

# CSAM NEWSLETTER

COLLEGE OF SCIENCE AND MATHEMATICS: A SPECTRUM OF POSSIBILITIES

## In this Issue

From Dean Prezant	p. 2
Interim Dean Named	p. 3
Mallory Renovation Update	p. 3
Latest NSF Awards	p. 4
Advisory Board Impact Award	p. 5
Forty Six Year Teaching Career	p. 5
Tribute to Dr. Max Sobel	p. 6
Activities of the PSEG ISS	p. 7
New Faculty/Staff	p. 8
Vega New ASBMB Chapters Chairman	p. 8
First Student Photo Competition	p. 9
Vivarium News	p. 9
Faculty News	p. 10
Publications	p. 10

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

Robert S. Prezant, Dean  
Jinan Jaber, Assoc. Dean & Editor  
Lynn F. Schneemeyer, Associate Dean  
Raquel Peterson, Admin. Assistant  
Michele Matthews, Admin. Assistant

Back issues are available at:  
[montclair.edu/csam/about-us/newsletters](http://montclair.edu/csam/about-us/newsletters)

Send your comments and news to  
[jaberj@mail.montclair.edu](mailto:jaberj@mail.montclair.edu)

## EAES Faculty Receives Presidential Award

Pankaj Lal, associate professor of Earth and Environmental Studies and associate director of the PSEG Institute for Sustainability Studies at Montclair State University, is among 102 recipients of the Presidential Early Career Awards for Scientists and Engineers



(PECASE). The awards, announced by President Obama on January 9, are the highest honor bestowed by the United States government on federally funded science and engineering professionals in the early stages of their research careers.

"It is extremely gratifying to get presidential validation of the research I am undertaking and an absolute honor," says Lal. "Personally, it gives me added confidence to continue on with my sustainable energy and resources research, which is one of the grand challenges facing modern society. I also share this award with the exceptional students in my research group and am thankful to my colleagues at Montclair State who have been extremely supportive."

CSAM Dean Robert Prezant says "For Dr. Lal to receive the PECASE award is an obvious and natural fit. His work reflects the broad spectrum of critical and far-reaching research within our College that informs our students and simultaneously offers important, positive benefits to our global society."

Dr. Lal was nominated by the U.S. Department of Agriculture National Institute of Food and Agriculture, which has funded his collaborative, interdis-

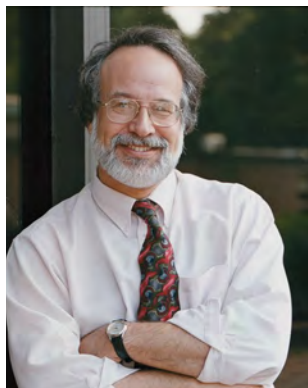
iplinary research that contributes to the development of a sustainable bioeconomy as a fossil fuel alternative, by assessing the socioeconomic impacts of forest- and agriculture-based biofuel development in Southern rural communities.

As a researcher, Dr. Lal is committed to providing science-based knowledge and solutions to inform policy choices. He proposes strategies based on an integrated, tailored place-based approach that emphasizes local context and suggests place-based interventions.

In 2016, Dr. Lal received a highly competitive five-year Faculty Early Career Development (CAREER) grant from the National Science Foundation to support his research and education initiatives. His research portfolio includes nearly \$7.5 million in grants and contracts for research as a Principal Investigator or Co-Principal Investigator not only from the U.S. Department of Agriculture, but also from the U.S. Department of Energy, New Jersey Department of Environmental Protection and the U.S. Environmental Protection Agency.

The awards, established by President Clinton in 1996, are coordinated by the Office of Science and Technology Policy within the Executive Office of the President. Awardees are selected for their pursuit of innovative research at the frontiers of science and technology and their commitment to community service as demonstrated through scientific leadership, public education, or community outreach. ♦

## From Dean Prezant



During the past 15 years I have had the opportunity to share my thoughts in this Newsletter. For those of you have glanced at my written ramblings, these missives have dealt with our students, our scholarship, our grants, our global links, our worries about major scientific issues, and our aspirations as a College of Science and Mathematics.

I've been able to do this only because of the "material" created by our remarkable faculty and staff in CSAM or because of the more recent machinations of politics as it tries to influence, deny or challenge science or because of some change in how education and science is perceived. This short missive, however, will be different. This will be my first Dean's message that is not focused on some wonderful CSAM "happening" or on some major policy threat. Instead this short writing will be reflective. It will also be my last Dean's message for this Newsletter as I head off, after more than a decade and a half as Dean of our College, to new opportunities and challenges.

In this time frame our faculty and staff have grown, our enrollments have grown, our external grant and corporate support has grown, and recognition of all that we do in CSAM has grown beyond historical boundaries. This growth, both quantitative and qualitative, reflects the outstanding work and efforts of our College faculty and staff, it reflects the individual and combined efforts that have led to new curriculum, major grants and donations, new facilities, and new programs and institutes. The fact that we now reside in six different buildings on campus (four in their entirety and two in part) and see growing research and programs at our NJ School of Conservation, the fact that we can point to a "science quad" on campus, relish the growing reputation of our colleagues who are receiving major external recognition and notable awards, our ability to celebrate our foray into on-line learning along with the continued aspirations of our Red Hawk Math Learning Center, all of these and more are reflections of individual hopes and collective aspirations.

In 1950 Albert Einstein was asked to write an article on relativity for Scientific American, something that would bring this complex issue to the educated public. He began this article as follows: "There exists a passion for

comprehension, just as there exists a passion for music. That passion is rather common in children but gets lost in most people later on. Without this passion, there would be neither mathematics nor natural science." Indeed the driving force for all that we in CSAM do is a passion for science, for mathematics, for technology, for education. And superimposed on pursuing these disciplines as our individualized scholarship, is always that passion for sharing. Most importantly, we share by educating our students with hopes that our own passion will become instilled in each successive cohort and generation. We hope that the passion we feel for our disciplines and for discovery will become viral, infective leading to a veritable epidemic of young minds seeking their own STEM disciplinary obsessions. We hope that this contagion of passion becomes embedded in our students and their own efforts to discover and learn and that these students in turn share that itch with friends, colleagues, communities and future generations.

As I reflect on my many years in CSAM at Montclair State, in conjunction with the pride I feel for the well deserved accolades heaped upon so many members of our academic home for their great work in generating major awards, new degree programs, national and global recognition, and new partnerships and collaborations, despite the importance of working towards growing external recognition, it is really the "passion" that I see in our faculty and staff and their desire to pass this passion along to our students that has inspired me and indeed helps me retain a positive outlook for tomorrow. It is the ability and success of members of our College to deliver on the promise of education and in fact to help insure that a large part of our student's education is creating a passion for learning and discovery. This, above all else, I know will continue. I know that CSAM faculty and staff will continue to inspire and will continue to grow that passion in all students who pass through our College. To all my friends and colleagues in the College of Science and Mathematics, and on behalf of our students, I thank you most of all for that.

Bob

## Interim Dean Named

**D**r. Lora Billings, professor in the Department of Mathematical Sciences, has been named Interim Dean of the College of Science and Mathematics, effective July 1 while a national search for a new Dean is completed.



After graduating with B.S. in Mathematics from Lafayette College, Billings continued onto graduate school at the University of Colorado, Boulder. She did her doctoral work in applied mathematics with James Curry and studied chaos in dynamical systems. After receiving a Ph.D. in 1998, Billings spent a year at the University of Delaware and then received an ONR/ASEE Postdoctoral Fellowship to continue her research at the Naval Research Laboratory in Washington, DC with Ira Schwartz. Billings moved back to her home state of New Jersey in 2001 to join Montclair State University.

Billings' research program is in applied dynamical systems, analyzing stochastic and deterministic behavior in a variety of real world applications. After arriving at MSU, Billings focused her research program on mathematical biology and received her first grant from the National Science Foundation in 2004. Billings then expanded her research program to develop methods to analyze the effect of noise on population dynamics, which was funded by a grant from the Army Research Office. In 2008, she received the MSU Distinguished Researcher Award and the Sokol Faculty Fellowship Award. In 2009, she formed a research team funded by NIH-NIGMS (with Johns Hopkins University and the College of William and Mary) to study the dynamics of the newly emerging disease, Dengue Fever. Today, Billings continues her work studying the stochastic population dynamics in systems in ecology

with the help of MSU colleagues, Eric Forgoston and Jennifer Krumins, and the British Antarctic Survey in Cambridge, UK. Simultaneously, Billings has been working with Eric Forgoston and Philip Yecko (Cooper Union) on a new computational fluid dynamics project funded by the NSF on the transport of inertial particles in time-dependent and stochastic flows. Billings has obtained over \$2M in external research funding from agencies such as the ARO, DARPA, NIH, NSF, and ONR while at MSU. She has also incorporated numerous undergraduate and graduate students in her research, and has used examples from this research in classes to inspire and promote the study of mathematics.

For the last three years, Dr. Billings has been serving the National Science Foundation (NSF) as a program director in the Applied Mathematics Program. This program is part of the NSF's Division of Mathematical Sciences (DMS) in the Math & Physical Sciences Directorate. Her primary role was to evaluate and recommend the funding of proposals that offered both strong connections to applications and significant, new advances in mathematics through a panel review process. Billings worked with programs that included other NSF directorates including Biology, Computer Science, and Engineering and was the spokesperson for the NSF and DMS at conferences and workshops. This experience has provided her with administrative skills, research perspective, and an understanding of the span of federal funding opportunities. She hopes to bring these assets back to MSU and help CSAM continue to grow its research potential. ♦

## Mallory Renovation Update

*By Chris Danish, Capital Planning and Project Management*

**A**s announced by President Susan A. Cole at the University's Fall meeting, renovation work on Mallory Hall began on schedule. The first phase, the asbestos abatement portion, of the project was completed in mid December.

Current activities include wall demolition, ceiling and lighting removal, and electrical wiring removal. Documents are also in preparation for the approval and ordering of long lead items such as air handlers, pumps, heat exchangers, etc.

The construction project was awarded to Delric Construction Company of North Haledon, N.J. A noticeable construction fence has been installed and the demolition work began on January 16, 2017. A crane was on site last week to remove old rooftop mechanical equipment.

Progress is ongoing and in accordance with the projected schedule. The new state-of-the-art, 43,800 GSF instructional and research facility for the computer science and biology laboratories is scheduled to be ready for occupancy by April 1, 2018. ♦



*Demolition of the former lab classrooms*



## The Latest in NSF Awards

The National Science Foundation awarded a grant of \$1,106,026 to Montclair State University for support of the project entitled "Preparing the Effective Elementary Mathematics Teacher," under the direction of Erin Krupa, Steven Greenstein, Jennifer Robinson, and Diana Aria. NSF expects to continue support at approximately \$272,017 in FY 2020 and \$71,949 in FY 2021, this award is expected to total \$1,449,992 for the period this April 1, 2017 through March 31, 2022.

A prior NSF grant provided funding to build the infrastructure and collaborations necessary to pave the way for this new grant, which was approved on scientific/technical merit. The prior grant created the first STEM pathway on the campus of MSU that leads to elementary teacher certification. This grant will fund 10 students per year, Noyce Scholars, to pursue an undergraduate degree in mathematics with K-6 teacher certification. Students will be given exemplary preparation to become elementary school teachers with a special focus on teaching in high-need schools. As a partner in this work, Diana Aria from the County College of Morris, will collaborate with seven two-year institutions to help us recruit transfer students into the Noyce Scholarship Program, which will also be open to MSU juniors and seniors.

There will be a research focus on the effectiveness of the Noyce Scholars program on Scholars' beliefs about the nature of mathematics and their mathematical knowledge for teaching. The PI's will also investigate Scholars' development of culturally relevant pedagogy and inquiry-based pedagogy. Specifically, we will answer these research questions: (1) What changes, if any, are there in Scholars' beliefs about mathematics and mathematics teaching over the course of the Scholarship Program and during their induction years? (2) What gains are there in Scholars' pedagogical content knowledge and mathematics content knowledge compared to non-Scholars? (3) How do Scholars draw on their advanced mathematical knowledge in their preparation for and teaching of elementary mathematics? (4) What are graduating Scholars' models of teaching elementary mathematics for equity and understanding and how do their program experiences inform these models?

Marc Favata is the recipient of a NSF CAREER Award. This is a 5-year award for \$400,000. The "CAREER: Research and Education in Gravitational-Wave Science" is to conduct research and education project that will explore ways in which gravitational waves offer a new way of looking at the universe. The competitive award supports the research and education initiatives of faculty like Favata who are in the early stages of their careers.

Favata is a member of the NSF-funded Laser Interferometer Gravitational-wave Observatory, or LIGO. The international LIGO team made history in 2015 when it detected, for the first time, gravitational waves from two black holes colliding to form one.

Stefan A. Robila, A. David Trubatch, and Charles Du were recently awarded a National Science Foundation Major Research Instrumentation Grant totaling \$497,000. Through this award, MSU will acquire a high-performance computing (HPC) cluster that will support a wide range of research and educational activities. The award builds upon MSU's extensive expertise with employing state of the art computational environments in support of scientific discovery and education. In the last fifteen years, CSAM faculty have received three MRI awards for purchase of computing clusters. The current award (valued at more than the combined value of the previous three) allows the replacement of outdated platforms and the enhancement of the HPC infrastructure by combining a state of the art distributed cluster, a memory intensive high core count node, a large storage server, and fast inter-system network connections. The project has Drs. Robila (Computer Science) as PI, Trubatch (Mathematical Sciences) and Du (Biology) as co-PIs, and includes Drs. Dajin Wang, Christopher Leberknight (Computer Science), Anna Feldman (Computer Science/Linguistics), Eileen Fitzpatrick (Linguistics), Henk Eshuis (Chemistry), Eric Forgoston (Mathematical Sciences), Tanya Blacic, L. Trueba (Earth and Environmental Sciences), and Phil Yecko (Mathematics, Cooper Union). ♦

Visit CSAM at  
[www.montclair.edu/csam/](http://www.montclair.edu/csam/)

## CSAM Advisory Board to offer Impact Award

In the spirit of recognizing an outstanding member of the College of Science and Mathematics community, the CSAM Advisory Board will offer an award that recognizes a faculty or staff member who, through his/her ongoing activities, has brought special external recognition to our College. This *CSAM Advisory Board Impact Award* will be offered once each year as appropriate candidates or nominees are recommended by an evaluative committee and through approval by the Board.

**The Award:** The *CSAM Advisory Board Impact Award* will be represented through presentation of a merit plaque, an internal account of \$5,000 that will be used to extend the impactful work, and recognition at a College-wide event.

**The Criteria:** *The Impact Award* will recognize one faculty or staff member, annually as appropriate, who has brought special, outstanding recognition to the College in the form of meritorious external media reports, special and nationally significant awards, major report(s) generated that change or seriously influence approaches to external

STEM related operations or broad knowledge-base in industry, government, community, or academia.

**The Process:** Individuals within CSAM can be nominated or self-nominate. Application materials must include the following:

- A two page document that describes how the individual has brought recognition to their home the College and University through their his/her programs, publications, awards, external service, and/or other activities,
- A portfolio of tangible evidence of this recognition (new media reports, external letters of support, national/international awards, documentation of operational/procedural changes at higher levels in STEM, etc.),
- A full and current c.v., and
- Two letters from external (non-MSU) sources supporting the nomination.

**The Submission:** To be announced soon. ♦

## A Forty-Six Year Teaching Career

by Harbans Singh, Earth and Environmental Sciences

Dr. Rolf Sternberg, after a long and distinguished academic career has decided to retire at the end of the fall semester 2016. He has taught for 46 years at MSU. Prior to joining Montclair State University, he taught geography for nine years at the City College in New York.

Dr. Sternberg is a reputable and respected scholar and geographer on Latin America. His research focus has been on the hydroelectric projects in Brazil. Urban development has been his other focus of research. Dr. Sternberg travelled extensively in pursuit of his research. He has a rich trove of slides from all parts of the world. He has used these slides to enrich the learning experience of his students.

Dr. Sternberg has taught undergraduate courses such as Urban Geography, World Resource and Industry, and Human Geography. He provided a great service to geography majors by arranging internships in city planning offices and environmental agencies. The internship experience for students

was a positive step toward a satisfying professional career.

Dr. Sternberg's bio sketch will be incomplete without mentioning the tumultuous period of his childhood in Nazi Germany. He was born in 1926 in Jever, NW Germany. Violence by the Nazis forced the family to escape to Argentina in 1939. In Argentina, a Jewish philanthropy gave his family virgin land they had to clear for farming and pasture. The land was located in the State of Centnerios, near village Alcaras, post office Uno Paitcu. The land was semi-arid Savanna. Rolf provided the primary physical labor to clear the land. Rolf and his parents farmed the land for seven years. In 1946, the family migrated to the United States and landed in New York. During the period in Argentina, Rolf was forced by circumstances to abandon formal schooling in his formative teenage years. Rolf's uncle provided him with German books which he read by kerosene lamp at the end of his laborious day. This passion for reading has remained with him



throughout his long life. The library with stacks of books in his Bronx apartment attests to his passion.

Dr. Sternberg earned his BA in Political Science from Ursinus College and an MA in International Affairs from Clark University. While at Clark University he was exposed to the faculty of the Geography Department and decided to pursue and received a PhD in Geography from Syracuse University.

In his retirement, Dr. Sternberg has an elaborate agenda to pursue his writings. Dr. Sternberg is an intellectual par-excellence. ♦

## A Tribute to Dr. Max Sobel BS '47, Emeritus Professor of Math

By Muriel Burger Thatcher, BS'62 MS '71

The world has lost an extremely talented, bright, and wonderful man. Hopefully, this remembrance will speak for hundreds (and ultimately thousands) of teachers and students who had the honor of knowing (or being affected by) Dr. Sobel, through classes, conferences, or as an author. His "Art of Teaching" was highly tuned with enthusiasm, knowledge and a deep understanding of teaching and learning mathematics!

Dr. Max Sobel was, perhaps, a true "mathmagician!" To clarify, the effect of the film "Donald in Mathmagic Land," first produced by Disney in 1959, captured the wonders, history, mysteries, challenges and structure of math, by wrapping it all in a 29 minute film. It captured the youngest audience, fascinated all ages, caused the older and wiser "student wonders" to shake their heads at the simplicity of a complex idea. Fun for all - in a world of math!

In the same manner, Max Sobel managed to weave his stories, humor, and tricks, into his mathematically solid lessons, from elementary grades to Calculus. Students left his classes with a smile on their faces! That's a rare teaching ability. Dr. Sobel authored or co-authored over 70 books, many with Dr. Evan Maletsky. Equally significant were the changes in thinking, and challenges for, students which were created for the classroom or in an auditorium with hundreds or even a thousand students. The students discovered an understanding of math and realized success as connections were made, and teachers realized that it's possible to teach math effectively, and enjoy it!

But, there were some magic ingredients needed to create that "Aha! Moment" and Max Sobel was an expert in affecting that result. A twinkle or sparkle of the eye, a lifted shoulder would make students contemplate: "what do I think will happen?" as Max's wondering smile, suspense, and enthusiasm produced great reactions. Model it, build it, fold, stretch, crush, or analyze it... use string, clips, straws, rubber bands, sand, beans, rocks, gum, wood, foil, measuring devices, cups, balloons, music, water, magnets... it was open game for manipulatives - before they were identified as such. AND, the overhead projector- the greatest tool for teachers, but used so cleverly with the overlays, the shadows, the spinners, to dramatize the concept!!!

Dr. Sobel truly stretched minds, and poured knowledge into them, seemingly effortlessly. Paraphrasing, he said "know your stuff, know your students, and stuff them

artistically." His small book, "The Art of Teaching Mathematics" was translated into numerous languages - a very practical, challenging book!

Unbeknownst to me as a student, the impact of the mathematics department at Montclair State (College) University resounded across the country! In the 60's and 70's and decades later, its reputation grew incredibly. Awarded an NSF summer 6 week grant, I chose UC, Santa Barbara, and as I began registration, a voice boomed out "Montclair State... Are YOU lucky!! " I quickly agreed! Having had Max Sobel for virtually all of my math classes, I knew that to be true!! BUT... how did they know in California? Through Max's textbooks, his activity in National Conferences, his role as President of the NCTM and the many other hats he wore along with his many noted colleagues in the Department of Mathematics such as Maletsky, Meserve and Davis along with their numerous predecessors. All were a part of this "little college" to which I commuted on two buses for an hour and a half, while friends were away at "big name" colleges.

As students in Max's classes, non-math majors actually understood math! A miracle! And, math education majors felt special, and perhaps, as I did, dreamed of being a "Max Sobel" for any school in which I was a teacher. And, I still feel that way today, as a sub or a tutor. My entire career was molded by my four years as an undergraduate, and earning a Master's degree at Montclair State. Montclair introduced a doctoral program after I completed mine at Rutgers, but it was my MSU degree that carried me to great successes, before I even began at Rutgers.

Finally, I am indebted to Max for the incredible inspiration, challenges, teaching techniques and strategies, and content matter he transmitted so artfully. It wasn't easy, but it was fun and satisfying. Montclair graduates were widely sought by school districts - in other majors, too, but we believed math majors were very special because of this very special individual! It is an honor to say that you were a "Sobel" protégé, and, to endeavor to live up to his expectations. Finally, I, along with countless others, I believe, offer thanks for the love and guidance given, throughout my career- only a phone call, a letter, or a conference meeting away (across the state, or across the country.)

With love and deep appreciation, I honor and remember "Max". ♦

## Activities of the PSEG ISS

By Rohan Padhye, PSEG ISS

The PSEG Institute initiatives are currently focused on finalizing faculty planning grants, raising awareness of environmental sustainability issues on campus and within the town of Montclair, and working to develop the framework for its 2017 Green Team Program.

### Faculty Planning Grants

In 2016, six faculty members—Drs. Clement Alo, Renata Blumberg, Yang Deng, Jennifer Krummins, Carlos Molina, and Robert Taylor—led interdisciplinary teams that completed their faculty planning grant projects, using seed money provided by the Institute. Each planning grant team was awarded \$6,000 and the funds were used to position faculty to apply for larger externally funded research grants. Topic areas focused on sustainability efforts locally and around the globe.

Drs. Alo and Varde sought to help develop high resolution (10 km) climate projections for the next ~5 decades to facilitate regional and watershed scale impact assessments in sub-Saharan Africa, with the hope that these projections that will inform sustainable climate-related resource development.

Drs. Blumberg and Lal sought to advance sustainable development in New Jersey and to bridge the gap between NJ's agricultural producers/farmers and consumers by analyzing how farmers markets in urban communities could play a role in improving both farmer livelihoods and the nutrition of low-income consumers with limited access to fresh fruits and vegetables.

Drs. Deng and Lal sought to develop a new direct potable reuse (DPR) approach using stormwater (a major non-point pollution source) as an alternative water source to support sustainable development. The research

aims to address a global scale water shortage issue through revolutionizing the existing DPR technologies with a new water source, and to ultimately provide drinkable, affordable and publically acceptable water. The research also focused on developing an innovative stormwater management strategy to alleviate the runoff induced pollution to natural water bodies for safeguarding healthy ecosystems and recovering the productivity and cost loss related to the environmental pollution.

Drs. Krummins and Goodey aimed to elucidate the factors driving enzymatic activity in contaminated soil through studying contaminated soils with unusually high enzyme activity in comparison to less functional, contaminated soils. Research team hoped to determine the ability of microbial inocula to improve the functionality of contaminated, low functioning soils, and characterize the time course of functional transformation. The research also explores how the microbial community functions in the restoration and management of degraded and post-industrial soils; which are necessary to sustainably support the increasing environmental pressure associated with growing population density.

Dr. Molina led research sought to use an economical and sensitive tool to detect pharmaceutical contamination that may lead to antimicrobial resistance (AMR) and drug resistant (DR) infections. There are substantial gaps in our understanding of this threat, particularly in communities in developing nations, and Dr. Molina's research sought to close some of those gaps.

Dr. Taylor led research sought to provide practical models that can aid planners, decision-makers, and policy makers in global cities most vulnerable to climate change. Historically the

cities with the largest populations are located in coastal environments. These environments are the most vulnerable to climate change as extreme weather events and sea level rise coupled with the high percentage of impervious surfaces in cities will lead to severe flooding.

### Sustainability Programs

The Institute was involved in a number of Sustainability Programs both on campus and in the towns of Montclair and Verona. These include Street Trees of Montclair research, expansion of the current Montclair Green Business Recognition Program, participation in Montclair's "Open Streets Festival," and implementing a recycling awareness initiative on campus.

The Institute provided seed funding to Dr. Dirk Vanderklein to assist with his work on "Street Trees of Montclair" pilot project, seeking to map the trees along the streets of Montclair. The research team identified the GPS location, diameter, height, and overall health of street trees along the roads of Montclair. This pilot project led to a larger tree inventory project implemented by the Town of Montclair and funded by the NJ Department of Environmental Protection.

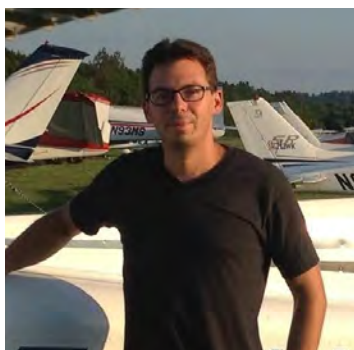
This semester, the Institute hosted representatives from the towns of Montclair and Verona to discuss each town's Green Business Recognition Program. Representatives explained the requirements for businesses to join the Green Business Recognition Program, and volunteer opportunities for students to help recruit new businesses join the program. As a result of these meetings, a number of student volunteers to participate in the town of Montclair's "Open Streets Festival." Students were able to set up a

*Continued on page 8*



## New Faculty/Staff Join CSAM

**Christopher Langner** earned his M.Sc. degree in Biology at Montclair State University in 2011. Following graduation, he went on to work at Bloomfield College managing the Biology Department's laboratory facilities as well as serving as Director of the LSAMP and ELS grants. His grant work focused primarily on retention of historically underrepresented minorities in STEM. Christopher is also an active real-estate investor and avid angler who hopes to continue his education at the doctoral level.



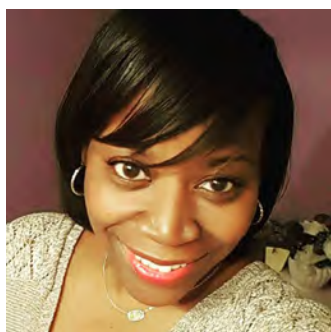
She also held the position of Executive Secretary to the Compliance Officer in the President's Office of Seton Hall University.

**Dawei Li** received Bachelor's degree in Electronics and Information Engineering from Huazhong University of Science and Technology, P. R. China in 2011 and Ph.D. in Computer Science from Temple University in 2016.



Dr. Li has published research articles in various conferences and journals, such as IEEE INFOCOM, ICPP, IEEE Transactions on Computers, IEEE Transactions on Parallel and Distributed Systems, and Journal of Parallel and Distributed Computing. One of his first-authored papers received the Best Paper Award in 2015 IEEE ICCCN. His research interests include green computing, data center networks, software-defined networking, and big data processing in the cloud. ♦

Dr. Li has published research articles in various conferences and journals, such as IEEE INFOCOM, ICPP, IEEE Transactions on Computers, IEEE Transactions on Parallel and Distributed Systems, and Journal of Parallel and Distributed Computing. One of his first-authored papers received the Best Paper Award in 2015 IEEE ICCCN. His research interests include green computing, data center networks, software-defined networking, and big data processing in the cloud. ♦



**Michele Matthews** joined the Montclair State University community in November 2016. As the new Program Assistant for the CSAM Dean's office, she comes with a wealth of administrative experience to MSU. Michele was recently the Administra-

## Tenure Granted

Congratulations to the following faculty who have received tenure :

- Constantine Coutras, Professor, Department of Computer Science.
- Marc Favata, Assistant Professor, Department of Mathematical Sciences.
- Hendrik Eshuis, Assistant Professor, Department of Chemistry and Bio Chemistry
- Robert Meredith, Assistant Professor, Department of Biology
- Steven Greenstein , Assistant Professor, Department of Mathematical Sciences. ♦

## Vega Named ASBMB Chapters Chairman

On July 1, Quinn Vega will take on the role of Student Chapters chair at the American Society for Biochemistry and Molecular Biology. He currently serves as chair-elect of the ASBMB Student Chapters.

The ASBMB Student Chapters is devoted to building a national network of undergraduate students and faculty members for the advancement of research, education and science outreach. Its mission is to provide networking and career-development opportunities at regional and national conferences, access to research and

science outreach, and funding and awards to facilitate these aims.

Quinn began with the ASBMB as the adviser for the student chapter here at Montclair State University. He immediately became involved with ASBMB's educational efforts by serving as a mentor for students in a program sponsored by the Minority Affairs Committee and as a judge in the ASBMB Undergraduate Student Research Poster Competition held each year at the ASBMB annual meeting. In 2009, he was brought on by the Student Chapters Steering Committee

as the director of all student chapters in the northeast region of the U.S. Quinn

continued to demonstrate his commitment to undergraduate education as the Northeast director by leading efforts to provide professional development and networking opportunities to undergraduate faculty. ♦





## CSAM's First Student Photo Competition

By Andrew Wiese, Dean's Office

Look closely – beautiful images are everywhere. With scientific subjects, student photographers captured memorable images of both the natural and physical worlds for the First Annual College of Science and Mathematics Science Technology Engineering and Mathematics (STEM) Photo Competition.

"There's often a falsely focused line separating art and science that can, ironically, be blurred through visual images," says College of Science and Mathematics Dean Robert Prezant. "With their wonderful photographs in this competition, our students have clearly demonstrated the importance of photography in revealing not only the beauty of the image itself, but also the beauty of science in the natural and physical worlds."

The students' images that best revealed the beauty and mystery of science earned them each a \$50 gift certificate for the Rift Zone eatery. The best overall photo was rewarded with a Grand Prize of a \$100 Rift Zone certificate. In addition to the basic awards, twelve submissions were chosen to formulate a College of Science and Mathematics calendar.

Matthew Rigby won in both the physical and natural world categories for macro submissions for his images of the George Washington bridge at night and grazing elk at the Yellowstone National Park respectively. Danial Ciarletta received the lone award for micro submissions with his sand grain recovered from a borehole on the Antarctic Shelf. The Grand Prize went to Matthew Rigby as well for His elk image.



Overall winning photo by Matthew Rigby, Biology MS

Submissions were judged on aesthetic and photographic quality, science focus and impact on the viewer. A panel was formed including Randall FitzGerald, associate director of Montclair State University's New Jersey School of Conservation; Mike Peters, Montclair State director of Photographic Services; Ashwin Vaidya, mathematics professor; and Laying Wu, director of the University's Microscopy and Microanalysis Research Laboratory who came together to pick the winners.

Browse through all the submissions received at: <https://msucsam.smugmug.com/CSAM-STEM-Photo-Competition-2016/>. ♦

## Vivarium News

By Kelly Patterson, CSAM Animal Facility

The vivarium in the CELS building had a busy year in 2016 hosting informational tours to faculty, staff, members of the MSU police force, and the facilities department. In July, Immunomedics signed a lease to rent both animal and lab space in the vivarium. The first animals arrived in August for the Immunomedics group and new research proposals are being received currently from MSU faculty as well. Although the vivarium was designed for mice and rats, the facility is capable of housing rabbits, gerbils, and guinea pigs. The vivarium has recently hired three student workers that will assist with the weekend and holiday schedules of the facility. ♦

### *Continued from page 5 –PSEG ISS*

booth there and provide residents with information on how they can reduce energy and consumption in their daily lives, and improve their efforts to recycle and reduce overall waste. Similar opportunities will follow with the town of Verona.

Throughout the fall semester, the Institute has been working with two

CSAM Students--Ariadna Camayo and Abdiel Jimenez—to improve student awareness of recycling initiatives on campus. Signs illustrating what can and cannot be recycled were created and hung on trash bins across campus including the residence halls. Additionally, Ariadna and Abdiel developed a survey designed to gauge student awareness of recycling initia-

tives around campus that will shortly be distributed to students through Red Hawk News.

If you or any one you know is interested to volunteer or learn more, please contact Rohan Padhye at [padhyer@mail.montclair.edu](mailto:padhyer@mail.montclair.edu). ♦

## Faculty News

**Nicole Panorkou** presented a poster, "Developing students' thinking of dynamic measurement" and a co-authored paper by **S. Greenstein** and J. Seventko "Optimizing teacher and student agency in minecraft-mediated mathematical activity" at the 38th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education. She also presented a co-authored paper by M. Vishnubhotla and D. Basu titled "Making sense of length times width through Dynamic Task Design" at the Annual conference of the Association of Mathematics Teachers of New Jersey. At the NCTM 2016 Regional Conference & Exposition, she presented "Developing students' thinking of dynamic measurement" also co-authored by M. Vishnubhotla and D. Basu.

**Marc Favata** gave an invited lecture at Brookdale Community College on "The first detection of gravitational waves by LIGO". He presented "Parameter estimation for inspiraling compact binaries with small orbital eccentricity" at 2016 Meeting of the American Physical Society and at the 2016 Gravitational Wave Physics and Astronomy Workshop. And at the 21st International Conference on General Relativity and Gravitation Dr. Favata presented "Modeling and detectability of the nonlinear gravitational wave memory."

Vivarium Director **Kelly Patterson** received the "Outstanding Contribution" award, one of the most prestigious awards the association bestows individuals that have made outstanding contributions to the field, from the New Jersey American Association of Laboratory Animal Science at their annual installation dinner.

Computer Science student **Aliva Pradhan**, under the mentorship of Dr. **Aparna Varde**, on "Ontology based meta knowledge extraction with semantic web tools for ubiquitous computing" in the 2016 Big Data Analyt-

ics & Mobile Communication Track of the international conference IEEE UEMCON. ♦

## Publications

Aloisio, J.M., M.I. Palmer, M.A. Giampieri, **A.R. Tuininga**, J.D. Lewis (2017). "Spatially-dependent biotic and abiotic factors drive survivorship and physical structure of green roof vegetation." *Ecological Applications*, 27:297-308.

Aloisio, J.M., **A.R. Tuininga**, J.D. Lewis (2016). "Crop species selection effects on stormwater runoff and edible biomass in an agricultural green roof microcosm." *Journal of Ecological Engineering*, 88:20-27.

Du J.L., S.L. Yang, **H. Feng** (2016). "Recent human impacts on the morphological evolution of the Yangtze River delta: A review and new perspectives." *Continental Shelf, Coast and Continental Science*, 181:160-169.

**Feng H.**, Y. Qian, J.K. Cochran, Q. Zhu, W. Hu, H. Yan, L. Li, X. Huang, Y.S. Chu, H. Liu, S. Yoo, C.-J. Liu (2017). "Nanoscale measurement of trace element distributions in *Spartina alterniflora* root tissue during dormancy." *Scientific Reports*, 7, 40420; doi: 10.1038/srep40420.

**Gaynor, J., P. Bologna**, C. Barry, D. Restaino (2016). "First occurrence of the invasive hydrozoan *Gonionemus vertens* (*Cnidaria: Hydrozoa*) in New Jersey, USA." *BioInvasions Records*, 5:233-237.

**Gindt, Y.M.**, B.H. Edani, A. Olejnikova, A.N. Roberts, S. Munshi, R.J. Stanley (2016). "The Missing electrostatic interactions between DNA substrate and *Sulfolobus solfataricus* DNA photolyase: What is the role of charged amino acids in thermophilic DNA binding proteins?" *Journal of Physical Chemistry B*, 120 (39):10234-10242.

Greco, S.J., G. Yehia, J.A., **C.A. Molina**, P. Rameshwar (2016). "Constitutive expression of inducible cyclic adenosine monophosphate early repressor (ICER) in cycling quiescent hematopoietic cells: Implications for aging hematopoietic stem cells." *Stem Cell Reviews and Reports*, DOI 10.1007/s12015-016-9701-5.

Liu H., C. Zhang, J. Wang, C. Zhou, **H. Feng**, M.D. Mahajan, X. Han (2017). "Influence and interaction of iron and cadmium on photosynthesis and antioxidative enzymes in two rice cultivars." *Chemosphere*, 171:240-247.

Lv X., B. Liu, D. Yuan, **H. Feng**, F.-Y. Teo (2016). "Random walk method for modeling water exchange: An application to coastal zone environmental management." *Journal of Hydro-environment Research*, 13:66-75.

**Meredith R.W., J.J. Gaynor, P.A.X. Bologna** (2016). "Diet assessment of the Atlantic Sea Nettle *Chrysaora quinquecirrha* in Barnegat Bay, New Jersey using Next Generation Sequencing." *Molecular Ecology*, doi:10.1111/mec.13918.

Mu D., D. Yuan, **H. Feng**, F. Xing, F.Y. Teo, S. Li (2017). "Nutrient fluxes across sediment-water interface in Bohai Bay Coastal Zone, China." *Marine Pollution Bulletin*, 114:705-714.

Nguyen T.T.H., W. Zhang, Z. Li, J. Li, C. Ge, J. Liu, X. Bai, **H. Feng**, L. Yu (2016). "Assessment of heavy metal pollution in Red River surface sediments, Vietnam." *Marine Pollution Bulletin*, 113:513-519.

**Panorkou, N.** and D. Pratt (2016). "Using Google SketchUp to research students' experiences of dimension in geometry." *Digital Experiences in Mathematics Education*, 2 (3), 199-227. ♦

## Mark your calendar

### Emerging Science Lecture

March 20th, 2017 - 8:00 PM, University Conference Center

With John Crowley, Chairman and CEO, Amicus Therapeutics



John Crowley is a biotechnology executive and entrepreneur. Two of his children were diagnosed with a severe neuromuscular disorder, glycogen storage disease type II, also called Pompe's disease. Frustrated with the slow pace of research on Pompe's disease, he left a large pharmaceutical company to take a leadership role at another company where they were working on new experimental treatments for the disease. He is best known as the founder of several biotech companies devoted to curing genetic diseases. His family's story is featured in a 2006 book by Geeta Anand, *The Cure: How a Father Raised \$100 Million – And Bucked the Medical Establishment – In a Quest to Save His Children*, which was later made into a film starring Brenden Fraser as John Crowley and also starring and produced by Harrison Ford, *Extraordinary Measures*. Crowley also wrote a personal memoir entitled *Chasing Miracles: The Crowley Family Journey of Strength, Hope and Joy*, coauthored with Ken Kurson.

Crowley, a native of Oradell NJ, received B.S. in Foreign Service from Georgetown University, a JD from the University of Notre Dame Law School and an M.B.A from Harvard University.

### Annual Student Research Symposium

April 28, 2017

1:00 to 7:00 p.m.

University Hall Conference Center

Abstract may be submitted electronically at <http://www.montclair.edu/research-symposium/>

Submission deadline: March 20, 2017