Department of Chemistry

The Resonator

Nazareth COLLEGE

Volume 1 Issue 1

Chemistry Department Gets New NMR

The Nazareth Chemistry Department has a new piece of instrumentation! A brand new JEOL 300 MHz NMR was purchased in April and its magnetic personality is gracing the Instrumentation Laboratory. The delivery and installation of the instrument created a great deal of excitement among the faculty and students. For four weeks, technicians from JEOL assembled, cooled and electronically charged the NMR in order to create a superconducting magnet with an operational spectrometer. The ECX300 Fourier Transform Nuclear Magnetic Resonance spectrometer is a versatile, high-performance, and easy-to-operate FT NMR system. It is designed to perform the latest NMR methods such as high-performance liquids, PFG (Pulsed Field Gradient), diffusion, LC-NMR and multi-dimensional (up to 8-D) NMR. Both the workstation and spectrometer can be connected to a standard network, allowing seamless remote operation anywhere in the world. The instrument will be able to run a variety of 1D and 2D experiments as well as having multi-nuclear capability. One especially nice feature is that the operating and processing software (Delta NMR) is available free of charge to all students, staff, and faculty for installation on their personal computers through an unlimited site license. Thanks to Dr. Deborah Dooley, Dean of the College of Arts and Sciences, the Chemistry Department

was able to purchase this $150,000 NMR spectrometer. Dr. Timm and his organic chemistry research team will soon be running samples for their research projects. He says, "This instrument will greatly expand our structural elucidation capacity with an easy to use, reliable research grade spectrometer. We are thrilled to have such a state-of-the-art instrument that will allow our students to actively acquire data and perform cutting edge chemistry."

Alumni Spotlight

Shannon Bice Olsson '99 CHM, '05 PhD Cornell

Dr. Shannon Olsson is currently serving as Project Leader in the Department of Evolutionary Neuroethology at the Max Planck Institute for Chemical Ecology in Jena, Germany. Her journey to Germany truly began with Nazareth. With encouragement to apply for a Fulbright at Naz, she was fortunate to spend a year at Lund University in Sweden following her graduation from Nazareth in 1999. After receiving her doctorate from Cornell University in 2005, she moved to Los Angeles with her husband, Petter, to study marine chemocommunication at UCLA. Currently, she is part of an EU sponsored project to develop a new class of Technology for infochemical communication based upon the pheromone communication system of moths. This chemical messaging technology can be used for such applications as search and rescue operations and unexploded ordinance and mine localization.

Shannon was just awarded the Nazareth GOLD Alumni Award for young alums at Alumni Weekend '09. This is the highest honor Nazareth bestows on alumni from the past decade. Shannon is now embarking on her greatest adventure so far with the arrival of her first child this September.

Scholarships

Thanks to our very own Dr. Lynn O'Brien and Dr. Kate DaBoll-Lavoie, Chair of the School of Inclusive Childhood Education, Nazareth College has been awarded not one, but two scholarship grants for math and science majors which are funded by the National Science Foundation. The **Nazareth College Science and Mathematics Scholars Program (SaMS)** is awarded to academically qualified students with financial need who are pursuing degrees in science and mathematics. Six scholarships have been awarded for the 2009-2010 academic year to students majoring in biology, biochemistry, chemistry, and mathematics. Scholarships will be offered every year through 2013.

http://www.naz.edu/dept/chemistry/sams/

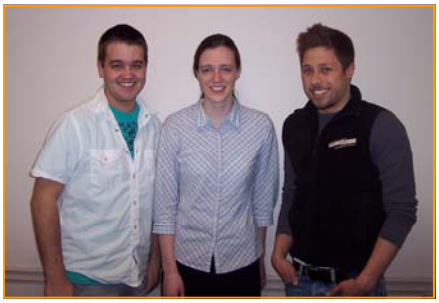
The **Robert Noyce Scholar Program** awards scholarships to future teachers of mathematics and science in high-needs K-12 schools. The program will award $749,692 for undergraduate scholarships and graduate stipends through 2013. Nazareth students enrolled in inclusive adolescence education (grades 7-12) in the areas of mathematics, biology and chemistry and in inclusive childhood/middle childhood education (Grades 1-6) with majors in mathematics or the sciences are eligible for the scholarships. In addition, the program will support enhanced advisement for students, unique field placement partnerships, and research opportunities for pre-service and in-service teachers. Two scholarships have been awarded for the coming academic year.

http://www.naz.edu/dept/chemistry/noyce/

Our Graduating Seniors

The Chemistry Department graduated three terrific seniors this year. Lynn Atwater from Ontario, NY graduated with a BS in Biochemistry. She won the American Chemical Society Outstanding Senior Award, the Sr. Therese M. Lang Excellence in Biochemistry Award and the Phi Lambda Upsilon Award. Lynn would like to pursue work as a lab technician or as a private school science teacher. The topic of Lynn's comprehensive project (comp) was Biological Fluorescence and Bioluminescence.

Justin Carmel, from Rochester, NY, graduated with a BS in Chemistry



Education. He won the Chemistry Department Service Award. His comp topic was on Mercury in Natural Waters. He conducted his student teaching at Greece Athena high school. Justin also worked at Yale University the summer of 2008 teaching forensic science to high school students. In the fall, Justin will be pursuing a MS in Inclusive Education at Nazareth College.

Don Curran, from Irondequoit, NY, graduated with a BS in Chemistry. Don's senior comp topic was Pollutants in Salmonids: Should we be concerned eating fish from Lake Ontario and its tributaries. Don conducted undergraduate research during the summer of 2008 at the University of Rochester as part of an REU. He is presently working at Columbia Analytical Services in Rochester, NY.

Infotonics Technology Camp

The intrepid, Dr. Bill Lammela, will again be leading the Infotonics Science Camp at Nazareth College for children entering 4th though 9th grades. His camp counselors will guide the future scientists during the month of July through Harry Potter Potions, Mission to Mars, and CSI—Case of Calculating Copycat.

http://www.naz.edu/dept/chemistry/summercamp.cfm

An Interview with Dr. Timm: Undergraduate Research

Nazareth COLLEGE

Why is undergraduate (UG) research important for your students?

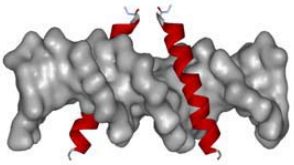
UG research affords our students the opportunity to independently explore science and to make discoveries. These experiences bring together the experimental, theoretical, and practical aspects of investigation in which all three must be engaged in order for the science to be advanced. I especially enjoy watching students grow from novices to experts and seeing them catch the excitement of directing their own work. The skills acquired by students through an UG research experience can catapult them forward in their careers and to further scientific training.

What is your research topic and have you made any breakthroughs?

As is typical for me, I have several different lines of investigation. However, the one thing that ties them together is the beautiful connection that exists between chemistry and biology. I am interested in how chemistry plays an important role in biological systems. In particular, I am fascinated by the way activity at the molecular level can translate into wonderfully complex phenomena. Currently, most of my work is focused on the development of artificial transcription factors. Herein, we are attempting to develop molecular systems that can ultimately tell us more about the process of transcription or possibly to exert external control over the entire process. Although we have yet to hit the breakthrough point, we are standing at the precipice of a major discovery.

What changes are in the works for undergraduate research at Nazareth?

UG research is becoming an institutional priority. Even departments in the humanities and social sciences are seeing the value associated with engaging UG in the process of independent investigation. As such, I can see more money and release time being allocated to support faculty and students doing collaborative research in their discipline. A great example of the forward-thinking attitude regarding UG research is the development of a new course called "Introduction to Scientific Research." This course would be an elective for 1st and 2nd year science students to learn about the scientific literature, the design of research projects, and to explore hot areas being studied amongst today's scientists. The most exciting part is that this course would not be a chemistry or biology course. On the contrary, it would interdisciplinary at its very core.



What emotional disorder does a gas chromatograph suffer from?

Separation anxiety

Rich and Timm's Excellent Adventure

Those two wild and crazy guys, Dr. Rich Hartmann and Dr. Timm Knoerzer, traveled to Europe for 16 days during November 2008. They spent three days in Santiago de Compustela, Spain where Timm previously spent his sabbatical in 2007. Timm gave a talk on the progress of his research over the past year. As you could probably guess, it was ***not*** all work and no play in Spain. They ate great food and went on a road trip to Portugal.

Then they were off to Italy where they were guests at the University d'Annunzio in Chieti. They taught 50 students their course on "How to Write as a Scientist (WAS)." The Italian students were very appreciative and motivated to learn how to write in the manner of Timm/Rich. They traveled with their Italian colleague, Luigi, to his hometown of Perugia. They went to Assisi and saw how oil is pressed from olives. They visited the old, underground city of Perugia and bought chocolates. They ate tons of food, especially pizza which was Rich's favorite.

Overall, Rich and Timm were a smashing hit and the University would like them to return to teach this course again. As a result of their success at Annunzio and their readiness to accept Italian hospitality, we look forward to both Italian students and professors visiting us here at Nazareth. In fact, Alessandro Marrone may be visiting Nazareth in August to teach the course Computational Methods for Chemists and to attend the ACS Conference in Washington, DC.

Science Club

The Science Club had a very active and successful year. Some highlights were Mole Day: Breakfast for Dinner, Science Jeopardy, RMSC National Chemistry Week, RSMC Science Saturday, Dinner at Ming's, and the annual bake-off and dip-off. The Club also offered for the first time a Lab Day for Homeschoolers. Thirty home school students from the area visited Nazareth and conducted Biology, Chemistry and Physics experiments. The program was very well received and allowed these students to have access to science laboratories and to be instructed by our wonderful faculty and students.

We thank the outgoing officers for all their work this year: Eneda Tosca, President; Victoria Asimov, Treasurer and Adam Rall, Secretary. The club elected the following officers for the next academic year: Jenna Howard, President; Brittany Krupp, Vice President; Jen Pier, Treasurer and Christina Brule, Secretary.

Mary Jeanne (Mayer) Barry '45 Chemistry

I was a student at Nazareth during World War II. The head of the department at that time was Sister Marie Augustine. When I graduated and applied for a job at Kodak, they asked me if I could type. I also worked at UR, Taylor Instruments and Standards Lab. My husband and I met through one of my favorite instructors, Rita Barry. He was her brother. We have four children, nine grandchildren and nine great-grandchildren.

Martha Doell Swacen, '65 Chemistry

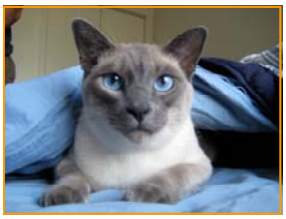
I taught 32 years at Greece High Schools and was a chemist at Kodak for a brief time. I definitely used the great training from Nazareth. Now retired, I enjoy my family and friends. For the past couple of years, I have been a member of the Nazareth College Alumni Board and have enjoyed renewing my affiliation with the college. My daughter, Katie Swacen, graduated from Naz in 2006 and my mother, Eileen Hayes Doell , graduated in 1938....so Naz has been in my family a long time. Maybe my granddaughter Nora, age 2, will be an alum one day, too.

Patricia Beer, '68 Chemistry, MBA Rutgers

My husband Roger and I live in Auburn, NY. I am a Certified Public Accountant and a Partner at Green & Seifter, CPAs in Syracuse, NY. We have two children, John and Beth. John lives in Chicago; he is a poet and a teacher who also writes theater reviews. He is ABD for his doctorate from the University of Chicago. Beth and her husband Terry live in Auburn and both work in the school system. Beth is a librarian and Terry is a teacher. I enjoyed seeing so many science classmates at our last reunion. I have attended every five years and this was the best year in terms of seeing friends I had classes with. My path has deviated from my science background, but I when I first began studying accounting, I found it oddly comforting because it seemed logical, like science. In auditing as well as science, there is the same element of solving a mystery and figuring things out.

Alicia Monroe Carroll '02 BCH, '08 PhD Biomedical Sciences UConn

My husband Tom Carroll, '01 BCH Nazareth '08 PhD MD UConn, and I just bought a house in November and we are slowly but surely making it our own. I am working very hard at my position as Visiting Assistant Professor for the Nazareth Chemistry Department (imagine that!). We have one cat, Copernicus.



A chemistry professor couldn't resist interjecting a little philosophy into a class lecture. He interrupted his discussion on balancing chemical equations, saying, "Remember, if you're not part of the solution, you're part of the precipitate!"

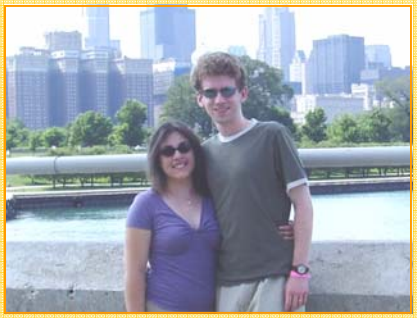
One day on the Tonight Show, Jay Leno showed a classified add that read: "Do you have mole problems? If so, call Avogadro at 602-1023."

Alumni News

Jessica Goodman '04 BCH, '08 PhD Molecular Biophysics and Biochemistry Yale

I live in New Haven, CT where I am finishing up work for my graduate degree in the Molecular Biophysics and Biochemistry Department at Yale University in Dr. Alanna Schepartz' lab. In July, I will be starting my postdoctoral position at the Whitehead Institute of Biomedical Research in Susan Lindquist's lab where I will be examining the molecular pathways of neurodegeneration in Parkinson's disease. I was married this past August to Dr. Nathan Ross. I met Nate during my undergraduate research with Dr. Timm Knoerzer. Nate completed his Ph.D. in Dr. Benjamin Miller's laboratory at the University of Rochester in the Biophysics program. He completed his postdoctoral work in the laboratory of Provost Dr. Andrew Hamilton, who has been appointed as the vice chancellor of Oxford University. Nate is now a project leader in the high throughput screening facility at the Broad Institute in Boston. We have a cat named Reece.

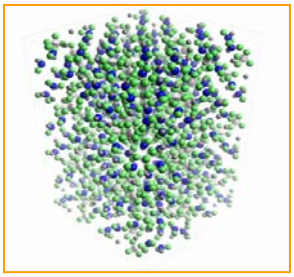
Christina (Gallis) Forties '05 Chemistry, '08 MS CHM Ohio State University



My husband Bob and I are currently living in Columbus, Ohio. I am a PhD candidate at Ohio State University for graduate studies in organic chemistry working for Professor Jon R. Parquette. I defended my masters thesis in July 2008, which was titled: "Synthesis and Characterization of a Ru Coordinated Azobenzene Metallofoldamer".

Jonathan Bates, '07 Chem Minor

I live in Chibuto, Mozambique (Google Earth me!) and work at the Escola Secundária de Chibuto - teaching secondary school chemistry to 8th and 9th graders through the United States Peace Corps. While I have been in-service with the Peace Corps, I have had the pleasure of traveling in Southern Africa, most notably South Africa and my beloved Mozambique. Just an obligatory plug for the good ol' Moz: Mozambique is home to some of the most foreigner friendly people in all of Africa and is noted for its quickly developing tourism sector. Mozambique also has world renown scuba diving (can anyone say swimming with whale sharks and manta rays?!). I highly recommend, if given the opportunity, travelling to Mozambique to experience its rich and unique Portuguese influenced culture.



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