forming a team of up to five members, the undergraduate students were required to complete a literature review of what had already been discovered about HLHS. After that, they used research skills gained in their experience at CSB/SJU to come up with new ideas concerning the disease.

Knutson said, “We came up with

Alum Notes

(from page 14)

Kate Kaiser '13 has accepted a position at Upsher-Smith in Plymouth, where she is working as a Quality Assurance Associate.

Mardi Billman '11 recently presented her research at the 249th National ACS Meeting. Billman is a graduate student in theoretical catalysis in Anthony Rappe's lab at Colorado State University.

David Crotteau '14 has graduated from Marine Officer Candidate School and has accepted a commission in the USMC.



Crotteau

possible ideas that could lead to heart defects during pregnancy. When we found that both genetic and environmental factors seem to have an effect on HLHS patients, we brainstormed ideas of what those factors could be and how we could link the two together to have a plausible hypothesis.”

The top ten hypotheses were chosen and those teams were asked to complete a poster and oral presentation. The CSB/SJU team was among those top ten and they presented their poster at the IMPACT Symposium in February, after which they were awarded the bronze medal.

All group members mentioned that the experience was enlightening as well as fun, some going so far as to say that it sparked a new interest for clinical

Ardolf Assessed

As part of a campus-wide audit last fall, the Chemistry and Nutrition departments submitted proposals for renovation of the Ardolf Science Center, now over 20 years old. Both departments have pressing needs.

Chemistry's requests are related to the recent change from a 6-day to a 5-day cycle, which left fewer available time slots for scheduling laboratories. That situation has put a strain on resources; the same lab is often scheduled in multiple locations at once.

Results of the audit are expected by summer.

research in them. Knutson highlighted the opportunity to transfer skills learned in the classroom to the real world. Quintanilla highlighted the opportunity to give an oral presentation, mentioning that she was glad to be developing skills she would use as a future scientist.”

Quintanilla was excited to convey that in the summer after graduating she will be completing a year of post-baccalaureate research in molecular genetics and starting graduate school classes at Yale University. Knutson was equally excited about her post-graduate plans. For the next two years she will teach secondary science in the Twin Cities through Teach for America.

Nikki Jochman

(from page 3) the geometry teacher. That day presaged his later role as a popular chemistry professor at CSB/SJU. Rick Jochman died in 2009, following a long battle with multiple sclerosis.

In retirement, Nikki Jochman looks forward to spending more time with her grandchildren, as well as her garden and her animals. She also has plans for volunteer work and some travel with friends.





The Cavendish Chronicle

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Hot Off the Presses

Recent Publications in the Department

Kate J. Graham, An Improved Decision Tree for Predicting a Major Product in Competing Reactions. *J. Chem. Educ.*, **2014**, *91* (8), 1267–1268.

Brian J. Johnson, Using Ion Exchange Chromatography To Separate and Quantify Complex Ions. *J. Chem. Educ.*, **2014**, *91* (8), 1212–1215.

Chris P. Schaller, Kate J. Graham, Brian J. Johnson, Henry V. Jakubowski, Anna G. McKenna, Edward J. McIntee, T. Nicholas Jones, M. A. Fazal, and Alicia A. Peterson, Chemical Structure and Properties: A Modified Atoms-First, One-Semester Introductory Chemistry Course. *J. Chem. Educ.*, **2015**, *92* (2), 237–246.

Alum Notes

Mike Collins '66 has passed away. Collins earned a Ph. D. in inorganic chemistry from the University of Minnesota in 1971. He spent the bulk of his career at Viterbo College in La Crosse, WI. In 1987 he was selected as Wisconsin Professor of the Year and received the National Professor of the Year bronze medal. He spent several sabbatical years at the University of Minnesota doing research with Larry Que and others. He was proud of the fact that he was a starting tackle on two national championship-winning SJU football teams.

Jennifer (Schwiech) Barta '91 is a Senior Research and Development Director for General Mills. After graduating from CSB she studied engineering at University of Minnesota. She serves on the CSB Board of Trustees.

Sarah (Henderson) Larsen '98 is a state program coordinator at the MN Pollution Control Agency. Larsen holds a Masters in Public Health from University of Minnesota.

Becky Guza '02 has been elected Chair of the Minnesota Section of the American Chemical Society. Guza did graduate work at Virginia Tech and University of Minnesota and is a Senior Scientist in Waterbase/Polymer Technology at HB Fuller.

James Wollack '02 is president

Check out the archive!
<http://employees.csbsju.edu/cschaller/cavendish/Cavendish.htm>

of the Midwest Association of Chemistry Teachers at Liberal Arts Colleges (MACTLAC). Wollack also serves as secretary to the Minnesota Section of the American Chemical Society. Wollack is a member of the chemistry department at St. Catherine University.

Nicholas Frost '07 is the Analytical Lab Coordinator in the Chemistry Department at the University of Minnesota. Frost did his Ph.D. work under Michael Bowser at the same institution.

Ha Pham '09 has finished doctoral studies in chemistry at Carnegie Mellon University.

Anne Hylden '10 is teaching chemistry at Hussian School of Art, Philadelphia, and at Rowan University. Hylden did graduate work in inorganic chemistry at University of Pennsylvania.

Khadija Fernandez '11 is taking a brewmaster course in Trinidad and will be testing in a few months.

Jill Kerrigan '12 recently passed her preliminary orals in environmental science/civil engineering at the University of Minnesota.

Danelle Rolle '12 has passed her preliminary orals at Purdue University.

(continued page 13)

