Montclair State University Spring 2009

CSAM NEWSLETTER

MONTCLAIR STATE UNIVERSITY 100 years 1908-2008

COLLEGE OF SCIENCE AND MATHEMATICS

A Spectrum of Possibilities

Ph.D. Program Receives Approval

by Dibs Sarkar, Earth and Environmental Studies

January 23, 2009, is a red letter day in the history of CSAM. On this day, the first Ph.D. program in the College, in Environmental Management, was approved by the New Jersey Commission on Higher Education. With this approval, the University now offers two Ph.D.s among its five doctoral programs. CSAM hosts two of them - the new Ph.D. in Environmental Management and the Ed.D. in Mathematics Pedagogy which has been in existence for several years now.

Although the Ph.D. is a new degree, the Doctoral Program in Environmental Management in not. The DEnvM program has been offered since 2004. The new Ph.D. designation of the program was, however, long overdue to truly reflect the academic, research-intensive nature of the program. The program's holistic approach to research and education, integrating the key elements of physical, chemical, biological, social and management practices into the study of natural and human environments, is representative of the academic needs of this new millennium, and serves as a unique intellectual platform promoting the philosophy of a sustainable world.

Broadly defined, the transdisciplinary Ph.D. program fosters understanding of the structure and function of environmental systems and their management. Primarily because of its location in one of the largest urbanized areas of the world, a major goal of the program is to meet the continuous regional need for highly qualified, trained personnel in academia, industry, and regulatory agencies to solve the growing environmental problems in the tristate area. Because a deep understanding of environmental issues and solutions to environmental problems requires the knowledge and analytic approaches of several disciplines, the program's faculty includes a wide range of natural, social and management scientists. The program caters to the educational needs of both full-time students who are mostly supported via university assistantships, as well as those of part-time students, mostly professionals who are already working in the local and regional environmental industry and in the regulatory agencies.

The specific objectives of the Ph.D. program include:

- Primary emphasis on research, grounded in unique transdisciplinary approaches to address environmental issues that impact sustainability and future management.
- Preparation of scientists who are fully primed to continue with creative, cutting edge scientific discoveries that will lead to important answers and approaches within relevant issues geared towards sustainable management of the environment.
- Preparation of environmental scholars who will recognize and analyze relationships among scientific, technological, societal and economic issues, and will use research in a data-driven decision and policy making process, firmly rooted in current scientific knowledge and methodology.
- Development of research professionals who will emerge as leaders in

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In This Issue

From Dean Prezant - The politics of science

In recent years when the world has been looking for new initiatives and leadership in science and technology, our country has been much too quiet. We have often fallen backwards on environmental issues, underfunded science education, and let our research and research infrastructure remain in stasis. We've allowed censorship and ideology-based decisions to take the place of data in promoting legislation. There has been no shortage of critical issues that have been subject to false debates – climate change, stem cell research, endangered species and evolution among many others. What has been missing has been a clear approach to what science is and what science means to the country and the world. Now, with the new administration of Barack Obama, all eyes are on this tech-savvy, energetic, and well educated President to make a difference.

In his inaugural address, President Obama declared that "We will restore science to its rightful place…" And just what is this place? According to our new President it means, in part, bringing our science forward to build the economy, growing green industries, taking advantage of wind and sun to power our vehicles and factories, and most importantly, insuring that our institutes of education will make a difference that matches the "demands of a new age." This is where our College of Science and Mathematics can and will be recognized.

The Obama-Biden plan seeks to create technology-based jobs and green jobs that make sense for a new world economy. Our transitioned society will produce new demands for STEM education and research. Our programs in environmental management, information technology, math education, science informatics, molecular biology, pharmaceutical biochemistry, are just a few examples of where CSAM will lead. Our students will fill the new and exciting opportunities that President Obama hopes to create in this newly defined market. The President's goal is to bring the "best minds" into K-12 teaching and enhancing the number of students interested in science. Whether it be in energy, environment, health, security or climate studies, the start is with reestablishing our leadership and our integrity in science and science policy and recreating the respect for the STEM disciplines that this country held in the past. Scientists in recent years report being ignored, report having data manipulated for political purpose, and have often been relegated to the back seat while pseudo-debates were promoted by conservative radio pundits with large popular followings. These vocal platforms often misled the country on issues ranging from global warming to creation science to energy reserves. It is time for the country to again trust good science and for politicians to allow relevant policies to be driven by sound science. CSAM is here to walk in step with this renewed spirit and no doubt our students and faculty will help lead the way. ♦

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environmental management within academia, industry and government institutions.

The program is currently served by an outstanding, diverse group of 30+ faculty members from a variety of disciplines across campus ranging from Geological Science to Political Science and Biology to Business. These faculty members have generated more than 250 peer reviewed publications between 2004, when the DEnvM program was established and now, and in the process have trained 4 doctoral graduates, all of whom are gainfully employed – two in academia and the others in the industry. The program currently serves 20 doctoral students, more than half of these students are full-time. The University administration is committed to supporting the program to ensure that it can achieve its fullest potential. Three new Graduate Assistantships are being made available from Fall 2009, plus 3 new faculty positions in various CSAM departments are being created in the coming years to support the Ph.D. program. This program is one of its kind in New Jersey and one of the very few in the United States. The program strives to become one of the best in the country, if not "the best."

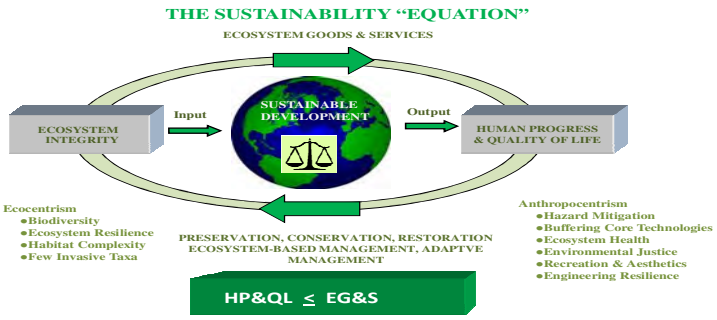
Please visit the new website of the program at http://csam.montclair.edu/environ. Let us know your thoughts on how we can further improve the program, and consider participating in the program activities if you haven't done already. A Sustainability Seminar Series has been established that will host 8 external speakers and 18 student speakers in Spring 2009. Please join us every Tuesday at 4 in the Sokol Room in Science Hall (unless noted otherwise) and enjoy a good talk with cookies and coke. Let's all move together in unison in our efforts to make mother earth more sustainable for our children and their children – as John McConnell – the man who started Earth Day - says, be an "Earth Trustee." ♦

Sustainability Studies at Montclair State University

by Michael Weinstein, Earth and Environmental Studies

Sustainable development is a catch-phrase for the need to reconcile human dominance of the earth's natural resources with the planet's ability to provide them over the long-term.[1] In part, it is a need borne of recognition that the human condition has placed potentially irreversible stresses on the relationship between the environment and human progress, and that more needs to be done to reverse these and other unsustainable practices. The often negative trends observed between population, habitation, wealth and consumption, technology and work, connectedness and diversity, and environmental change are likely to persist well into the future. Yet these very trends offer the fabric for rigorous analysis and scientific advancement in understanding the threats to, and opportunities for, sustainable development. What will be required for a successful transition to sustainability are critical advances in *basic knowledge*, in mankind's social and technological capacity to utilize it, and in the political will to turn that knowledge and know-how into action. This is the essence of the nascent field of sustainability science.

That a sustainable biosphere is not only necessary but economically feasible, socially just, and ecologically sound is the underlying premise of sustainability science. *Balance* will be the key; borne of the need to appropriate ecosystem goods and services at sustainable levels while protecting the integrity of the ecosystems that nurture us (Figure on right).



Citizens must also understand that achieving sustainability is an open and iterative process inclusive of science, policy and public participation. Choosing among alternative development scenarios will require new and/or enhanced skills in conflict resolution and consensus building. It all begins with education. Agenda 21 of the "Earth Summit"[2], called for a new philosophy of higher education based on emerging principles of sustainability science: *"education is critical for promoting sustainable development and effective public participation in decision-making."* Changes in higher education to address sustainable development may include sustainability science research, "greening" of universities, greening of curricula, and conducting community outreach programs (social learning) to improve science literacy and informed decision making.

To this end a Montclair State University *Institute for Sustainability Studies (ISS)* is in development to provide 1) a firm platform for ongoing and developing research within CSAM and across the university, 2) an opportunity for enhanced student training in sustainability science through transdisciplinary[3] coursework and research, 3) a platform and forum for airing sustainability issues in the community, and 4) community outreach to address current and future anticipated conflict facing New Jersey's economy. While ecological considerations are essential, the ultimate success of sustainability science will rest on societal values, and is therefore fundamentally a human endeavor. The political–jurisdictional, economic and social–cultural systems collectively make up the human dimensions of natural resource management. These values are then communicated to natural resource managers and society through the political, economic and judiciary systems. In turn, they are expressed as environmental laws, congressional budgets, volunteerism, voting behavior, etc., which ultimately determine the fate of the natural systems that sustain us.

Our hope is that an *ISS* would become a valuable resource for regional and national scientists, local stakeholders, resource managers, municipalities, state resource agencies, legislators and other decision makers and the public. The *ISS* would serve as a cohesive "roof" to utilize the mutual strengths of university departments, the new Ph.D. in Environmental Management, the Passaic River Institute, and the NJ School of Conservation. The *ISS* would help set Montclair State University apart as a national center of excellence in sustainability studies. Finally, the various programs in environmental management (including doctoral, masters, baccalaureate, and certificate) at the University would be enriched by better integration of the natural, computational and social sciences. ♦

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[1] National Research Council. 1999. *Our Common Journey: A Transition Toward Sustainability*. National Academy Press, Washington, DC
[2] United Nations. 1992. Agenda 21, UN Conference on Environment and Development, Rio de Janeiro, Brazil, 3-14 June
[3] Naveh 2002

Advisory Council—Member Profile

(Editor's note: The following is part of a series which features a member of the CSAM Advisory Council.)

Andrew J. Higgins is Senior Vice President and Chief Engineer of Applied Water Management Group of American Water, the nation's largest private water resource company. Applied Water Management Group is headquartered in Hillsborough, NJ, and provides customized water and wastewater management solutions to commercial and residential real estate developers, industrial clients, and small to midsized communities nationwide. American Water is an integrated part of RWE's water division.

In his position, Dr. Higgins oversees all engineering functions, serving as the company's chief technical officer on all projects, including introduction and assessment of new technologies, permitting, design, construction management, start-up and technical support to system operations.

Dr. Higgins has been with Applied Water Management since 1988 when he joined the company as Vice President of Engineering, responsible for all aspects of water and wastewater treatment engineering design, including representing various industries and municipal, county, and state governments on projects involving water supply and treatment, wastewater collection systems, wastewater treatment systems and sludge treatment and management systems.

Prior to joining American Water's Applied Water Management Group, Higgins had been a Senior Project Engineer with Richard A. Alaimo Engineering Company where he was responsible for the design of the Burlington County Resource Recovery Facility. Prior to his start in private engineering practice, he was an Associate Professor in the Department of Biological & Agricultural Engineering at Rutgers University.

Dr. Higgins is a registered Professional Engineer in New Jersey, Pennsylvania, New York, and Connecticut. He is an active member of a variety of trade organizations including the American Water Works Association, the National Society of Professional Engineers, and the New Jersey Society of Professional Engineers. He earned a Ph.D. in Environmental Science from Rutgers University, New Brunswick, a Master of Science degree in Environmental Engineering in Civil Engineering from University of Illinois, Urbana-Champagne, and Bachelor of Science degrees in Agricultural Engineering and Agricultural Science from Rutgers University.

Dr. Higgins is widely published and has received a variety of professional awards in the area of sludge management. Currently, he is also a part-time lecturer at Cook College an adjunct member of the Graduate School at Rutgers University. ♦

CSAM Names New Associate Dean

Dr. Lynn F. Schneemeyer, who joined CSAM as Interim Associate Dean for Academic Affairs in July, has been named Associate Dean for CSAM. Dr. Schneemeyer will work with CSAM faculty members to craft successful research proposals and will oversee academic budgets and new curricula for Deans office. Before coming to Montclair State University, Dr. Schneemeyer served as Vice Provost for Research and Graduate Education and Professor of Chemistry at Rutgers University – Newark Campus, were she was responsible for the research office, the animal care facility and the graduate school. Dr. Schneemeyer is a distinguished chemist specializing in the design, synthesis and characterization of new materials, specifically in the fields of superconducting, magnetic, electronic, and optical material and devices. She spent 22 years at Bell Laboratories, then subsequently joined the National Science Foundation as program officer. She has authored more than 260 scientific publications presented more than 85 invited talks and is the holder of 21 issued and pending patents. She is ranked as the 18th most cited physicist between 1981 and 1997. Immediately upon completion of her doctorate in Chemistry from Cornell University, Dr. Schneemeyer served as a post-doctoral fellow at the Massachusetts Institute of Technology. She has been a member of the Board on Chemical Sciences and Technology of the National Academy of Sciences and is a Fellow of the American Physical Society, Division of Condensed Matter Physics. In addition, she sits on the Board of Directors for the Kessler Institute.

Dr. Schneemeyer plans to reestablish her research program in new materials synthesis and teach occasional chemistry courses. This spring she is teaching CHEM 542, Theoretical Physical Chemistry. ♦

CSAM Facilities Updates

To support faculty teaching and research endeavors, MSU continues its commitment to an established CSAM infrastructure strategic planning initiatives. It includes maintaining, updating, refurbishing, and refitting existing spaces to meet the growing need of faculty and students.

At the beginning of January, Mallory Hall suite 152 became the new home of the Health Careers Program, HCP. Our Upward Bound Program is now also housed in Mallory 160 thereby centralizing these two long established and successful programs. These moves created much needed office space for our Biology and Molecular Biology faculty and graduate students. The entire department offices are now located in Science Hall. The new electron microscopy suite, occupying Mallory 160, was also recently completed with a dedicated classroom (see story below).

The Sokol Institute now occupies a newly renovated state of the art research facility in Richardson Hall. Richardson 369 has been renovated to function as a Molecular Modeling laboratory and construction is in its final stages for completion of a Laser Spectroscopy lab for Dr. Johannes Schelvis. On the drawing board are two new biology labs and three greenhouses.

A newly furbished Mallory 153, equipped with new data projector, projection screen, AV and audio equipment, will serve as the main classroom for GIS courses. Work is progressing on new laboratories in Mallory for faculty in the department of Earth and Environmental Studies. ♦

New Electron Microscopy Suite

by Stefanie Brachfled, Earth and Environmental Studies
Stephen Koepp, Biology and Molecular Biology

The College of Science and Mathematics has consolidated its electron microscopy equipment to create a single interdisciplinary facility dedicated to the support of science and technology research, education and training at Montclair State University. A grant from the National Science Foundation Major Research Instrument Division funded the acquisition of a new Hitachi S-3400N Variable Pressure Scanning Electron Microscope (SEM) and Bruker X-flash x-ray microanalysis system. The new system joins our existing Hitachi S-2460N SEM and our Hitachi 7500 Transmission Electron Microscopy (TEM). The presence of three electron microscopes on campus provided the stimulus for Montclair State University to fund extensive renovations to Mallory Hall to provide MSU community members with access to this state of the art equipment.

Electron microscopes, like their optical microscope counterparts, are used to magnify and study small objects. On a light microscope the wavelength of visible light used to illuminate a sample limits the magnification to a factor of 1000-1500x and a resolution to a few tenths of a micron. This is insufficient to see sub-micron and nano-scale objects including shell structure of marine micro-organisms, mineral growth and deformation features, interior structures in human tissues and individual cells, and synthetic nano devices. Electron microscopes bypass the limitations of visible light and the human eye by using a focused beam of electrons instead of light to bombard the sample, and elec-

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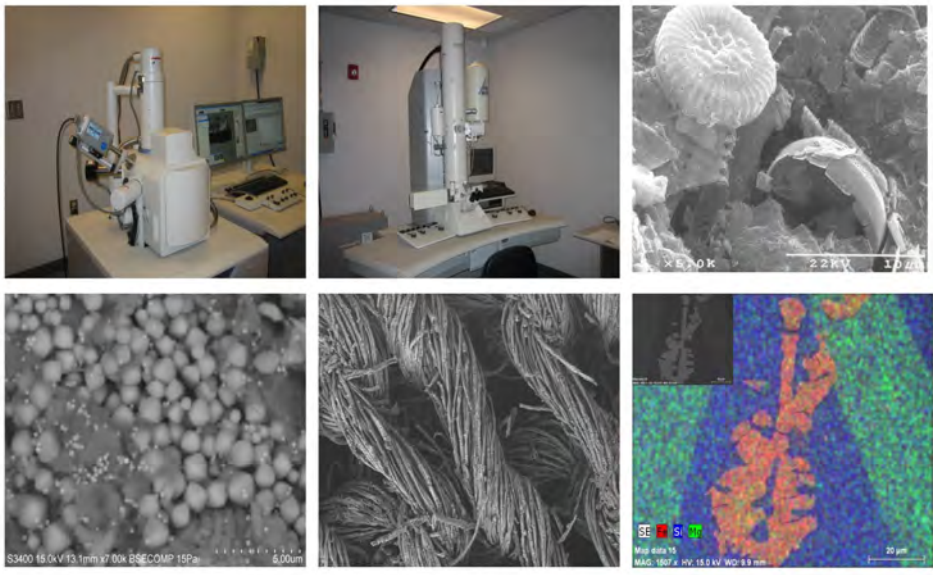


Top (left to right): Hitachi S-3400N SEM; Hitachi 7500 TEM; a diatom frustule imaged at 5000x magnification on the Hitachi 2460N SEM (by M. Ganger). Bottom (left to right): Sub-micron iron sulfide particles extracted from Arctic deep sea sediment imaged on the S-3400N SEM; clothing fibers with embedded gunshot residue imaged on the 2460N SEM (by M. Ganger); X-ray map of a synthetic Mars basalt showing iron-rich regions (red), silica-rich regions (blue), and magnesium-rich regions of the rock.

tromagnetic lenses instead of glass lenses. Our new S-3400N SEM can magnify samples by a factor of 300,000x. This method of analysis goes far beyond simply "how does the sample look up close." SEMs and TEMs can reveal the size and shape of the individual particles that make up a natural or synthetic object and how those particles are oriented and assembled within the object, which controls material properties such as material strength and anisotropy, acoustic properties, electrical and thermal properties.

The Bruker x-ray microanalysis system allows the user to measure the chemical composition of the sample. This can be done qualitatively or quantitatively, depending on the sample preparation and the user's goals. Students may not realize it, but nearly all of them have seen one application of x-ray microanalysis on the television shows Law and Order and CSI. The well-known gunshot residue test (GSR) uses an x-ray microanalysis system coupled to an SEM to detect the presence of lead, barium, and antimony (Pb, Ba, Sb) in particles swabbed from a suspect's hands or clothes. MSU students and faculty use x-ray microanalysis to study the compositions of minerals that originate deep within the Earth and yield insights on mantle composition and magma generation processes, to use minerals as natural tracers of past atmospheric and ocean circulation and glacial activity, to study impurities that accumulate in shells, bones and teeth during biomineralization, and to determine where heavy metal contaminants accumulate in both sediment particles and biological organisms.

Electron microscopy is a science and an art unto itself, but it is also a cross-disciplinary technique. Applications are well known in the sciences and engineering, but there are also applications in the humanities, for example anthropology, archeology, art, and classical studies. In bringing these facilities together in a centralized location, our goal is to provide a forum for interdisciplinary research and education within Montclair State University and foster new collaborations with industry and other academic institutions. The new laboratories in Mallory Hall consist of four individual microscope rooms, the Histology laboratory, and sample preparation and chemical storage areas. The fourth microscope room will be available to Hitachi Inc. to bring in additional microscopes for demonstrations and workshops.

A website is in development where information concerning new user training, scheduling and recommended sample preparation procedures will be posted. For more information on the Electron Microscopy Center, Stefanie Brachfeld at (brachfelds@mail.montclair.edu) or Stephen Koepp at (koepps@mail.montclair.edu) may be contacted directly. ♦

The Sokol Institute Lab

by John Siekierka, Department of Chemistry and Biochemistry

The new Sokol Institute Laboratory for Pharmaceutical Life Sciences (RH 371) was officially opened in October of 2008. The 650 square foot state-of-the-art laboratory holds a variety of modern biochemical equipment for conducting research in protein biochemistry, enzymology and drug discovery. Dr. John Siekierka, Professor of Medicinal Chemistry and Director of the Sokol Institute conducts research in the new facility in the area of HIV / host protein interactions and the role of parasite protein kinases in malarial, toxoplasma and leishmania infections. The new facility contains ample space for student research with four undergraduate and one graduate student currently conducting research along with Dr. Siekierka and Sokol Associate Fellow, Dr. Ronald Goldberg. The new laboratory greatly expands research opportunities available to students, CSAM faculty as well as industrial and academic collaborators. ♦

From left: Goldberg, Siekierka, Monika Maliborska, Pamela Omesiete, Sailaja Sankabathula and Katie Gaskill

SIROM Scientific Solutions joins hands with CSAM

SIROM Scientific Solutions, a small business enterprise specializing in sustainable environmental technology became the second incubator company to call Montclair State its home. The first incubator company of CSAM, ReGenesis, Inc. specializes in the area of biomedical R&D. The formal contract between SIROM and MSU was signed on December 8, 2008.

SIROM was brought to Montclair by one of its Principals, Dr. Dibyendu (Dibs) Sarkar. Dr. Sarkar joined CSAM in Fall 2008 as a full Professor in Earth and Environmental Studies, and also as the Director of the Doctoral Program in Environmental Management (now a Ph.D.). He is a Principal with SIROM in-charge of scientific operations. SIROM was formed in 2007 by Dr. Sarkar, along with a colleague, while at the University of Texas at San Antonio. Within a year of formation, SIROM received a Small Business Innovation Research (SBIR) Phase-I grant. The U.S. Small Business Administration (SBA) Office of Technology administers the SBIR Program and the Small Business Technology Transfer (STTR) Program. Through these two competitive programs, SBA ensures that the nation's small, high-tech, innovative businesses are a significant part of the federal government's research and development efforts. Eleven federal departments participate in the SBIR program; five departments participate in the STTR program awarding $2 billion to small high-tech businesses. SIROM was awarded the Phase-I, exploratory grant ($100,000) by the US Department of Defense to develop a green technology for removal of chromium from storm water in Naval shipyards. Based on the promise of the green technology developed by SIROM in Phase-I using a industrial waste by-product, a Phase-II grant has been awarded to develop a prototype for demonstration ($750,000). SIROM is also in the process of submitting new R&D grant proposals to the SBIR Program of the US Environmental Protection Agency and to the US Department of Agriculture.

SIROM currently has 4 part-time employees in various capacities. As an MSU incubator facility, SIROM is dedicated to furthering the mission of CSAM and MSU in student training. To that extent, SIROM has employed 3 MSU Ph.D. students in Environmental Management as interns; namely, Padmini Das, Michael Hardy, and Pravin Punamiya. Michael is also a co-Investigator of the funded project. The SIROM office and lab is located in the basement of Richardson Hall (RI 121). Please feel to drop by the SIROM facility some day and say hello to the MSU students who are hard at work trying to develop new green technologies to promote global sustainability, and in the process, gaining valuable real-life experience in environmental management.

Any MSU faculty member interested in submitting cutting-edge technology development proposal through SIROM in any area of interest acceptable to the 11 federal departments (DHHS/NIH, NASA, NSF, DoEducation, DoEnergy, DoT, DHS, USEPA, USDA, DoD, DoC/NOAA/NIST), is invited to contact Dr. Sarkar. ♦

CSAM Installs Display Screens

CSAM has completed the initial installation of two, 52" flat panel displays at either end of the Richardson Hall lobby area. Designed to improve the delivery of the quality and effectiveness of key CSAM news, information and messages to students, faculty and visitors, the displays currently feature a welcome/weather ticker at the top of the screens and three content boxes. Current contents include a CSAM slide show, Calendar of Events, new academic program announcements and CSAM news features.

The original specifications for the system were developed by Mike Stoppay in CSAM Core, and the implementation and system start-up were guided by Jim Ceravolo in the Dean's Office.

The displays are slated for additional functionality such as live TV news or program streams and Flash video capability for the very near future.. ♦

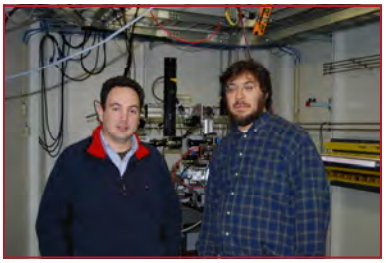
X-ray Mathematics

by Philip Yecko, Mathematical Sciences

David Trubatch and Philip Yecko traveled to Chicago in December to look at what happens to bubbles inside the black magnetic liquids known as ferrofluids. Ferrofluids have been used for decades as liquid seals to keep devices such as computer hard disks clean and to cool loudspeakers. Now they are being explored for the their use in drug delivery, cancer therapy and small scale manipulation of fluids for a range of applications. A major obstacle to this work is that these fluids are almost totally opaque to ordinary observation. But not to high power X-rays. The Advanced Photon Source at the Argonne National Laboratory is the most brilliant source of X-rays in this hemisphere and one of only three such facilities in the world. This one-kilometer synchrotron ring accelerates electrons to 99.999999% the speed of light, creating a powerful X-ray beam that can peer inside almost any object.

CSAM's Ferrofluids research group, collaborating with Wah-Keat Lee of Argonne, was granted discretionary "beam" time to look inside a tiny sample of ferrofluid and observe bubbles and other structures which determine the properties of these unique liquids.

The group has been working on numerical and mathematical models of ferrofluids, but the real fluids presented some big surprises and some new puzzles to be figured out. In the coming months, we hope to begin to unravel some of these new puzzles, starting by watching hours of ferrofluids movies. Anyone, especially students, interested in getting involved, should get in touch with the ferrofluid group. Plans for the next experiments at Argonne are underway. ♦



Trubatch (r) and Yecko (l) in front of the Argonne X-ray beam tube

New Combined BS/MS Programs in Statistics

by Thomas Devlin, Mathematical Sciences

Many opportunities exist for trained statisticians to work for government agencies and private industries such as biopharmaceuticals, consumer products, packaged food, insurance, financial services, research and development, quality assurance, product development, manufacturing, marketing, and public health and human resources.

To meet the growing need, CSAM is now offering two new combined 5-year BS/MS programs in Statistics—a combined BS in Mathematics with an MS in Statistics and a combined BS in Mathematics, Concentration in Statistics with an MS in Statistics. These programs are designed to provide motivated undergraduates with an opportunity to complete both degrees in an accelerated five-year time frame, as well as to provide students with a rigorous educational experience that will be an invaluable asset to their careers. Undergraduate mathematics majors graduating with an MS in Statistics , including a research experience, have a significant advantage in securing a position in industry and are also better prepared for doctoral work. The programs enrich the separate undergraduate and graduate degrees.

The combined BS-MS program requires a minimum of 144 credits: 111 credits from the BS program and 33 credits from the MS program. If pursued separately, the degrees would require a total of 153 credits and take an average of six years to complete. A research methods course is required and students are strongly encouraged to write a research thesis. The Statistical Consulting Program and a statistical consulting course, while not required, foster research among students and provide first-hand experience with the statistical consulting process.

Students who complete either of the combined programs will be awarded both degrees at the end of five years. A student who decides not to complete the combined program can graduate with a bachelor's degree by completing the requirements for either the BS Mathematics or BS Mathematics with concentration in Statistics.
More information on the program, requirements and admission is available at http://csam.montclair.edu/mathsci/mathsci.html. ♦

Novartis Gifts $39,000 to CSAM

Northern New Jersey is recognized as a leader in hosting and supporting the critical pharmaceutical industry. In recognition of the important role Montclair State University plays in supplying tomorrow's leaders in the industry, Novartis Pharmaceuticals presented College of Science and Mathematics with $39,500 gift to support a Novartis Scholar. The gift is to fund an outstanding incoming master's level student majoring in Pharmaceutical Biochemistry, Chemistry, Biology, Molecular Biology or Biochemistry.

The award will cover the cost of full tuition and fees for one student for two years. In addition, the student will receive $10,000 stipend per year. The Novartis Scholar is expected to have prior appropriate work experience, internship or research, etc., and is expected to pursue a career in the pharmaceutical industry.

The Novartis Scholar, during his/her studies at MSU, is expected to be actively involved in PharmFest, other pharma related activities and selected activities on the Novartis campus, Other expectations are participation in a MSU based student research symposium plus research presentation to at least one professional conference. Moreover, he/she will be eligible for and encouraged to participate in internships at Novartis.

Novartis Corporation is a multinational pharmaceutical company with US headquarters in East Hanover, NJ. It is the fifth largest pharmaceutical company in the world, with annual sales of $38 billion. It produces many products such drugs for cancer, diabetes and heart disease, vaccines, vision products, baby foods, animal health products and over the counter medications. ♦

2008 NSF iMagine REU

by Stefan Robila, Computer Science

The second cohort of undergraduate students participated in the summer iMagine – REU in Imaging and Computer Vision. Participants were selected from a attracted a strong pool of over 40 applicants from which eight were selected representing a wide variety of schools: Montclair State University, City University of New York, University of Maryland-Baltimore County, Capital University, Gonzaga University, California State University-Long Beach, Appalachian State Univversity, and St. Lawrence University.

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The goal of the REU programs is to expose students to the experience of performing research and encourage them in pursuing research careers. While at Montclair, they worked on a diverse set of projects supervised by faculty from the Computer Science Department such as object recognition and tracking in infrared imagery (advisor Jing Peng), efficient hyperspectral data visualization (Angel Gutierrez), 1-D and 2-D filter design (George Antoniu), and hyperspectral face recognition (Stefan Robila). Apart from weekly updates and meetings, they also presented their work at a mid-period workshop and during the final week of the program. 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.

In addition to the individual research projects, the REU cohort participated in a series of adjunct activities intended to enrich the student's educational and research experiences including an abbreviated version of an upper level imaging course, an overview of the graduate school opportunities in computing sciences, Matlab, and web design workshops. Participants traveled to various New Jersey companies specializing in video and image processing and computer vision. The students also had time for recreational activities including sightseeing, a boat trip on the Hudson and attending NJ Jackals and NY Mets games.

Some of the 2007 program participants have been successful in finding employment at Microsoft and Lockheed Martin, receiving full doctoral assistantship at University of New Mexico or enhancing their REU experience by attending other sites at NJIT and Rutgers. ♦

Scholarships Available

CSAM is pleased to announce the availability of scholarship opportunities for undergraduate and graduate students for the 2009-2010 academic year.

•*The Margaret and Herman Sokol Graduate Summer Research Fellowship* will provide a $5,000.00 stipend to a talented M.S. or M.A. student to conduct thesis research at MSU during the summer of 2009. Any CSAM science graduate student who has completed one year of graduate study, is working on a research thesis, and will return to MSU for the fall 2009 semester is eligible to apply. The stipend is meant to assist the student during the summer and help her or him to make significant progress on a thesis research project and eliminate the need for working full time outside of the university. Application available at http://csam.montclair.edu/. Deadline: March 20, 2009.

- *The Margaret and Herman Sokol Graduate Fellowship in Science* offers a $10,000 award to a graduating senior who will pursue full-time graduate study leading to a doctoral (Ph.D.) degree at an accredited institution of higher learning. Current students majoring in Biology, Molecular Biology, Geoscience, Physics, Chemistry and Biochemistry are eligible to apply. Application available at http://csam.montclair.edu/. Deadline: March 20, 2009.

- *The Novartis Graduate Scholarship* is available to first time, full-time graduate student in a MS pharmaceutical Biochemistry, MS Biochemistry, MS Chemistry or MS Molecular Biology program who is committed to pursue a career in the pharmaceutical industry, and has prior appropriate work experience, internship or research, etc. Award will be based on merit in accordance with the admission requirements as outlined by the program. The award will cover full tuition and fees for four academic semester and an annual Stipend of $10,000 per academic year (for 2 years). Application available at http://csam.montclair.edu/. Deadline: March 30, 2009.

- *The PharmFest Scholarships*, of $3000 per year for 2 years, are available to first-time, full-time graduate student in the combined MBA/MS Chemistry with concentration in Chemical Business, MS Pharmaceutical Biochemistry, Biochemistry or Molecular Biology with a commitment to pursue a career in the pharmaceutical industry and has prior appropriate work experience, internship or research. Awards will be based on merit in accordance with the admission requirements as outlined by the program. Applicants must be U.S. citizens or permanent residents. Application available at http://csam.montclair.edu/. Deadline: March 30, 2009.

- *The Rufus Reed Fund* makes scholarships available annually to currently enrolled chemistry full-time undergraduate female students with a minimum GPA of 3.25. Application deadline: February 16, 2009. Contact academic department for application.

- Five hundred dollar scholarships through *The Charles Hadley Fund* are available annually to outstanding biology full-time undergraduate students with demonstrated financial need to complete research or independent study. Application deadline: February 16, 2009. Contact academic department for application.

- *The John Stone Fund* awards a $500 scholarship to an outstanding math full-time undergraduate student who has completed at least 64 credits, (at least 32 at MSU) with an overall GPA of 3.45 and 3.5 in major courses. Application deadline: February 16, 2009. Contact academic department for application.

- A $500 *B. and G. Jaber Scholarship* is awarded to a full-time undergraduate female student of Arab descent enrolled in mathematical sciences. Recipients must be in good academic standing at the time of application with a minimum GPA of 3.0 and be a US citizen or permanent resident, Application deadline: February 16, 2009. Contact academic department for application.

- The *Pfleger Scholarship* is awarded to students with interest in botany or conservation. Application deadline: February 16, 2009. Contact academic department for application.

- The purpose of the *Bonnie Lustigman Research Fellowship* is to financially assist talented undergraduate and graduate students to defray expenses of their own research while enrolled as a full-time Biology and Molecular Biology major at MSU. Recipient must demonstrate a commitment to biology and molecular biology scholarship and research. To be eligibility, a student must be a full-time undergraduate or graduate student enrolled in at least six credits, and has a minimum grade point average of 3.5 in the major. Up to two awards per year; $1000-$2000 are available. Deadline: February 16, 2009. Contact academic department for application. Contact academic department for application. ♦

CSAM Awards 4th DEnvM Degree

by Huan Feng, Earth and Environmental Studies

Congratulations! Naushad Kollikkathra, one of the DEnvM program's full-time students, graduated in January 2009. Dr. Kollikkathra's dissertation research focuses on a few different aspects of urban waste management which include integrated estimation of the possible future scenario of municipal solid waste generation at business-as-usual rate using a prognosis computer model for Newark, a representative city in New Jersey, and determining the limitations. He effectively uses systems dynamics methodology for a comprehensive assessment of waste management system and their impacts so as to provide integrated assessments though a systems perspective and contribute to regional scale planning. His research also assesses the possibilities of developing alternate solutions for the issue of urban solid waste management incorporating geoprocessing methods, with aid of Geographic Information System. He plans to disseminate the tools and results to local civic authorities within the states in the region for assessment of future municipal level waste scenarios.

Dr. Kollikkathra earned his bachelors degree in 1998 in Geology from the University of Calicut, India, and graduated from the University of Kerala, India with a masters in Geology in 2000, with a thesis studying the geology and structural dynamics of a shear zone (Achankovil) in South India. He came to Montclair State University in 2004 to join the interdisciplinary Doctoral program in Environmental Management. Prior to joining MSU, he was working as a Research Fellow at a premier branch of the Indian Space Research Organization, where he was engaged in database management and analysis using GIS and satellite image processing techniques for the development of a Coastal Zone Information System. Currently, Dr. Kollikkathra is employed by the Westchester Community College as an adjunct professor teaching courses in earth sciences.

Naushad Kollikkathra was advised by Huan Feng (Advisor), Gregory Pope and Danlin Yu (Earth and Environmental Studies), Ruiliang Wang (Brookhaven National Laboratory) and Eric Stern (US EPA Region 2).

The program has also Drs. Victor Onwueme, Sandow Mark Yidana, and Jennifer R Callanan since it admitted the first students in Fall 2003. ♦

CSAM Students Visit China

by Mika Munakata, Mathematical Sciences

Three CSAM graduate students, three middle school teachers from Kearny School District, and two CSAM faculty members recently returned from two weeks in Beijing and Jinan, China. The visit was a part of the NSF GK12 program. The three graduate students, Tomasz Kurcon, Barbara Soares, and Jennifer LaPoma each gave research presentations at a seminar at Beijing Normal University. Their presentations were followed by a discussion with Chinese graduate students on specific research topics and on the similarities and differences in the culture of research and education between the two countries. Jennifer LaPoma also presented her research to the Department of Geology at Beijing Normal University.

In addition to research activities, the group (pictured from left: Dr. Mika Munakata - CSAM faculty, Antonio Moyano - teacher in Kearny, Patricia Hester-Fearon -teacher in Kearny, Barbara Soares - Biology student, Mary Goffredo - teacher in Kearny, Tomasz Kurcon - Chemistry student,

Dr. Aihua Li - CSAM Faculty and Jennifer LaPoma - Earth and Environmental Studies student) visited middle school classes, participated in seminars with Chinese teachers and adminstrators, and gave hands-on, interdisciplinary math-science lessons. ♦

The CSAM Newsletter
is published semi-annually by the
College of Science and Mathematics

Robert S. Prezant, Dean
Jinan Jaber, Associate Dean & Editor
Lynn F. Schneemeyer, Associate Dean
Raquel Peterson, Administrative Assistant

It is distributed to MSU's administrators and CSAM's faculty, students and alumni.
Back issues are available at
http://csam.montclair.edu/newsarchive.php

Send your comments and news to CSAM at
jaberj@mail.montclair.edu

Sokol Lecture: The Brain - Creating Science Creating Art

This year's Margaret and Herman Science Sokol Lecture will focus on the brain and creativity. It is a sequel to the symposium co-sponsored with St. Joseph's Hospital in October focusing on Brain Trauma.

The Sokol lecture is scheduled for Tuesday, April 7 at 7:30 p.m. It will begin with a presentation by Montclair artist Elizabeth Horowitz of her watercolors of neuroscapes. Ms. Horowitz coined the term 'neuroabstractions' describing "concept of abstract realism . . . the concept of where the mind dreams, creates and ideates." (Samples of her work can be seen at http://www.elizabethjhorowitz.com/. Her works have been exhibited by NYAS, Howard Hughes and MIT.

Immediately following, Dr. Nancy Andreasen, a renowned neuroscientist will deliver a lecture based on her best selling book *The Creating Brain: The Neuroscience of Genius*. Dr. Andreasen is Andrew H. Woods Chair of Psychiatry and Director of its Neuroimaging Research Center and the Mental Health Clinical Research Center at The University of Iowa Carver College of Medicine. She is a prominent neuroscientist and psychiatrist. Throughout her career she has successfully integrated interests in the arts and sciences. She initially earned a Ph.D. in English literature, with specialization in Renaissance literature. After spending five years as an English professor, she changed fields, attended medical school, and began her career as a physician-neuroscientist.

Dr. Andreasen's research spans multiple topics, including creativity, spirituality, neuroimaging, genomics, and the natural history and neural mechanisms of schizophrenia. Her career has been marked by many "firsts": the first quantitative Magnetic Resonance (MR) study of schizophrenia; development of the first scales to measure the positive and negative symptoms of schizophrenia; the first modern empirical study of creativity that examined familial and environmental factors, cognition, and relationship with mental illness; and the first study to combine genomic techniques with neuroimaging techniques. She was awarded the President's National Medal of Science in 2000. She has written 3 books for the general public and has also authored, co-authored, or edited 12 scholarly books and over 500 articles. ♦

Integrated Ocean Drilling Program Lecture

by Stefanie Brachfeld, Earth and Environmental Studies

On February 24, 2009 the Department of Earth and Environmental Studies and the College of Science and Mathematics will co-host Dr. Hubert Staudigel, Ocean Leadership Distinguished Lecturer from the Scripps Institute of Oceanography. Dr. Staudigel will give a seminar titled "Microbes and Volcanoes: A Tale from the Seafloor." Dr. Staudigel has sailed on numerous expeditions of the Deep Sea Drilling Program and its successor the Ocean Drilling Program. He studies the geochemical and microbial interactions that link the Earth's mantle, oceanic crust, seawater, and biosphere. Dr. Staudigel has provided the following abstract for his seminar, which will take place at 4 pm in the Sokol Seminar Room—Science Hall.

"Active volcanoes and the products of their eruptive activity conjure images of desolation and the fiery destruction of life. In reality, however, volcanoes and their eruptions play an important part in the biological renewal on earth. Much of that renewal is based on the delivery of a wide range of elements or energy sources to soils and the hydrosphere where they are impoverished by biological activity. This relationship is well known for terrestrial environments, but it is also true for the weathering of deep-sea volcanoes. Microbes are apparently thriving on volcanic rocks, and specifically volcanic glass, a common product of explosive and subaqueous eruptions. Microscopic textures in glass suggest that sponge-like cavities and tunnels are drilled into volcanic glass by microbes that remain to be identified by microbial culturing or molecular-based methods. Such textures have been found in all seafloor drill holes with significant penetration into the volcanic oceanic crust and in ophiolites and greenstone belts back to 3.5 billion years. In particular data from Ocean Drilling Program sites suggest that bioalteration may involve a globally significant biomass and it influences geochemical fluxes from the seafloor. Submarine volcanoes exposed on the ocean floor, in the form of ophiolites and greenstone belts, are now being studied not only as a physical and chemical heat engine but also as a bioreactor."

Dr. Staudigel's visit to Montclair State University is made possible by support from The Ocean Leadership Distinguished Lecturer Series. ♦

In Memoriam

We are saddened to share news of the passing of **Diane Macaluso D'Angelo (BS** '81 (Chemistry) on 5/8/08. Diane's career began at Info-Chem in Fairfield, NJ, as a Product Engineer responsible for the manufacturing of disposable thermometers, steam and EO sterilization integrators. She subsequently became Supervisor of R&D at the company, which is now owned by 3M Corporation. Diane wore many hats at 3M: including her responsibilities as Product Engineer, she also served as Project Engineer on several pieces of manufacturing equipment and subsequently Engineering Supervisor. Diane was a passionate New York Giants fan and resided in Branchburg, NJ with her husband Gregory. She was a loyal and consistent Annual Fund supporter of Montclair State University. We deeply appreciate Diane's lifelong support of her alma mater. We send our sincere condolences to her family and friends, especially her devoted husband Gregory. ♦

(by Ann Frechette, Dean's Office)

Sometimes life happens so softly. Yet when **Annie Krause** did not return to work after New Year's, she vanished with one of those whispered thunders, more conspicuous in her absence than in her presence.

For 17 years, Annie Krause was one of CSAM's housekeepers. Undeterred by an aging building's aches and pains, she went office to office, lab to lab, classroom to classroom, emptying waste baskets, cleaning floors, scrubbing surfaces. Those who knew her well say she was dedicated to work, always kind and willing to help anyone at any time. And she was filled with good cheer -- sharing funny stories, making people laugh, offering great conversation.

Faculty and students have fond memories of Annie's "adoption" of several frogs that resided in one of the biology labs. She called on them daily. She befriended the Dean's Office mascot, Lucky the crayfish. Pets of faculty and staff were also her favorites, especially a dog named Murphy.

It was at the end of the first week of January when people began to wonder about Annie. An [All Users] Sad News email finally arrived on January 13th from the University Facilities Team announcing the passing of Anne J. Krause on January 10, 2009.

To Annie's family, we offer our sincere condolences and a promise that she will always be remembered with warmth and great fondness in CSAM.♦

Anne J. Krause 1953 - 2009

Kudos

Dr. **Lora Billings** (Mathematical Sciences) research grant, titled "Controlling interacting systems in noisy environments", from the Army Research Office was renewed for 2008/2009 for $53,009.

Dr. **Mark Chopping** (Earth and Environmental Studies) received $75,000 contract from NASA/JPL for research support, high-performance computing equipment, and high resolution satellite imagery.

Dr. **Aihua Li** (Mathematical Sciences) received a grant of $24,968 from NREUP (National Research Experience for Undergraduates Program). The grant, co-funded by NSF, NSA and Moody Foundation supported a Summer REU program in mathematics on the MSU campus. The program involved three MSU undergraduates and one from Morehouse College.

Drs. **Dibs Sarkar** (Earth and Environmental Studies) and Nicholas Basta (Ohio State) have been invited to edit a special volume of the Journal of Environmental Quality on this highly relevant topical issue. JEQ ranks in the top quartile in Environmental Sciences and has the highest impact factor among the Trisociety journals. ♦

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Faculty Acitivity

Dr. **Mark Chopping**'s recent academic activities included A Joint MSU/NASA/USDA field campaign and NASA Laser Vegetation Imaging Sensor (LVIS) lidar surveys in New Mexico in support of Montclair State University NASA-sponsored Earth Observing System research. Two graduate students and one recent alumni participated. See http://csam.montclair.edu/~chopping/fieldNM08/ and http://csam.montclair.edu/~chopping/jornada/EOS/lvis/.

Dr. **Joshua Galster** (Earth and Environmental Studies) presented an an abstract of a talk titled "Characterizing the Source of Fine-Grained Sediments in New Jersey Rivers Using Radionuclides" at the 2008 Joint Meeting of The Geological Society of America, Soil Science Society of America, American Society of Agronomy, Crop Science Society of America, Gulf Coast Association of Geological Societies with the Gulf Coast Section of SEPM in Houston The paper was co-authored by **K. Barrett, H. Feng, N. Bujalski N. and J. Lopes.**

At the 8th International Conference on the Environmental Management of Enclosed Coastal Seas in Shanghai, China, Dr**. H. Feng** (Earth and Environmental Studies) gave an abstract of a talk co-authored with W. Zhang, J. C Hang, J. Qu, H. Xie and L. Yu L. titled "Influence of Urbanization and Economic Development on Yangtze River Intertidal Zone Sediment."

Dr. **Aihua Li**'s (Mathematical Sciences) recent professional activities included a trip to China as part of the MSU GK-12 program. While there, she was invited to give a presentation "Undergraduate Research in the United States – Enhancing Teaching and Learning through Research" at the College of Science, Beijing Jiaotong University. She also participated in The International Conference of Tradition and Innovation on Curriculum and Instruction for 21st Centenary, held in Beijing Normal University In the special session, "The Ways and Methods of Curriculum and Teaching", Dr. Li made a joint presentation, with **Mika Munakata**, titled "Bringing Cutting-Edge Research to the Middle School Classroom". She also gave an invited presentation in the special session on Combinatorics and Discrete Dynamical Systems of the First AMS Joint Meeting with Shanghai Mathematics Society. And, at the MAA-NJ Sectional meeting along with Qing Wu, a visiting scholar from Beijing Jiaotong University, presented a paper in Graph Theory Day 56 Conference. The title is "Interlace Polynomials of Certain Graphs." Dr. Li gave an invited presentation, "Tracing n-dimensional space points", in the special session on *Research with Undergraduates* held in MAA MathFest, Madison, Wisconsin and she served as a reviewer of three articles for *Math Reviews*.

Dr. **Bogden Nita** (Mathematical Sciences) recently delivered a paper, "An algorithm for seismic imaging and amplitude correction derived from scattering theory" at the 79th Annual Meeting, Washington, DC.

Mr. **Kevin Olsen** (Chemistry and Biochemistry) authored the final report for the National Park Service, for research permit number GATE-2007-SCI-0002, study number GATE-00174, Anthropogenic PAH distribution in the sediments found within Gateway NPS as Determined by Thermal Extraction GC/MS.

Dr. Greg Pope (Earth and Environmental Studies) has been working with colleagues on paleoenvironment research of Southern New Jersey. The project is headed by Mark Demitroff at the University of Delaware, and involves Geoscience MS student & GK-12 Fellow **Jennifer LaPoma** and recent DEnvM graduate Dr. Jennifer Callanan. The team is currently investigating sandy soils near Lakehurst.

Dr. **Dibs Sarkar** (Earth and Environmental Studies) organized a featured symposium in the Joint Annual Meeting of the Geological Society of America, American Society of Agrnomy, Soil Science Society of America, and Crop Science Society of America held in Houston. The symposium, jointly hosted by Dr. Nicholas Basta of the Ohio State University, was titled "Urban geochemistry and associated human and ecological health issues" and featured 12 talks on a variety of contaminants ranging from arsenic to lead to pesticides in a vareity of media, soil, water, and sediments. He also presented an invited lecture in the Columbia University Seminar on Pollution and Water Resources titled "Arsenic in urban environment: A promising remedial alternative to an emerging public health issue." At the same conference, doctoral students **Padmini Das** and **Michael Hardy** presented posters on Environmental Geosciences, **.Pravin Punamiya** gave an oral presentation on Urban Geochemistry and Associated Human and Ecological Health Issues titled "Symbiotic Role of Glomus Mosseae in Lead Phytoextraction Using Vetiver Grass." **Padmini** also presented a poster titled "Effect of Cadmium on Antioxidant Enzymes in the Presence of Beneficial Arbuscular Mycorrhizal Fungi: An Incubation Study Using Brassica Juncea (Indian mustard);" And **Hardy** presented a poster titled "Water Treatment Residuals Remove Copper, Lead, and Zinc from Acidic Wastewater." ♦

Publications

Brummer-Jecko, J., K. Astorga, W. Calip, N. Noyes, L. Shabunia, M. Szewczyk and **P. Bologna** (2008). "A study of seagrass density, diversity, and consumption in St. John, U.S. Virgin Islands." *Bulletin of New Jersey Academy of Science,* 53, p. 11.

Chopping, M., G. Moisen, L. Su, A. Laliberte, A. Rango, J.V. Martonchik and D.P.C. Peters (2008). "Large area mapping of southwestern forest crown cover, canopy height, and biomass using MISR." *Remote Sensing of Envi ronment*, 112, pp. 2051-2063.

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Jankovic, S., J. Luckhardt, K. Cassidy and **P. Bologna** (2008). "Assessing the distribution of sea urchins and the utilization of sea urchins as biogenic habitats for fish and invertebrates." *Bulletin of New Jersey Academy of Science*, 53, p. 15.

Korky, J.K. (2008). "Notes on the 2007 breeding season of the natterjack toad *Epidalea Calamita* Laurenti I (Anura: Bufondae) in Ireland." *Bulletin of the Irish Biogeographical Society,* 32, pp. 21-33

Langner, C., J. Brummer-Jecko and **P**. **Bologna** (2008). "Assessing plant diversity utilizing underwater digital pho tography in Great Lameshur Bay, U.S.V.I.." *Bulletin of New Jersey Academy of Science*, 53, p. 10.

Kontos, C. and **P. Bologna** (2008). "Mammalian survey and reappearance of the fisher (*Martes pennanti*) in New Jersey." *Bulletin of New Jersey Academy of Science*, 53, p. 19.

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Makris, K.C., J. Salazar, S. Quazi, S. Andra, **D. Sarkar,** S.B.H. Bach, and R. Datta (2008). "Controlling the fate of roxarsone and inorganic arsenic in poultry litter." *Journal of Environmental Quality,* 37, pp. 963-971.

Makris, K.C., S. Quazi, P. Punamiya, **D. Sarkar** and R. Datta (2008). **"**Fate of arsenic in swine waste from concentrated animal feeding operations." *Journal of Environ–mental Quality,* 37, pp. 1626-1633.

Makris, K.C., P. Punamiya, **D. Sarkar**, and R. Datta. (2008). "Novel colorimetric method overcoming phosphorus interference during trace arsenic analysis in soil solution." *The Analyst,* 133, pp. 191-196.

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(KatG)." *Biochemistry*, 47, pp. 12583-12592.

Rollins, H., **R. S. Prezant** and R. Toll (2008). "Human exploitation of the quahog *Mercenaria mercenaria* in Eastern North America: Historical patterns and controls." In Antczak, A. and R. Cipriani (eds.) *British Archaeological Reports International Series* - Early Human Impact on Megamolluscs,1865, pp. 23-32.

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Yidana, S.M. and **D.U. Ophori** (2008). "Groundwater availability in the shallow aquifers of the southern voltaian system: a simulation and chemical analysis." *Environmental Geology*, 55, pp. 1647-1657**.**

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Calendar of Events

February 17, 2009
Sustainability Seminar Series
Dr. Hari K. Pant, CUNY - Lehman College
" Hydro-climatic Changes: Potential Responses of Phosphorus Dynamic in Aquatic Systems"
4:00 p.m. - Sokol Seminar Room, Science Hall

February 24, 2009
CSAM Seminar in Earth and Environmental Studies
Dr. Hubert Staudigel, University if California—San Diego
"Microbes and Volcanoes: A Tale from the Seafloor"
4:00 p.m. - Sokol Seminar Room, Science Hall

March 26, 2009
CSAM Seminar in Biology & Molecular Biology
Dr. Stephen Hsu, Medical College of Georgia
"The use of green tea in fighting cancer"
4:00 p.m. - Sokol Seminar Room, Science Hall

April 2, 2009
CSAM Seminar in Neuroscience
Dr. Debra Zellner, MSU
"Contextual Influences on liking and Preference"
4:00 p.m. - Sokol Seminar Room, Science Hall

April 7, 2009
Sustainability Seminar Series
Dr. Johan Varecamp , Wesleyan University
"Mercury pollution in Long Island Sound and Connecticut: The return of the mad hatter "
4:00 p.m. - Mallory 258

April 7, 2009
Margaret & Herman Sokol Science Lecture
"The Brain: Creating Science Creating Art"
7:30 p.m. - Kasser Theater

April 14, 2009
Sustainability Seminar Series
Dr. Daniel Elliott, Geosyntec Consultants
"Remediation Nanotechnologies: From Lab to Field"
4:00 p.m. - Mallory 258

April 23, 2009
CSAM Seminar in Mathematical Sciences
Dr. Steven Heymsfield, Merck Global Center for Scientific Affairs
4:00 p.m. - Sokol Seminar Room, Science Hall

April 30, 2009
Third Annual Student Research Symposium
4:00 p.m. - Conference Center, University Hall

May 16, 2009
CSAM Convocation
11 a.m. - Amphitheater

May 22, 2009
MSU Convocation