Montclair State University Fall 2007

CSAM NEWSLETTER

College of Science and Mathematics

A Spectrum of Possibilities

NIH Grant to Support MARC Program Received

Dr. Reginald Halaby, Department of Biology and Molecular Biology, received a $2.1 million 5-year National Institutes of Health's MARC Undergraduate Student Training in Academic Research (U*STAR) Award on June 1, 2007.

The MARC (Minority Access to Research Careers) Program provides support for students, who are members of minority groups that are underrepresented in the biomedical sciences, to improve their preparation for graduate training in biomedical research.

The MARC Program will provide MSU undergraduate students majoring in the departments of Biology and Molecular Biology, Chemistry and Biochemistry, and Earth and Environmental Studies, with the research experience and guidance they need to ensure their success in post-graduate studies. Trainees must be honors students who have an expressed interest in a biomedical research career and who intend to pursue postgraduate education leading to the Ph.D., M.D./Ph.D., or other combined professional degree/Ph.D. The period of appointment to the MARC U*STAR Program is two years starting at the junior year.

The selection process for the MARC Program is highly competitive. Students are chosen based on several criteria including a 300-word essay describing future aspirations, research experience(s), research interest(s) and completion of the required freshman courses for the major.

Four students (Marcel Castor, Deanna DeVore, Anise Elie, and Vanessa Espinosa) were selected as the first cohort and engaged in the Summer Research Experience phase. (There are six phases to the MARC Program: two summer periods, one each before junior and senior years and the four semesters of junior and senior years).

These MARC 'scholars' undertook diverse and interesting research projects. Marcel Castor conducted research in Lille, France, under the supervision of Dr. Michel Salzet, studying the leech *Hirudo medicinalis* and its ability to regenerate neurons. Deanna DeVore worked with Dr. Halaby to identify the mechanisms that regulate apoptosis of human breast carcinoma MCF-7 cells. She is studying the role played by caspases, cysteine proteases, in the initiation and execution of cell death triggered by a Chinese herb. Anise Elie is working with Dr. Ann Marie DiLorenzo and conducted mutagenesis assays induced by dust collected from the World Trade Center. She is performing karotype analyses to determine if chromosome breakage and micronuclei numbers increase with exposure to the WTC material. Vanessa Espinosa worked with Dr. Kirsten Monsen and performed PCR analyses on the Internal Transcribed Spacers 1 and 2 (ITS1 and ITS2) in frogs from declining West Coast populations. The ITS1 and ITS2 regions will be used in phylogeny reconstruction.

MARC scholars will continue working on their projects throughout their two year participation in the program for at least 8 hours per week. Also during the academic year, they will be attending departmental/College colloquia series and bi-weekly MARC workshops on variety of topics (including data collection, interpretation, and presentations, manuscript preparation, thesis writing and GRE preparation). MARC scholars receive financial support from the grant including health insurance, payment of 60% of their tuition and

continued on page 8

In This Issue:

From Dean Prezant

This is not the original "From the Dean" I started to write. In my past missives, I've lauded our student and faculty research, discussed our international programs, and praised our creative programs. But a recent sad event spurred a very serious issue that needs to be aired. The start of the semester brought the untimely death of a colleague and friend, in our Department of Biology and Molecular Biology. Dr. Bonnie Lustigman, a true presence and positive "mover and shaker" at Montclair State University, after a gallant battle with cancer, succumbed to a disease that has affected far too many in our country. I will miss Bonnie and our lively conversations. As our discussions brought new insights and thoughts, her passing has brought new reflections. A few relevant facts:

- Probably all of us know someone who has had or has cancer.
- Medical research has made progress against some forms of this disease but as a whole it has made insufficient headway.
- The need for enhanced efforts in addressing this disease has recently made for political fodder as some national candidates for the presidency began a discussion on how to seriously address this "epidemic".
- While declining from previous years, there were still over 17,000 annual deaths from cancer in New Jersey between the years 2000-2004.
- The students we educate today will lead the way towards new fronts in treating this disease.

New Jersey has consistently underfunded higher education with proportionally fewer state dollars going to support our state universities today than ever before. [New Jersey is a regular on the bottom of the national list for state support of higher education.]

The correlation is self evident. Today the College of Science and Mathematics depends more than ever on external funding, through grants, contracts and donations, to help give our students experiences that will best prepare them to take the lead in medical research, in developing tomorrow's technologies, and in becoming leading educators. While of course we welcome these contributions, I encourage all of our CSAM alumni and friends to contact our state legislators and let them know it is time for New Jersey to step up to the plate. It is time to recognize that our future remains locked in how serious we are in insuring the best educational experiences for our students. Bonnie realized that the very best investment for our future, and one where the state must become fiscally responsible, is one that insures the best higher education resources for our students. ♦

MSU GK-12 Program Is Off and Running

By Mary Lou West, Ken Wolff and Mika Munakata , Mathematical Sciences

The National Science Foundation has awarded $2.8 million to CSAM's Drs. Ken Wolff, Mika Munakata and Mary Lou West for a five year program to support research graduate students in mathematics and science by partnering them with local middle school master teachers. This is one of about 100 GK-12 programs across the USA. The eight graduate students were selected at the end of the spring semester and have trained with the chosen pairs of middle school teachers in an intense Summer Institute. They have attended workshops on the Connected Math Program, geology and earth history, accommodations for English language learners, and adaptations for students with special needs. They visited their middle schools and have been treated to three excellent field trips as well as several social events.

The students are Cathleen Dale and Jennifer LaPoma from Earth and Environmental Studies, Mai Soliman and Sara Saber from Biology and Molecular Biology, Steven Spero from Mathematical Sciences/Statistics, and Daniela Kitanska, Marie McCrary and Katarznya Sieminska from Mathematical Sciences. Cathleen will work on sediments from Antarctica with Dr. Stephanie Brachfeld, Jennifer plans to investigate forest fire soils with Dr. Greg Pope, Mai will continue her work on RET signaling pathways with Dr. Quinn Vega, Sara will study the interaction of salt with frogs and lizards with Dr. Lisa Hazard, Steven will work with Dr. Linda Tappin to look for statistical correlations with extensive NJ Meadowlands air quality data, Daniela will work with Dr. Bogdan Nita on scattering theory of diving waves, Marie plans to investigate swarming dynamics with Dr. Lora Billings, and Kasia will study modeling of fluids with structures with Dr. Arup Mukherjee. The Fellows will share their research and their enthusiasm about it with the middle school students.

continued on page 13

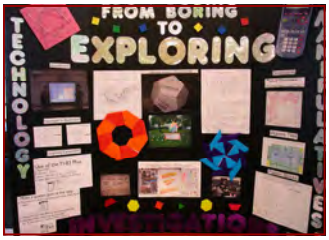
MSU-Roche Middle School Excellence Teaching Award Program

By Maureen McGuire, Office of Development

Teaching and learning can be fun and creatively effective, as fifteen middle school teachers proved this past May 31, 2007, at the awards dinner and poster session of the Montclair State University – Roche Middle School Excellence Teaching Award program.

A $20,000 grant from Roche provided an opportunity for the College of Education and Human Services (CEHS) and the College of Science and Mathematics (CSAM) to collaborate on a juried selection program to recognize excellent science, technology/engineering and mathematics teaching in grades 5 through 8 to all middle school teachers in New Jersey. The winning teachers were able to describe their innovative instructional methodology and the success they are having with their students through their displays to their principals, guests, MSU faculty, and students.

Statewide publicity and outreach to the teacher applicant pool was achieved through the placement of advertisements, articles and event listings in the newsletters and websites of the New Jersey Teachers Association (NJEA), New Jersey Science Teachers Association (NJSTA) and the Technology Educators Association of New Jersey (TEANJ) and email blasts sent to teachers through the NJEA.



Applicants were directed to a front page on the MSU web site with the competition criteria, guidelines and online submission requirements and instructions. Forty-six applications were reviewed by a panel comprised of Dr. Jacalyn Willis, Director of Professional Resources in Science and Mathematics (PRISM); Assistant Professor Mika Manukata, Department of Mathematical Sciences; Cheryl Hopper, Director, Network for Educational Renewal; and Professor Vince Walencik, Department of Curriculum and Teaching.

The panel selected 15 finalists representing 14 schools and 13 school districts. An award of $1000 was given to each winning teacher to be used for supplies for their classroom and for professional development. The awardees were:

- Anthony Grosso, Hillside School, Montclair;
- Margaret Saraco, Mt. Hebron Middle School, Moy clair;
- Deb Martin, West Essex Regional Junior High School, North Caldwell;
- Erin Devor, Pierrepont School, Rutherford;
- Deirdre Flannery, Saddle River Day School, Saddle River;
- Erica Waldeck, Englewood Public School, Englewood;
- Asha Meadow, Lady Liberty Academy Charter School, Newark;
- Nicole Kievitt, George Washington Middle School, Wayne;
- Isabella D'Agostino, Grover Cleveland Middle School, Caldwell;
- Jane Kinkle, Grover Cleveland Middle School, Caldwell;
- Nina Capalbo and Margaret Halupka, Little Falls School No. 1, Little Falls;
- Qixian Zhang, Holdrum Middle School, River Vale;
- Catalina Villasuso, Edward T. Bowser, Sr. Unique School, East Orange; and
- Dawnmarie Garrabrant, Washington School, Carlstadt.

Montclair State University congratulates the 2007 recipients of the MSU – Roche Middle School STEM Teaching Excellence Award competition. ♦

Photos by Anthony S. Rodriguez, A.R. Studios

Advisory Council – Member Profile

(Editor's note: The following is part of a series that began in the Spring 2006 issue of the CSAM Newsletter, which features a member of the CSAM Advisory Council.)

Irene Dec, Chief Operations Officer (COO) and Chief Compliance Officer (CCO) of Prudential's international insurance business in Poland, has been a member of the CSAM Advisory Council since its inception in 2005. She joined Pramerica Poland in April 2007. Her current work focuses on operations, compliance and systems and how these functions can best support the field.

Ms. Dec has been with Prudential for 26 years. She joined Prudential in 1981 as a programmer with Prudential HealthCare Group and has progressed steadily from there. Her most recent assignment was as vice president and head of International Operating Management for Prudential's International Division where she led Prudential's International Common People Reporting Platform Project. The purpose of this initiative was to identify and implement a platform that will perform consolidated and timely human resource reporting across Prudential Financial's International businesses. Prior to that, she was vice president in the Operations and Systems Department and head of Prudential's Year 2000 Program Office, responsible for managing Year 2000 compliance efforts throughout all business groups, corporate functions, systems, infrastructure and relationships with clients and business partners.

Before joining Prudential, Ms. Dec taught mathematics at MSU and at Jonathan Dayton Regional High School in Springfield, NJ. She has a B.S. and an M.S. degrees in mathematics from MSU and in recent years had been a frequent visiting lecturer in the Computer Science Department.

Ms. Dec has received numerous awards. She was awarded the Eric Jenett Excellence Award in 2001 by the Project Management Institute. In 2000, she was listed among *Computerworld*'s Premier 100 IT Leaders and by *Best's Review* as one of the "People to Watch In 2000 in the Insurance Industry. " She was profiled by Women in Technology International for its 1999 Women in Science and Technology event and was named one of the "25 IT People to Watch" by *Computer World* in 1998; one of 26 "Intriguing Women of New Jersey Business" by *Business News*; and was among the first honorees inducted into the Year 2000 Hall of Fame.

Ms. Dec has made presentations at more than 70 conferences, seminars, and government hearings and has consulted with other major U.S. companies and government agencies. She has been quoted in business, consumer and technology publications including the *Star Ledger*, *Investment News*, *Beyond Computing*, *CIO*, *Computer World*, *Information Week*, *PC Week*, the on-line I-Village newsletter and the Year/2000 Journal. She also has discussed issues related to the Year 2000 business problem on ABC's *World News Tonight*, CNN, and News 12 New Jersey.

Ms. Dec is a member of the World Future Society, Project Management Institute and the National Association for Female Executives (NAFE). ♦

New Members Join Council

The College of Science and Mathematics welcomes two new members to its Advisory Council.

Dr. Clive Meanwell is founder, president and chief executive officer of The Medicines Company. He received an M.D. and a Ph.D. from the University of Birmingham, United Kingdom. The Parsippany, NJ based Medicines Company focuses on cost and quality-driven biopharmaceutical product development that improve acute hospital care most notably *Angiomax*, an anti-coagulant used during coronary angioplasty procedures.

Mr. Allan S. Fliss is co-owner and president of Richartz Fliss Clark & Pope, a public relations and communications firm in Denville NJ. He hold a B.S. from West Virginia and an M.S. from Boston University, both in Journalism. His firm has successfully negotiated San Pedro, Belize as the location of choice for Fox's reality-based show, Temptation Island and handled such accounts as Snapple Hot Tea Product, Bogen High Performance Sound Systems, National Starch and Chemical Co., among others.

Mr. Fliss also serves as president of the Research & Development Council of NJ. ♦

Sokol Institute of Pharmaceutical Life Sciences Established *

By Jeff Toney and John Siekierka, Chemistry & Biochemistry

The new Margaret and Herman Sokol Institute of Pharmaceutical Life Sciences at Montclair State University has been established to honor the long time Sokol's support of Montclair State University's students and faculty. The Institute, the result of an $8.25 million bequest from the Sokols, will be home to a wide variety of scientific activities that will further enhance scholarship within the College of Science and Mathematics.

The University has recruited Dr. John J. Siekierka as Sokol Professor of Medicinal Chemistry and Director of the Sokol Institute of Pharmaceutical Life Sciences. (pictured right with chairperson Toney). Dr. Siekierka brings to the Institute an extensive background from both the pharmaceutical industry as well as academia. The Institute will create a unique environment to bring together faculty, undergraduate and graduate students, research associates, technicians and collaborating scientists from both industry and academia.

The Institute will support transdisciplinary research among its members and industrial collaborators in the areas of medicinal chemistry, pharmacology, biochemistry, natural products chemistry, molecular biology and new emerging technologies such as biomaterials and nanotechnology. The Institute will provide the necessary strength through its faculty and facilities to develop a strong post-doctoral program and advanced graduate programs leading ultimately to the Ph.D. degree in a pharmaceutical discipline such as medicinal chemistry, biochemistry or pharmacology. The Institute will have an external advisory board of scientific leaders from both industry and academia as well as an internal advisory board of University faculty.

The Institute of Pharmaceutical Life Sciences will house faculty and researchers studying fundamental biological pathways relevant to human health and disease. Part of the mission of the Institute will be to bring a global perspective to its research with the study of disease mechanisms and therapeutic approaches for AIDS, malaria, and other important global health issues. The Institute will promote interactions between medicinal chemists and biological scientists to synthesize and utilize small molecules and natural product as probes of cellular pathways relevant to human disease. The Institute will house modern facilities for the study of natural, transgenic and gene-disrupted disease models as well as for the pharmacological evaluation of novel compounds and drugs. The Institute will develop core technologies such as novel screening technologies, proteomics technologies, biomaterial platforms and drug analysis technologies. These core technologies will not only serve as a resource for the Institute's faculty and students, but also as a resource for surrounding pharmaceutical companies.

Modern pharmaceutical research and drug discovery has become a multidisciplinary endeavor. The recently coined term of "convergent technologies" as applied to pharmaceutical research attests to the efforts of chemists, biologists, computational scientists, polymer chemists and various engineering disciplines to come together in a single coordinated effort to fight human disease. The Sokol Institute of Pharmaceutical Life Sciences will provide a unique opportunity for Montclair State University and the College of Science and Mathematics to take a leadership role in this coordinated effort to the benefit of its students, faculty and industry and academic partners. ♦

* Also appears in the Research and Development Council of New Jersey, R&D Newsletter, September 2007).

In Memoriam of Professor Lustigman

By Quinn Vega, Biology & Molecular Biology

Dr. Bonnie Lustigman, a faculty member in Biology and Molecular Biology since 1984, passed away on September 2nd after a long struggle with cancer. Bonnie, a microbiologist by training, worked tirelessly for the department, the university and, in particular, her students. As department chair, Bonnie was instrumental in tripling the number of majors in the program and moving the department into the new Science Hall in 1999. She was well respected as a scientist and an educator, publishing numerous articles in her field and receiving funding from the National Institutes of Health. The research opportunities she provided to her students gave them the experience necessary to succeed in doctoral programs or medical school, as many of them did. Her vibrant personality, quick wit, scientific insight and concern for her students were readily evident every day and, while she will be greatly missed, her spirit will not be forgotten. ♦

2007 NSF *i*Magine REU Update

By Stefan Robila, Computer Science

With support from the Department of Defense (under Awards to Stimulate Undergraduate Research Experiences - Assure) and the National Science Foundation (under Research Experience for Undergraduates – REU), the Department of Computer Science and the Center of Imaging and Optics at Montclair State University organized between May 20 and July 13 an 8 week intensive undergraduate research program where students worked individually and collaboratively on a wide variety of computing problems. The program, titled '*i*Magine – REU in Imaging and Computer Vision" attracted a strong pool of applicants from which eight were selected representing a wide variety of schools: Montclair State University, New Jersey Institute of Technology, Princeton University, The College of New Jersey, Millersville State University (PA), Susquehanna University (PA), Hanover College (IN), and Metropolitan Universidad de San Juan (PR).

Department: object recognition and tracking in image databases (advisor Jing Peng), efficient hyperspectral data visualization (Angel Gutierrez), Boolean function simplification, medical imaging processing (George Antoniou), hyperspectral face database (Stefan Robila), and real time data processing environments (Sanjeev Wahi). Apart from weekly updates and meetings, they also presented their work at a mid-period workshop and in the final week. Each student delivered a final project report and presentation. It is also expected that some of their work will be presented in national and international professional meetings.

Apart from individual work, the REU participants also spent time in many group activities. Special attention was given to workshops and presentations aimed at supporting the research and professional development agendas.

With that in mind, a short course on image processing and half day workshops on scientific research, professional writing and graduate studies and graduate student life were organized. In addition, social activities such as picnics and team building exercises were designed to enhance the student's stay and to provide them with opportunities to improve their cohesion as a group.

To enrich their experience and to provide the students with a comprehensive view of the research scene, REU participants traveled to various New Jersey companies specializing in video and image processing and computer vision. Thus, the participants had the unique opportunity to interact with world class researchers and developers. Each activity was evaluated through assessment surveys with the results being used to shape future initiatives.

Overall, the 2007 *i*Magine REU site has been a success. Its impact on the participants will be assessed in the coming years when the students complete their studies and pursue their future career paths. We are hopeful that most of the participants will go on to graduate studies and become computing professionals, colleagues in academia or partners in industry. ♦

Team building at the School of Conservation

Working on image processing problems

Hypespectral data base project

The students were housed in the Village at Little Falls and were employed full time in the research projects. The goal of the REU programs is to expose students to the experience of performing research and encourage them in pursuing research careers. At Montclair, they worked on a diverse set of projects supervised by faculty from the Computer Science

Field Trip to Belize

By Jackie Willis, PRISM

A group of 23 persons joined PRISM staffers, Dr. Jacalyn Willis and Ms. Anna Mazzaro, for an 11-day field experience in tropical reefs, Mayan ruins and wet forests. Nineteen educators, school administrators, and 5 significant others braved sea wasps and chiggers to learn about tropical ecosystems and their myriad inhabitants. The educators were from a school in Ohio and several school districts in New Jersey: Orange, East Orange, Jersey City, Warren, Ogdensburg, Piscataway, Pascack Valley, Passaic, West New York, and Bridgewater-Raritan.

The participants were: Catalina Villasuso, Marc Gaydos, Edward Cohen, Nancy Lasher, Kathleen Lopes, Nicole Dickson, Hilda Aviles, Edward and Sondra Markman, Fran and Mike Zakutansky, Karen Lyons, Steve Maiorano, Amanda Sherwin, Leslie Streit, Jane Weeks, Joe Komarek, Ted Merkooloff, Eleanor Reagan, Kay Bees, Gregory Willis, Linda Woodbury, and Laura Zelenka.

During 4 days of snorkeling at the TREC Marine Laboratory on Ambergris Caye, the group explored mangroves, coral reefs, and shorelines. The highlights included swimming with sharks and rays and experiencing a nocturnal dive within an unusually intense aggregation of plankton, breeding annelids, and stinging sea wasps. Most of the group was affected with swelling and long-term pain, but pushed onward to the inland jungle lodge called Chan Chich.

Arriving at the beginning of a delayed rainy season, the group found abundant amphibian activity. The seldom-seen Burrowing Toads called "Uo" came above-ground to call together their throngs and make their quick courtships before returning to a subterranean feast of termites. Likewise, red-eyed tree frogs and at least 4 other arboreal species were vocalizing and breeding.

The birdlife was spectacular, including lek displays by showy trogons. Ants of many species proved fascinating as the group examined the habits of leafcutters, army ants, and symbiotic ants living in acacia thorns. The group had several sightings of puma and ocelot. Greg Willis placed four remote-sensing cameras on the trails and captured photos and videos of 3 species of cats.

A journey by boat to a large, deep Lagoon on the New River provided sightings of herons, kingfishers, and crocodiles. The group explored the ruins of Lamanai, which overlook this lagoon. It was once a large community of 60,000 and the most recently inhabited of the Mayan cities (1600's A.D.), maintaining a flourishing trade route with other cities in Central America. The highest temple of Lamanai still offers an excellent view of the region.

Several of the participants chose to take the field course for credit under the CSAM course CNFS 500. ♦

SUN Microsystems Grant's Impact

By Stefan Robila, Computer Science

In Fall 2005, Sun Microsystems awarded an Academic Excellence Grant to the Computer Science Department, with Stefan Robila as Principle Investigator. The award consisted of two powerful computer systems (Sun Fire V40z and Sun Workstation W2100z) and supporting software and was valued at over $35,000. The computing equipment provided a unique opportunity for the CS graduate students to perform research experiments that lead to new methods and algorithms in efficient large data processing. Below are two examples.
Mr. Lukasz Maciak worked on the W2100z dual CPU 4GB RAM workstation to develop a Java based framework offering reading and writing tools for various hyperspectral image types, as well as visualization tools, and a graphical user interface to launch and control further data processing. He continued by designing, implementing and testing parallel versions of two popular iterative Nonnegative Matrix Factorization (NMF) algorithms for hyperspectral image processing: one based on multiplicative updates, and another on alternative gradient computation. Recently introduced, NMF is a method that given positive linear matrix of positive sources, attempts to recover them. The algorithms were workload among the available CPU's and improve the performance as compared to their sequential counterparts. The experiments show a speedup in both algorithms without reduction in accuracy. The work formed Mr. Maciak's master's thesis.

Using the V40z 4CPU 16GB RAM system and the N1 Grid Engine package, Mr. Nicholas Senedzuk deployed a computing grid that allows for distributed processing across a parallel infrastructure. The project involved the design and implementation of the computing grid as a way to harness

continued on page 10

First Student Research Symposium Held

Research is an integral part of the curriculum and many more students are partaking in opportunities with our faculty here on campus. On May 5, 2007 the College of Science and Mathematics, the College of Humanities and Social Science and the MSU Chapter of Sigma Xi hosted its premiere Student Research Symposium.

This important academic event showcased and awarded outstanding scholarship and research by students who shared their work through poster displays and oral presentations.

One hundred and sixteen undergraduate and graduate students conducted research (with 51 faculty mentors) that resulted in 32 oral presentations and 53 poster presentations.

Acknowledging the value of student research and encouraging student participation, for the first time, pharmaceutical companies (Organon, ReGenesis LLC, Schering-Plough and Wyeth Pharmaceuticals) and alumnus John T. Riordon (BA'59) provided support for the Symposium. The proceeds were awarded to CSAM students for best poster and best oral presentations. Eight CSAM faculty served as judges and employed the following criteria for selection of best posters: abstract, poster content, poster design and knowledge of topic. For the oral presentations, abstract, visual/legibility of presentation design, presentation skills and knowledge of topic were used.

This year's best Poster Presentation winners were:

"A Cluster Dynamic Model of Tuberculosis of Two Strains and Its Implications to Benin" by Edme Soho - Baojun Song, Advisor; " Relationship Between the Radio Bursts from the Sun and Terrestrial Ionospheric Propagation" by Nathaniel Frissell and Michael Papalos - Mary Lou West, Advisor; "Numerical Methods for Solving Partial Differential Equation Using Matlab " by Amir Golnabi - Bogdan Nita, advisor; and "Heavy Mineral Analysis of Offshore Sediment Cores, East Antarctica" by Dan Hauptvogel and Jason Darley - Sandra Passchier, Advisor.

Oral Presentations winners included:

"The Population Genetics of *Zostera marina* (Eelgrass) Ecotypes of Barnegat Bay, New Jersey and Implications for Grass Bed Restoration" by Stephanie Smith - James Campanella, Advisor; "Aquaporin Genes of Microsporidia: Sequence, Homology, and Putative Role in Pathogenicity" by Jan Michael Racoma and Jonathan Marra - Jack Gaynor, Advisor; and "Defining the Provenance Characteristics of Weddell Sea and Northeastern Antarctic Peninsula Sediment: A Multi-Proxy Approach" by Molly Rosig - Stephanie Brachfeld, Advisor.

An honorable mention was given to Igor Kaplun - Roman Zaretski, Advisor, for his presentation "Using 64-Opteron Linux Cluster for Numerical Simulations of Spontaneous Multi-Armed Scroll Waves in Excitable Media." ♦

continued from page 1

fees, and a stipend of $10,956. MARC scholars must maintain a minimum GPA of 3.0 in their science courses in order to remain in the MARC program.

Dr. Halaby and members of the MARC Steering Committee are presently recruiting freshmen and sophomore students for a Pre-MARC Program. The Pre-Marc Program is designed to increase the retention of minority freshmen and sophomore students in the sciences and to bring their academic level to MARC U*STAR eligibility. ♦

Visit us at
www.montclair.edu/page/csam

Illegal Gold Mining in Ghana

By Aimann Sadik , Earth & Environmental Studies

I spent this summer, from mid-May to July, in Ghana conducting a preliminary study for my doctoral dissertation. My trip was financed by the Margaret and Herman Sokol International Research Award. My interest is in sustainable mining practices in Ghana, a West African mineral rich (gold) nation. This preliminary work was based on interviews, discussions, site visits, and collaborations with gold mining stakeholders.

Young illegal miners with Aimeen

The following is a short account of my experience with and observation of illegal gold miners of Benso, a village in Ghana.

Illegal miners, locally referred to as "galamseys", are thousands of unemployed people who use rudimentary tools such as pickaxes, shovels, and ropes to dig for gold. Their activities result in loss of farmlands, land degradation, pollution disease, deaths, prostitution and other social vices. Efforts by government forces to "remove" illegal miners from demarcated licensed concession of large scale mining companies have resulted in human right abuses, deaths and serious injuries.

I began my journey by traveling to Tarkwa, a town about 300 km away from where I was based in Accra, the capital of Ghana. The road from Tarkwa to Benso is not accessible by car, so my guard and I had to rely on a freight rail service. The train transports manganese bearing ores (rocks) to the nearby harbor for export. However since there was no other alternative means of transport, I embarked on the most uncomfortable and dangerous journey of my life. Throughout the 3-hour journey, I switched from sitting on the needle-like ores that pinched my buttocks to standing on the ores that could result in my falling off the train. Fortunately, we arrived safely in Benso, the "gold town".

At the mine site, I introduced myself to the community chairman and site overseer. After a brief interrogation, I was permitted to carryout my work. The community chairman accompanied me to all the sections of the site. At the first stop, galamsey operators attempted to assault me when I started to video-tape their activities. I was very frightened. However, the community chairman intervened and explained my mission to them. They calmed down and allowed me to proceed.

Miners on site

The operations of galamsey involve digging wooden supported pits that are about 80 meters straight vertically down and then 30 meters horizontally to remove waste rocks and mined-out gold bearing ores. One does not need any engineering knowledge to establish how unsafe these pits were! As such, when the community chairman suggested that I enter into one of the pits, I vehemently refused to take the risk. These operations have resulted in several abandoned, uncovered and collapsed pits all over the site. Any bit of carelessness could lead one to fall into these "death traps".

Collapsed pits on the illegal mining site

What I learned is that illegal miners face numerous physical, economic and social risks. The physical risks include possible static imbalances that could result in the collapse of pits on workers working in pits and falls into abandoned pits. Among the economic and social risks that galamsey operators face are uncertainties in finding gold in the rock due to the variable content in the area, alcohol and drug abuse in order to lose fear and bear the hardship of this physical activity, quarrels among miners, child labor, sexually transmitted diseases and its related illness such as HIV. I was really shocked to see how the struggle for "economic" survival could put my fellow Ghanaians into such a risky activity. ♦

CSAM's Annual Awards

CSAM held its annual Recognition and Awards ceremony on May 1, 2007. In addition to the Sokol Awards, both undergraduate and graduate students were recognized for their academic, service and research achievements. Faculty and staff were also recognized for their outstanding service to CSAM.

Marcin Baranowski (Biology), Stephanie Smith (Molecular Biology), Vieroslava Gurunian (Chemistry), Nagalakshmi Kohareswaran (Computer Science), Tricia

Aspinwall, (Environmental Studies), Michael DeSilva (Geology) Mark Anthony Trongone (Mathematics), Michael Bermel (Statistics) and Erin Devor (Teaching Middle Grades Mathematics) were this year's recipients of the Outstanding Master's Students awards.

Brittany C. Shelton (B.S. '07 Mathematics) received the Outstanding Senior Research Award. An Outstanding Student Service and Scholarship award was given to Rojita Sharma (B.S. '08) for her work in the Dean's Office.

The CSAM Awards of Excellence for Service by a support staff was presented to Beverly Macaluso, Administrative Assistant (Computer Science) and for Service by a professional staff went to Rosemary Lipala, Laboratory Specialist (Biology and Molecular Biology).

Marc L. Kasner (Chemistry and Biochemistry) was awarded the Faculty Service Award; Quinn C. Vega (Biology and Molecular Biology), the Faculty Research Award; and Michael Jones (Mathematical Sciences), the Faculty Teaching Award.

The Margaret and Herman Sokol Awards included the Faculty/Student Research Award which were presented to Drs. John Berger (Chemistry and Biochemistry), Lisa Hazard (Biology and Molecular Biology), Aihua Li (Mathematical Sciences) and Sandra Passchier (Earth and Environmental Studies) and their students Barbara Soares, Stephanie Zilinskis, Michael K. Wilson, and Daniel Hauptvogel and Jason Darley, respectively.

The Summer Graduate Student Research Fellowships were awarded to Deborah J. Katchen (Geoscience) and Sharon J. Kinard (Biology).

Pietr L. Pierog (BS '07 Biochemistry) received the Sokol Graduate Fellowship in Science. This Fall, he will continue his education as a doctoral student in biomedical sciences at UMDNJ.

Dr. James Campanella of Biology and Molecular (pictured left with Dean Prezant) was named the 2007 Sokol Faculty Fellow. ♦

Photos by Raquel Peterson

continued from page 7

SUN Microsystems Grant's Impact

unused CPU cycles from systems within CSAM. Up to 16 systems were available for use in the grid at any given time. These included research dedicated Sun workstations and servers, as well as classroom-mediated systems running the Windows OS. Beyond the deployment of the grid environment, two test applications (one performing prime number generation and one computing optimal spectral distance computation) were designed, implemented and tested. Experimental results showed the chosen architecture to be easily manageable with the execution times reflecting a significant speedup and suggesting grids as an approach in solving computationally intensive problems otherwise not tractable in regular computing environments. The work formed Mr. Senedzuk's M.S. project.

The results described above were also presented at four conferences: 2006 and 2007 IEEE Long Island Systems, Applications and Technology Conference (LISAT), and 2006 and 2007 SPIE Optics East (OE) followed by publication in peer review proceedings. Additionally, Lukasz and Nicholas' experiences are used for development of class projects as part of a novel Computer Science course offering on efficient processing of large data sets offered this Fall 2007 semester. ♦

CSAM Celebrates Convocation 2007

Photos by Mike Peters

The annual College of Science and Mathematics undergraduate Convocation was on May 14, 2007 at the Amphitheater. Under clear skies, 1,000 guests gathered to honor the students' achievements and completion of their undergraduate degrees.

Dr. Alan Leshner, CEO of the American Association for the Advancement of Science was bestowed the degree of Doctor of Science, *honoris causa*. Kimberly Dahlhaus represented the graduates and delivered the class message.

Ten graduating seniors were selected by their respective academic program as outstanding undergraduate students and representatives of the program and presented with plaques. They were:

Khanh Quynh Nguyen in Biochemistry,
Stephanie Mottola in Biology,
Jackline Aoll in Chemistry,
Nicole DiGenio in Computer Science,
Jennifer Lynn LaPoma in Geography,
Nicholas Andrew Alvino in Geoscience,
Grace Berry in Mathematics,
Jason Schifano in Molecular Biology,
Nathaniel Frissell in Physics; and
Brittany Shelton for undergraduate Research.

Dean Prezant, in his closing remarks, reminded the graduates, "As complex and challenging as our world seems, it is a world that offers opportunity. The trick, of course, is being prepared to run with those opportunities. Your diploma will be the certification that you are ready for the challenge but it will still fall to you to follow through, to take the next step, to accept the challenge." ♦

NJSOC Structures

By Annette Sambolin, School of Conservation

With all of the new buildings on Montclair State's main campus, it is meaningful to reflect on several historical buildings at Montclair State's field campus, The New Jersey School of Conservation, a division of the College of Science and Mathematics.

The New Jersey School of Conservation (SOC) opened on Memorial Day weekend in 1949, on 235 acres within the Stokes State Forest of Sussex County. The site had been built during the 1930s by participants in President Franklin Delano Roosevelt's national program known as the CCC –Civilian Conservation Corp. Once this site became available, the first director of SOC and future president of Montclair State Dr. E. de Alton Partridge (1951 - 1964) readied the site for the required training students received in the teacher education programs the New Jersey state teachers colleges.

Many of the buildings that Partridge and his students used are still functional today, after 58 years, through the outstanding upkeep and restoration efforts of the SOC's maintenance department. There are also several other "newer" buildings that have a special reconstruction story and reflect builders' names that might be known to Montclair State employees and alumni.

In 1963, Professor Vincent Dresser from the Applied Structural Design department at Trenton State arrived at SOC with several student assistants. One of them was Harrison Goodall, an undergraduate Industrial Arts major, who would later work at Montclair State and conduct several future reconstruction projects at the SOC. Their project was to build a new structure - Lenape Lodge dormitory, (pictured right) which is located on the western side of SOC's campus near Lake Wapalanne. They completed construction during a two-month course. The building has been used continuously since then.

In August 1975, Harrison Goodall returned to SOC in a new capacity as Deputy Department Chairman of the Department of Industrial Education and Technology at Montclair State. He arrived with 21 students, enrolled in the four credit course Historical Restoration, and worked on his second construction project at the SOC—DeGroat Cabin.

The cabin (pictured below) was originally owned by John and Marguerite DeGroat, who bought several hundred acres in present day Stokes State Forest at the end of the Civil War. State Forest Rangers James Flynn and Wayne Demarest, suggested moving it from its original location, approximately 5 miles northwest of SOC in Stokes State Forest, restoring it, and using it as a teaching site at SOC. Goodall and his students dismantled DeGroat cabin at its original site, then brought usable sections to SOC where they reinforced, restored, and reassembled it. The new structure offered SOC the needed space for teaching American craft skills that are related to working with wool fibers, including dyeing, or carding, spinning, and weaving them into fabric.

Partridge's dream of opening the New Jersey School of Conservation came to fruition in 1949. Through dedicated people's efforts, the school has maintained Partridge's vision, its historic character and mission into the 21st century.

The environmental education programs at NJSOC continues to provide field experiences in the environmental sciences, humanities, outdoor pursuits, and the social sciences. Currently, the NJSOC provides environmental education programs for nearly 9,000 elementary/secondary school students, and nearly 1,000 teachers from about 100 schools each year. ♦

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continued from page 2

MSU GK-12 Program Is Off and Running

They look forward to the fall when they will be working with these students on integrated math and science lessons for ten hours per week. Jennifer and Kasia saw a quiz bowl contest in Lyndhurst. "With an impressive array of questions ranging from physics to biology the students proved to be knowledgeable and interested in the subject matter." Sara and Marie watched as the students in East Rutherford demonstrated geometric weaving and a model volcano eruption with baking soda and vinegar. They left looking forward to working with such enthusiastic and creative students in the upcoming year. Mai and Daniela were impressed with students in North Arlington who could name and draw chemical structures. Cathleen and Steven saw "fun day" and watched the students in Kearny figure out how much money they would raise from a pie toss (where a math teacher was the target).

Field lesson at NJSOC

The workshops were enlightening. For instance, Dr. Fran Greb (CEHS) offered powerful material on students with learning disabilities. What we found very extraordinary is the long list of famous people with learning disabilities: Beethoven, Leonardo daVinci, Albert Einstein, Edison, Cher, and Tom Cruise, just to name few. Anna Mazzaro (PRISM) showed us adaptations we can implement to make learning easier for ESL students who are struggling to master English. The methods exemplified by the Connected Math Project place more emphasis on experimentation, teamwork and self-discovery, rather than letting the teacher do all the teaching. In fact, when using this approach, the teacher is merely a facilitator, walking around the room to make sure everyone is on task. According to Nancy Schultz (PRISM), the most common response to a student question should be "I don't know, what do you think?" Matthew Gorring made the history of the Earth's rocks come alive, especially with a geological time line filling the corridor in Mallory Hall, and a walking tour of campus bedrock.

One of the special features of this GK-12 program is an emphasis on field trips. As a warm-up we went with Matt Gorring to the Great Falls in Paterson, a most impressive

Examining campus bedrock

sight. At the NJ School of Conservation in Stokes State Forest we were led by Jerry Shierloh, and used many interactive activities to learn about watershed dynamics. The SOC is at the top of a watershed and a few middle schools are at the mouth of one (North Arlington Middle School, Lincoln School in Lyndhurst, Washington School in Kearny, and Alfred S. Faust School in East Rutherford), so there are intriguing differences to discuss. Geologist Earl Verbeek led a fascinating field trip into the Sterling Hill Mine in Ogdensburg, NJ. This closed zinc mine is also the source of most of the world's fluorescent minerals, strikingly displayed in a room illuminated by large UV lamps. There is also an extensive historical museum and a rock discovery activity.

The Fellows have written many science and math lesson plans, hands-on, inquiry–based and standards-driven, inspired by the lessons their partner teachers presented at MSU during the Summer Institute. For each pair of Fellows at least twelve lessons revolve around each of the two main field trips.

The group at the Great Falls

We agree with Oliver Wendell Holmes who said "A mind stretched by an idea can never go back to its original dimensions" and hope to demonstrate this with 300 middle school students in this coming school year.

Check out our website at www.csam.montclair.edu/gk12 for many more pictures and news items. ♦

Faculty/Staff Update

New Hires

Biology and Molecular Biology:
- Dr. Carlos A. Molina, Associate Professor

Chemistry and Biochemistry:
- Dr. Nina M. Goodey, Assistant Professor
- Dr. Fina Liotta, Visiting Assistant Professor
- Dr. Johannes P.M. Schelvis, Associate Professor
- Dr. John J. Siekierka, Professor, Sokol Chair and Director of the Sokol Institute of Pharmaceutical Life Sciences

Earth and Environmental Studies:
- Dr. Joshua C. Galster, Assistant Professor

Mathematical Sciences:
- Dr. Jonathan D. Cutler, Assistant Professor
- Mr. Harry McLaughlin, Visiting Instructor
- Mr. Kostas Stroumbakis, Visiting Instructor

Promotions

Biology and Molecular Biology:
- Dr. Paul Bologna to Associate Professor

Chemistry and Biochemistry:
- Dr. Saliya Desilva to Professor

Earth and Environmental Studies:
- Dr. Stefanie Brachfeld to Associate Professor

Mathematical Sciences:
- Dr. Mika Munakata to Associate Professor

Tenure

Earth and Environmental Studies:
- Dr. Mark Chopping

Mathematical Sciences:
- Dr.Younga Choi

Retirement

Computer Science:
- Dr. Ed Boyno

Mathematical Sciences:
- Dr. Anthony Piccolino
- Dr. Ruth Stewart ♦

Publications

Berger, J.M., R.J. Rana, H. Javeed,I. Javeed and S.L. Schulien (In press). "Radical quenching of 1,1-diphenyl-2-picrylhydrazyl: A spectrometric determination of antioxidant behavior." *Journal of Chemical Education.*.

Berger, J.M., Y. Itagaki and K. Nakanishi; K. (2007). "The effect of ultraviolet-depleted light on the flavonol contents of the cactus species *Opuntia wilcoxii* and *Opuntia violacea*." *Chemical Biodiversity,* 4: 1525-1532.

Bologna, P., S. Gibbons-Ohr and M. Downes-Gastrich (2007). "Recovery of eelgrass *(Zostera marina)* after a major disturbance event in Barnegat Bay, NJ, USA." *Bulletin of N.J. Academies of Science,* 52: 1-7.

Townsend, T. and **P. Bologna** (2007). "Use of *Diadema antillarum* spines by juvenile fish and mysid shrimp." *Gulf Caribbean Research*, 19: 55-58

Campanella, J.J, P.A.X. Bologna, L.E. Kim and **J. Smalley (**Accepted). "Molecular genetic evidence suggests Long Island as the geographic origin for the present population of bay scallops in Barnegat Bay, New Jersey." Journal of Shellfish Research.

Caronna, J., R. Sharma, J. Marra, V.L. Iuorno, K.G. Herbert and J.H. Toney (2007). "Prediction of modulators of pyruvate kinase in SMILES text using Aprori methods." *Proceedings of the 12th Annual ACM SIGCSE International Conference on Innovation and Technology in Computer Science Education*, 348.

Devlin, T. (Accepted). "Why aren't they called probability intervals?" *Mathematics Teacher.*

He, L.M., **C.G. Du**, Y. Li, C. Scheuing and H.B. Zhang(2007). "Cons–truction of large-insert bacterial clone libraries and their applications." In Z. Liu (ed.) *Aquaculture Genome Technologies*. Blackwell Publishing: 217-246.

Du. C.G. (2007). "Computational tools to search for Helitron Insertion in the maize genome. *Proceedings of 15th Annual International Conference on Intelligent Systems for Molecular Biology & 6th European Conference on Computational Biology. Vienna, Austria:*B56.

Mills, S., **L.C. Hazard**, L. Lancaster, T. Mappes, D. Miles, T. Oksanen, and B. Sinervo.(In press). "Gonadotropin hormone modulation of testosterone, immune function, performance and behavioral tradeoffs among male morphs of the lizard *Uta stansburiana*." *American Naturalist*.

Miles, D.B., B. Sinervo, **L.C. Hazard**, E.I. Svensson, and D. Costa (2007). "Relating endocrinology, physiology and behaviour using species with alternative mating strategies." *Functional Ecology,* 21(4): 653-665.

Herbert, K.G. and J.T.L. Wang (2007). "Biological data cleaning: a case study." *International Journal of Information Quality*, 1(1): 60-82.

Wang, J.T.L., D. Wen, B. Shapiro, **K.G. Herbert,** J. Li and K. Gosh (007). "Toward an integrated RNA motif database." *Proceedings of the 4th International Workshop of Data Integration in the Life Science Workshop*, Lecture Notes in Computer Science: SL 8 Bioinformatics, 7-36.

Harmsen, B.J. and **A. Li**, (2007). "Discrete Sturm-Liouville problems with nonlinear parameter in the boundary conditions." *Journal of Differential Equations and Applica-*

tions, 13(7): 639-653.

Lidman, L. and **D. Thomas** (Accepted). "Algebraic dynamics of a one-parameter class of maps." *Atlantic Electronic Journal of Mathematics* .

Marra, J., K.G. Herbert and J.T.L. Wang (2007). "A Study of phylogenetic tools for genomic nomenclature data cleaning." *Proceedings of the 12th Annual ACM SIGCSE International. Conference on Innovation and Technology in Computer Science Education,* 347.

Nita B.G. (2007). "Analytic continuation of perturbative solutions of acoustic 1D wave equation by means of Pade approximants" *Journal of Applicable Analysis*, 86(1): 41-58.

Nita B.G. and A.B. Weglein (2007). "Inverse scattering internal multiple attenuation algorithm: an analysis of the pseudo-depth and time monotonicity requirements." *Society of Exploration Geophysicists Expanded Abstract*, *2007 International Exposition and 77th Annual Meeting:*2461-2465.

Liu F., A.B. Weglein, K.A. Innanen, **B.G. Nita** and J. Zhang (2007). "A comprehensive strategy for removing multiples and depth imaging without subsurface information: Direct horizontal common image gathers without the velocity or "ironing"." *Society of Exploration Geophysicists Expanded Abstracts, 2007 International Exposition and 77th Annual Meeting:* 2456-2460.

Weglein A.B., L. Amundsen, F. Liu, K.A. Innanen, **B.G. Nita**, et al. (2007). "Inverse scattering sub-series direct removal of multiples and depth imaging and inversion of primaries without subsurface information: strategy and recent advances." *Society of Exploration Geophysicists Expanded Abstracts, 2007 International Exposition and 77th Annual Meeting:* 2210-2214.

Nita B.G. (Accepted). "Forward scattering series and Pade approximants for acoustic wavefield propagation in a vertically varying medium." In L. Huang and M. Fehler (eds.) *Communications in Computational Physics* special issue on Computational Geophysics

Ophori, D.U. (2007). "A simulation of large-scale groundwater flow in the Niger Delta, Nigeria. "*Environmental Geosciences,* 4(4): 1-15.

Ophori, D.U., M., Gorring, K. Olsen, E. Orhuah and J. Hope (2007). "A preliminary analysis of groundwater chemistry in shallow boreholes, Ughelli, Nigeria." *Journal of Environmental Hydrology*, Paper 13(15): 1-18.

Passchier, S. (2007). "Using heavy mineral analysis in the reconstructionof ice-sheet drainage patterns with an example from the edge of the East Antarctic Ice Sheet." In: M. Mange and D.T. Wright (eds.) *Heavy Minerals in Use, Developments in Sedimentology*, 58: 677-699, Elsevier B.V., doi:10.1016/S0070-4571 (07)58027-1.

Passchier, S. (2007). "East Antarctic ice-sheet dynamics between 5.2 and 0 Ma from a high-resolution terrigenous particle size record, ODP Site 1165, Prydz Bay-Cooperation Sea." In: A.K.Cooper and C.R. Raymond et al. (eds.) *Antarctica: A Keystone in a Changing World* – Online Proceedings of the 10th ISAES, /USGS Open-File Report 2007-1047/, Short Research Paper 043, 4 p.; doi:103133/of2007-1047.srp043.

Thomas, D., J.F. Clapp III, and **S. Shernce** (Accepted). "A fetal energy balance equation correlating birth weights." *Journal of the Royal Society Interface*.

Yidana, M.Y, D.U. Ophori and B. Banoeng-Yakubo (in press) "Hydrogeological and hydrochemical characterization of the Voltaian Basin – The Afram Plains Area, Ghana." Environmental Geology. DOI:10.1007/s00254-007-0710-1). ♦

Kudos

Dr. **John M. Berger** (Chemistry and Biochemistry) has been confirmed as the Committee Chairman for 52nd meeting of the American Society of Pharmacognosy (ASP) to be held in New York City during the summer of 2011. The ASP is an organization dedicated to the study of natural products and is responsible for the publication of the *Journal of Natural Products*.

Dr. **Lora Billings**' (Mathematical Sciences) grant from the US Army Research Office was renewed for a second year. The title is "Controlling interacting systems in noisy environments" and is for $38,729.

In March 2007, Dr. **Aihua Li** (Mathematical Sciences) was invited to give a colloquium presentation, "Tracing Space Points - a View of Discrete Time Series Modeling" in Beijing Jiaotong University. Another colloquium presentation was made at China University of Geosciences on "Development and Applications of Modern Mathematics – College Mathematics Education in the United States." She also participated in the MAA-NJ Spring 2007 Meeting and graded the student team competition and chaired the Plenary Speech by Dr. Peter Sarnak from Princeton University on "Primes and Orbits."

Dr. **Li** recently received $19,900 NSF CURM (Center for Undergraduate Research in Mathematics) grant to support mathematics research of four undergraduate students during the academic year 2007/2008. In the summer, Dr. Li refereed a paper for International *Journal of Applied Mathematics & Statistics* (IJAMAS) and reviewed two papers for *Mathematics Reviews*.

Dr. **Bogden G. Nita** (Mathematical Sciences) presented "Imaging the wavefield at depth without the velocity ... forward and inverse diagrams point the way" at the Mission-Oriented Seismic Research Program Annual Meeting, University of Houston, TX, June, 2007 and "Imaging conditions in geophysical depth migration algorithms" at the AMS Contributed Paper Session, AMS/MAA Joint Meetings, New Orleans, LA, January 2007.

Dr. **Sandra Passchier** (Earth and Environmental Studies) received a federal grant of $46,478 to participate as an "on-ice" scientists this Fall 2007 in the multi-national Antarctic drilling program (ANDRILL). The goal of this season's drilling is to extract a core of up to 17 million year old rocks from the seafloor of the McMurdo Sound in Antarctica. Dr. Passchier will leave for Antarctica by military plane from Christchurch, New Zealand on October 5th. Follow a webblog of the journey at www.MSUinAntartica.blogspost.com

Dr. **Sandra Passchier** (Earth and Environmental Studies) presented "East Antarctic ice-sheet dynamics between 5.2 and 0 Ma from a high-resolution terrigenous particle size record, ODP Site 1165, Prydz Bay-Cooperation Sea" and was an invited speaker on "High latitude sedimentology and stratigraphy" at the conference work shop: "Marine Proxies for Antarctic Ice Volume: Continental Shelf Sequence Stratigraphy and delta^{18} O Records from High and Low Latitudes" at the 10th International Symposium on Antarctic Earth Sciences, Santa Barbara, CA.

Eric Rosenzweig, a master's student in Biology and Molecular Biology, was awarded the NJ Academy of Science best graduate Student Presentation at the annual meeting. He also was awarded the AAAS best student presentation which included a monetary award, membership to AAAS and a subscription to *Science.*

Senior math major, **Michael Wilson,** presented his research at the New Jersey "Garden State Undergraduate Math Research Conference" held in Glassboro, New Jersey, in March, 2007. The title is "Linear Models of Discrete `Jordan-Like' Time Series" (faculty advisor Dr. **Aihua Li**).♦

Upcoming CSAM Events

This semester's **Professional Speaker Series** will feature Dr. Paul Linsalata, Sr. Director Environmental, Health and Safety - Research and Development Division, Wyeth Pharmaceuticals on October 16, 2007 in the Sokol Seminar Room (Science Hall).

The Margaret & Herman Sokol Science Lecture Series will celebrate MSU's centennial on March 12, 2008 with a forum on global sustainability at 8:00 p.m. in the Kasser Theater. The panel of experts, including Commissioner Lisa Jackson, NJ Department of Environmental Protection, Mr. Eric Svenson, vice president of environmental, health and safety at PSE&G and Dr. Anders Edwards author of *The Sustainability Revolution* and founder of EduTracks will discuss the "Environment and Sustainability—the Next 100 Years."

PharmFest 2008 will again be featuring a day long event on April 7, 2008 beginning at 9:30 a.m. in the University Conference Center with a special program celebrating MSU's Centennial. President Susan Cole, Honorable Bob Franks (NJ HealthCare Institute) and Governor Jon Corzine (invited) will deliver welcoming remarks for "Pharma in the next 100 years". Two sessions featuring two concurrent panels will compose the morning events. A keynote speaker will deliver remarks during lunch followed by another two concurrent panels.

The panels will include:
- MSU alumni in the industry,
- Diversity within Pharma
- Medicinal Devices
- Pharma Start-ups
- Drugs from the sea and rainforest and
- Pharma and aging.

Mr. Ron Califre (Novartis), Dr. Brad Shears (Reliant Pharmaceuticals) Mr. Robert Feeney (Eisai Inc.) and Dr. Andres Hedberg (Bristol Myers Squibb) among others will be serving as panel coordinators and facilitators.
A **Career Expo** will follow on April 14, 2008.