April 2016

Message from Dean Breneman

Spring has sprung in Troy! It's wonderful to watch how the cycle of life picks up rapidly when the weather warms and the days become longer – there's a lot of Systems Biology behind that – but I digress... Anyway, I'll soon be able to justify buying a new lawn tractor this year to keep the emerging blades of grass in line. You can see the effect on our students as well – especially the seniors – as their undergraduate Rensselaer experience ramps up toward Finals Week and then culminates during the adrenaline-laden excitement of Commencement Weekend. Then, as apartments are cleared out and cars loaded, collegiate nostalgia begins – diplomas are framed, new careers begun, and fond memories of Rensselaer begin to wash over our newest alumni and alumnae for the first time.

By the way, there are a lot of great things going on around the School of Science to report this month! For example, a new initiative named "CARGO" is examining new ways of treating cancer. This is a collaborative project that spans Biological Sciences, Computer Science, and Mathematical Sciences and involves an impressive set of faculty: Professors Deb McGuinness, Patrick Maxwell, Joyce McLaughlin, Bulent Yener, and Cathy Royer. CARGO represents another thing that Rensselaer does very well, and that is to collaborate across departments, schools, and disciplines. Our highly developed sense of collaboration and thematic thinking provides fertile ground for new interdisciplinary projects to emerge. Another intriguing project in Biological Sciences focuses on the behavior of microorganisms as they begin to build biofilms – early findings indicate that some of these organisms sacrifice themselves to protect the remaining colony through biofilm creation – "the needs of the many outweigh the needs of the few, or the one" – to quote a popular reference.

Kudos to Professors K.V. Lakshmi (Chemistry & Chemical Biology) and Peter Persans (Physics, Applied Physics, and Astronomy) for their $251k NSF grant in support of undergraduate research. The new grant is titled "REU Site: Summer Research Experience for Undergraduates in Physics." Their hard work will enable 10 undergraduates to perform physics research on campus this summer. Great work!

Congratulations to Karyn Rogers, Assistant Professor of Earth & Environmental Sciences! Karyn is principle investigator of a new NASA grant ($437k) to study "Abiotic RNA Polymerization in Early Earth Environments." Her co-PIs are Professors Bruce Watson and Linda McGown. This work expands upon a long history of research and student inquiry within the School of Science concerning the chemistry of early life in extreme environments, and informs where we should look for exobiological life.

I also have to mention the great work of the Rensselaer Science Ambassadors! They are a fantastic group of students who give presentations in science to middle schools and high schools to promote STEM education. I'm so proud of them.

So many great things keep happening in the Rensselaer School of Science that there isn't room to mention them all this month – so there's even more to come!

Come to Rensselaer and Change the World!

Curt Breneman, Dean of Science

CARGO Brings Rensselaer Expertise to Cancer Research

Through its new Cancer Research Group (CARGO), Rensselaer is drawing on its trademark interdisciplinary approach to help battle a disease that kills nearly 600,000 Americans per year and affects countless more.

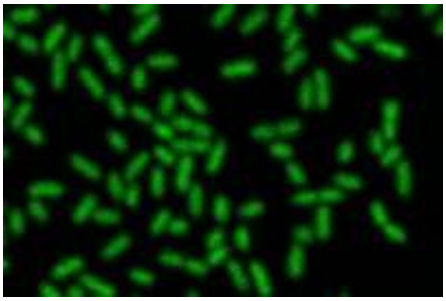
CARGO includes 12 of the Institute's leading researchers in disciplines as diverse as mechanical engineering, biology, biomedical engineering, and computer and cognitive science. The group was established last fall, just months before President Barack Obama announced the National Cancer Moonshot initiative to accelerate the development of new ways to detect and treat cancer.

Each Rensselaer researcher is tackling cancer from a different perspective. CARGO brings them together to learn about each other's research, identify new possibilities for diagnosing and treating cancer, and collaborating to overcome potential obstacles. CARGO also provides opportunities for researchers to explore connections and develop proposals for funding under the National Cancer Moonshot and other initiatives.

CARGO exemplifies the concept and value of The New Polytechnic, which recognizes that today's global challenges and opportunities cannot be addressed by even the most talented person working alone. The New Polytechnic enables collaboration using the latest, most advanced tools, technologies, and approaches to address the complex problems of the world.

See more

The Mechanics of Biofilms – Sacrifice of the Few for the Benefit of the Many



Suicide allows bacteria found in opportunistic infections to create an antibiotic tolerant biofilm, according to a team including researchers at Rensselaer. In work recently published in *Current Biology*, the researchers found that a molecule secreted by the bacterium *Pseudomonas aeruginosa* causes a breakdown in the respiratory chain, killing some of the population and triggering the creation of a biofilm among survivors, and thus conferring increased tolerance to antibiotics.

"What we've found is a suicidal pathway in which the sacrifice of some leads to a benefit for the community," said Blanca Barquera, an associate professor of biological sciences and member of the Center for Biotechnology and Interdisciplinary Studies (CBIS) at Rensselaer. "One of *Pseudomonas'* own

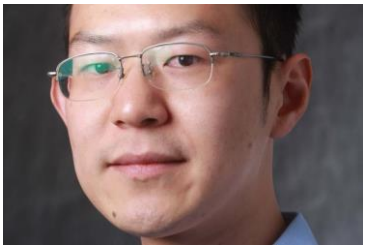
molecules targets one of its own proteins, and while some die, the ones that survive are induced to make a biofilm. This research helps us to understand how *Pseudomonas* creates biofilms, and that could help us prevent biofilms that play a role in persistent and relapsing infections."

Pseudomonas is a common bacterium that typically creates serious infections in patients with immune systems weakened by other conditions, including cystic fibrosis, cancer, HIV, or a traumatic injury. Often, the bacteria cells secrete a sticky substance that binds them together in multiple layers. Formation of biofilms is one of several mechanisms that make it possible for Pseudomonas to resist multiple antibiotics intended to defeat it.

See more

Rensselaer Professor Lirong Xia Named One of "AI's 10 to Watch"

Lirong Xia, a computer scientist whose research focuses on "social choice" – the analysis of individual preferences used to reach collective decisions or social objectives – has been recognized by IEEE Intelligent Systems magazine as one of "AI's 10 to Watch."



According to *IEEE Intelligent Systems*, a publication of the Institute of Electrical and Electronics Engineers (IEEE), the biennial honor is intended to acknowledge and celebrate 10 young scientists in the field of artificial intelligence (AI) and to promote cutting-edge research among next-generation researchers, industry, and the general public alike.

Chuck Stewart, head of the Department of Computer Science, congratulated Xia, who joined Rensselaer in 2013.

"This award highlights Lirong's great early success and his outstanding potential, and we congratulate him on this recognition," Stewart said. "Professor Xia joins Heng Ji – a young expert in natural language processing – as the second Rensselaer recipient of this award, reflecting the high quality of AI researchers who have joined the department in recent years."

See more

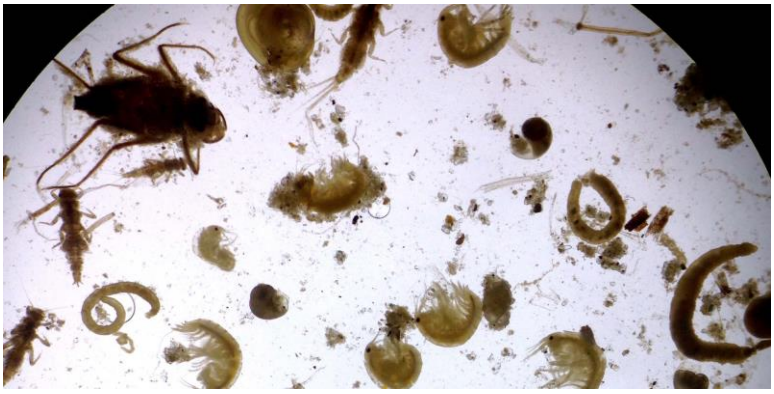
Faculty News and Notes

- **Fran Berman,** Edward P. Hamilton Distinguished Professor in Computer Science, was invited to speak at the following:
    - Discussion Leader, National Academies Journal Summit, March 2016
    - Distinguished Lecture, Georgia Tech, March 2016
    - Distinguished Lecture, University of Illinois, Urbana-Champaign, April 2016
- **Sandra Nierzwicki-Bauer**, professor of biology and director of the Darrin Fresh Water Institute, gave the Keynote Address: "The State and Fate of Lake George: Studies Utilizing Innovations in Science, Technology & Engineering," for the 26th Annual Greater Capital Region Science and Engineering Fair Inc.
- **Mohammed J. Zaki**, professor of computer science, was the co-chair for "The Third Machine Learning and Data Analytics (MLDAS) Symposium, March 14-15, Doha, Qatar, 2016.

Research News

Karyn Rogers, Assistant Professor of Earth & Environmental Sciences is the principle investigator of a new NASA grant ($437k) to study "Abiotic RNA Polymerization in Early Earth Environments." Her co-PIs are Professors **Bruce Watson** and **Linda McGown**. This work expands upon a long history of research and student inquiry within the School of Science concerning the chemistry of early life in extreme environments, and informs where we should look for exobiological life.

Jefferson Project – Macro Invertebrates



(In this guest post, one of a series on monitoring and experimentation in the Jefferson Project at Lake George, Matt Schuler, a post-doctoral researcher in the laboratory of project director Rick Relyea, explains how researchers survey macro-invertebrates in Lake George, their importance in the food web,

and how this effort fits into the overall strategy of the project. Schuler took the above image of macro-invertebrates as seen under a microscope.)

As a source of clean drinking water, food, and endless recreation, Lake George is a prime example of how freshwater lakes improve our lives. Less obvious is the importance of hundreds of animal species that call Lake George home. Many of these animals are small and easy to miss. They live everywhere from the wave-struck shores of the lake, to the deepest, darkest basins. They even share the soft sandy beaches with thousands of swimmers every year. Commonly referred to as macro-invertebrates, numerous species of insects, worms, clams, and snails live in the soil and on the rocks of Lake George. Some of these animals are so small that they are barely visible, while others are a few inches long.

The majority of the macro-invertebrate species in Lake George have been documented over the last century, thanks to the efforts of scientists at the Rensselaer Darrin Fresh Water Institute. However, there may still be undetected species, and we still have a lot to learn about these often overlooked organisms.

Although they often go unnoticed, many of these animals are essential members of the complex food web in Lake George. Clams and mussels filter algae from the water, helping keep Lake George waters clear and clean. Meanwhile, snails and some insect larvae graze across the rocks, keeping at bay the shaggy green carpet of algae that would otherwise cover many areas of the lake. Many species of insect larvae, amphipods (a type of shrimp), and isopods are essential for recycling nutrients in the lake, and are a major source of food for fish. These macro-invertebrates are also generally sensitive to human disturbances such as pollution, warming of the lake due to climate change, and disturbance from shoreline development and boating.

See more

Student News and Notes

School of Science Team Receives Two Top Paper Awards in Interdisciplinary Contest in Modeling

A team of three juniors—**Alex Norman** (math/physics), **Madison Wyatt** (math/physics), and **James Flamino (**physics)—have been awarded not one, but **two** **top prizes in the Interdisciplinary Contest in Modeling** for their outstanding paper regarding the evolution of society's information networks. Their paper developed a multifactor network model for characterizing the spread of a news item through a population, accounting for connectivity of a society, its subdivision into interest groups, and various characteristics of the news item. The team calibrated the model against historical newspaper databases, compared it against the real world mentions of Alan Rickman after his death in January 2016, and used it to predict how entertainment news like Kim Kardashian's pregnancy would have spread through a social network corresponding to 1880. Their work was awarded the following two prizes:

A) The **Leonhard Euler Award**, which is presented to one team selected by the head judge of the problem on network science (864 international teams competing). The criteria are: 1) a paper in the Meritorious/Finalist/Outstanding rating; 2) contains especially creative and innovative modeling; and 3) shows good understanding of interdisciplinary science.

B) The **Two Sigma Scholarship Award**, awarded to two top MCM/ICM US teams (out of 480 competing teams from the US over all 6 contest problems). This award is accompanied by a scholarship prize to each student on the winning teams.

No other team in this year's MCM/ICM competition was awarded two separate prizes, which are selected by various judges and organizations. This is also the first time that a Rensselaer team has won either of these two awards, not to mention two prizes in the same year. Rensselaer teams have previously won the SIAM prize in this competition in 2005 and 2010. A Rensselaer team has placed in the top 2 percent of the teams submitting papers on the network science problem in three of the last four competitions.

In addition, the team of **Benjamin Walker**, **Andrew Horning**, and **Thomas Merkh**, all math/physics seniors, received a meritorious distinction (top 10 percent out of 1,453 international teams competing) for their paper on modeling strategies for coping with space debris. No other U.S. team received a higher ranking on this problem; other universities sharing the meritorious distinction with the Rensselaer team include UC Berkeley, James Madison University, the University of Illinois, the University of Wisconsin, and the perennially strong University of Colorado at Boulder.

Finally, the team of **Matt Poegel**, **Thomas Wagner**, and **Andrew Batbouta** earned an honorable mention on the inaugural "Data Insights" problem, concerning how a philanthropical organization for undergraduate education should allocate its resources to minimize duplication of effort.

Training for the competition was facilitated by graduate student and postdoc coaches **Anthony Trubiano** (sharing his expertise as a member of a finalist team for the 2015 network science problem), **Michael Jenkinson**, and **Jennifer Kile**, as well as continuing support for the contest training by the mathematical sciences department and a National Science Foundation research training grant.

RPI Science Ambassadors Visit Area Schools

This semester the **science ambassadors** kicked off with a visit to the Odyssey of the Mind Tournament at Coxsackie Middle School, where they delivered a new presentation about space science to elementary and middle schoolers. This involved an interactive demonstration using a virtual planetarium on the computer. In addition to this new presentation, they also added several others to their repertoire including Color in the Mind, Biomimicry, and Renewable Energy. They received the opportunity to deliver some of these presentations at the School at Northeast in Schenectady as part of the Northern Rivers Northeast Parent and Child Society. The highlight presentation was focused on teaching students about renewable energy and gave them the opportunity to create their own lava lamps. These lava lamps were created using convection currents, which gave students an understanding of how wind turbines, and other renewable energy sources, function. Other presentation topics were Bioluminescence, Forensics, and Encryption. Soon after, they started the process of expanding their membership through two information sessions and a week of interviewing. They are excited to welcome 11 new ambassadors for next year. They will be formally trained in September at Pennsylvania State University's workshop, where they will learn about effective communication and presentation building, and hopefully start to develop more exciting new presentations. Other events include visits to Shenendehowa's Science & Health Discovery Night, Forest Park Elementary, Amsterdam High School, Vanderheyden Hall in Wynantskill, and St. Anne's Institute of Albany.

2016-2017 New Science Ambassadors:	***Current Science Ambassadors***
Faith Avens, Biology	Jeremy Amdur, Chemistry
Kayla Bell, Undeclared Science	Angelo Angelidis, Math
Erik Bergland, Math	Bianca Bigit, Bioinformatics & Molecular Biology
Andrew D'Aoust, Physics	Victoria Butler, Applied Physics
Aidan Gorby, Biology	Sam Ellman, Chemistry
Connor Napierala, Physics	Katelyn Fallows, Chemistry
Jackie Pelham, Biology	Alice Huang, Biology
Harwant Sethi, Earth and Environmental	Thomas Manzini, Computer Science
Angela Zheng, Biology	Mitchell Mellone, Computer Science
Edwin Fernando Cruz Aguirre, Physics	Heili Springsteen, Math
Shreya Patel, Computer Science	Shachi Srivatsa, Biology
	Chelsea Valente, ITWS

26TH ANNUAL GREATER CAPITAL REGION SCIENCE AND ENGINEERING FAIR

Hosted by Rensselaer Polytechnic Institute
March 19, 2016

The Greater Capital Region Science and Engineering Fair was held on March 19, a precollege competition and regional fair for the Intel International Science and Engineering Fair attracted more than 185 students at Rensselaer Polytechnic Institute who presented their original research to more than 60 scientists and engineers. The Intel International rules state that our regional fair can send up to three projects to the International finals. The Planning Committee reserves the right to decide how many projects to send to the International finals. Members of the planning board will act as chaperones. Teachers of winning projects may be able to attend but must provide their own funding. The STANYS State Science Congress is hosted by University of Buffalo, (June 4, 2016). The Intel ISEF takes place in Phoenix, AZ, May 8-13, 2016.

Junior Division Grand Prizes
March 19, 2016

PRIZE	NAMES	TITLE OF PROJECT	SCHOOL
1ST PLACE	Brook Wright	Let the Sun Shine In-Construction a Self-Powered Heliotracker	Greenwich Jr/Sr HS
2ND PLACE	Isha Kumar	Best Antimicrobial Additive to Protect Food from Bacteria	Shaker Jr/Sr HS
3RD PLACE	Julianna Kuzmich, Ramona Jordan	Don't Lose Your Heads! The Effect of Juglone on the Regeneration of Planaria Flatworm Cells	Greenwich Jr/Sr HS
1ST HONORABLE MENTION	Saurabh Kumar	Crystal Clear: Microbiological Comparison of Different Water Purification Methods for Emergency Preparedness	Farnworth MS
2ND HONORABLE MENTION	Gwendolyn Walker	The Effect of Greywater on Plant Growth	Heritage MS
3RD HONORABLE MENTION	John Yin	A Small Solution for a Big Problem: Reducing Toxicity in Contaminated Freshwater Ecosystems	Shaker Jr/Sr HS

Senior Division Grand Prizes
March 19, 2016

PRIZE	NAMES	TITLE OF PROJECT	SCHOOL
1ST PLACE	**Sean Konz**	A Novel Single Channel Electroencephalogram-Eye Tracking Based Computer Interface System	Rondout HS
2ND PLACE	**Gwenda Law**	A Universal Automated Algorithm for the Generation of Potent Antimicrobial Peptides	Burnt Hills HS
3RD PLACE	**Courtney Dearnley**	Growth in Pre-Weaned Jersey Calves Utilizing an Automatic Calf Feeder and the Forty Fit Program	Taconic Hills
1ST HONORABLE MENTION	**Parth Bhide**	Development of Organic-Semiconductor Nanocrystal Bulk Heterojunction Photovoltaic Cells	Columbia HS
2ND HONORABLE MENTION	**Katya Leidig**	Analysis of Quasar Luminosity Parameters	Saratoga HS
3RD HONORABLE MENTION	**Conor Collins**	Development of a Novel 2-Stage Hollow Fiber Filter to Reduce Pain on Injection of a Propofol Emulsion: A Feasibility Study	Monroe HS

Senior Division Special Award Summary Chart

AWARDS	NAME OF WINNER(S)	PROJECT TITLE
Albany College of Pharmacy-Biomedical Sciences Excellence Award (3 - $20,000 scholarship)	Angela Lu Lauren Dentinger	Investigating the Effects of Formin-mediated Actin Assembly Inhibition on Cellular Chirality S-10:Identifying Possible Genetic Biomarkers for Traumatic Brain Injury and Looking at the Reliability of a Porcine Model
ASM (American Society for Microbiology)	Samuel Kim	The Effects of Ocean Acidification on Emiliania huxleyi and Thalassiosira pseudonana
Brown League Sports Award	Evan Karl 1069 Ballston Lake Road, Ballston Lake, NY 12019 erk1716sr@gmail.com	Racecar Performance and Handling: An Analysis to Improve Driver Safety by Modifying a Racecar's Handling
Dudley Observatory	Benjamin Schiher	Analysis of Redshift 9 or Greater Galaxies in Multiple Gravitationally Lensed Galaxy Clusters
Linda Austin DNA Science and Technology Award	Cecelia Hutchins	The Effects of Nicotine on NMDA Receptor Expression in the Brain and Peripheral Blood Lymphocytes of Mice
Momentive Performance Materials	Deena Mousa	Novel Hemostatic Compositions for Bleeding and Associated Complications
National Association of Biology Teachers (NABT) Science Research Award	Joseph Giulian	A Comparison of the Abundance and Diversity of Diurnal Spiders (Araneae) Across Habitats at Roe Jan Park, Hillsdale, New York
Nuclear Society	Lucian D'Acchille	Comparing the Amount of Particulate Matter and Carbon Dioxide in Fuel Emissions When Burning Oil Versus Burning Diesel
National Grid	Unnas Hussain	Characterization of Pt Films on TiO2 Substrates
Price Chopper Golub Foundation	Brian Conlon	The Effect of Consumer Demographics on Willingness to Pay for Non-GMO Products in the Greater New York Area
Regeneron Award	Conor Collins	Development of a Novel 2-Stage Hollow Fiber Filter to Reduce Pain on Injection of a Propofol Emulsion: A Feasibility Study
RPI $40,000 scholarship	Conor Collins	Development of a Novel 2-Stage Hollow Fiber Filter to Reduce Pain on Injection of a Propofol Emulsion: A Feasibility Study
Scientific American Subscriptions	Joseph Giulian Gwenda Law	
SI Group Smart Chemistry Award	Parth Bhide	Development of Organic-Semiconductor Nanocrystal Bulk Heterojunction Photovoltaic Cells
STANYS Eleanor M. Reed Research Excellence Award	Evan Karl	Racecar Performance and Handling: An Analysis to Improve Driver Safety by Modifying a Racecar's Handling
Walter Eppenstein Astronomy/Physics Award	Kerry Walker	Comparative Properties of Galaxies with Stellar and/or Gas Tails

INTEL AWARDS		
American Meteorological Society	Luke LeBel	A Mesoscale Analysis of Heavy Rainfall Events Associated with Tropical Cyclones over the Northeastern United States
American Psychological Association (APA) and Teachers of Psychology in Secondary Schools (TOPSS)	Kaila Helm	Testing the Positive Influence of Sign Language on Early Childhood Language Development
ASM International foundation Outstanding Materials Award	Parth Bhide	Development of Organic-Semiconductor Nanocrystal Bulk Heterojunction Photovoltaic Cells
ASU Walton Sustainability Solutions Initiatives	Jacob Viertel	Efficiency and Emissions of a Direct Injection Diesel Engine Fueled with Petroleum Diesel and Waste Vegetable Oil Biodiesel
	Chloe Hutchins	The Effect of Pile Driving at the New NY Bridge on the Swim Bladder of Fish
Intel Excellence in Computer Science	Sean Konz	Growth in Pre-Weaned Jersey Calves Utilizing an Automatic Calf Feeder and the Forty Fit Program
Mu Alpha Theta	Alan Dai	Quantifying PV Output Variability in New York State
NASA Earth Systems Science Award	Benjamin Schiher	Analysis of Redshift 9 or Greater Galaxies in Multiple Gravitationally Lensed Galaxy Clusters
National Oceanic and Atmospheric Administration (NOAA)	Samuel Kim	The Effects of Ocean Acidification on Emiliania huxleyi and Thalassiosira pseudonana
Society for In Vitro Biology	Hyeso Kim & Sangwon Kim	Eco-friendly? Monitoring the Acute Cardiac Effect of Daphnia Magna by Filtrates Through Contaminated Soil with Roundup
Stockholm Junior Water Prize	Zachary Smith	The Effect of Dredging and Uniform Substrate Backfilling Has on the Macroinvertebrates in the Hudson River
US Metric	Courtney Dearnly	Growth in Pre-Weaned Jersey Calves Utilizing an Automatic Calf Feeder and the Forty Fit Program
US Air Force	Anand Ganhi	An Analysis of the Aerodynamic Behavior of Ducted Fan Rotors
	Ravi Dholakia	Effect of Voltage on Flow velocity of Particles in a Magnetohydrodynamic Device
U.S. Navy & Marine Corps	Christopher Maloney, & Shriya Iyer	A Ratio of Red, Blue, and Yellow Phosphors Combined With a Blue LED Creates a High CRI With Various CCT's
	Lucian D'Acchille	Comparing the Amount of Particulate Matter and Carbon Dioxide in Fuel Emissions When Burning Oil Versus Burning Diesel
	Deena Mousa	Novel Hemostatic Compositions for Bleeding and Associated Complications
Yale Science & Engineering Association Inc	Alan Dai	Quantifying PV Output Variability in New York State

JUNIOR DIVISION SPECIAL AWARD CHART 2016

REGIONAL AWARDS	Title	Name of Winner(s)
American Society for Microbiology (ASM) Eastern Branch	The Effects of Ultraviolet (UV) Light on Bacteria	Tanya Pai
Dudley Observatory	Correlation of Coronal Mass Ejections and Solar Sunspot Cycle	Charles Gartner, George Denaker
Cullen Blake Excellence Award	Vertical Migration Speed of Simulated Pollutants Through Different Soil Types	Rachel Dentinger
Momentive Performance Materials	The Evaluation of Waterproof Linens on the Nasturtium Leaf Design for More Water Repellent Material	Henry Gartner
National Grid	Moss is a Boss	Matthew Ginart
National Association of Biology Teachers (NABT)	Do Deer Prefer GMO or Non-GMO Soybeans?	Hunter Dixson
Nuclear Society	Plant Potential	Marcos Banegas
Price Chopper Golub Foundation	A Spoonful of Sugar: The Effect of Sugar and Stevia on C. Elegans	Elizabeth O'Konski, Emily Conlin
Regeneron	Iron Flies, Iron Athletes - Does the Amount of Vitamin C Taken with Iron Affect the Amount of Iron Absorbed in Fruit Flies?	Quinn Collins
SI Group Smart Chemistry Award	Organic Water Filtration	Miranda Torres
STANYS Eleanor Miller Reed Science Research Award	A Bridge Too Far	George Eliadis
INTEL ISEF AWARDS		
American Meteorological Society	Which Weather App's Forecast is Most Accurate?)	Rohan Bagchi
Association of Women Geoscientists	Do Certain Factors in the Environment Affect the Process of Erosion?	Zhaoxin Ma
Regional Ricoh Sustainable Development Award	Hydro Electric Power	John Salloum
US Air Force and Reserve	Blast Off! Does Temperature Affect the Strength of a Magnetic Field	Safwan Kader Roya Lewis
US Navy and Marine Corps	Universal Water Purification Which Structure Is Best at Preventing Beach Erosion?	Rohan Menon Keeley Frazier

Annual Accelerated B.S./Ph.D. Symposium Celebrates Students

A symposium for students in the Accelerated B.S./Ph.D. program was held on April 6 in the Troy Building. Students gave presentations (listed below) on current research and several were recognized for recent accomplishments including fellowships awarded, successful defense of thesis, participation in poster presentations, published papers, and patents awarded. The symposium concluded with a group dinner.

Name	Presentation Title
Josie LoRicco	Interation of Gallic Acid with Seminal Amyloid Fibrils
Nate James	Biophysical Characterization of Amyloid Fibrils formed by SEM1f Mutants
Anthony Bishop	Biophysical Characterization of PAPf39 Fibril Formation
Divya Shastry	Rational Design and Development of Polysialic Acid-Binding Peptides
Matt Klawonn	Developing Applications for IBM TrueNorth
Hannah De los Santos	Data Analytics Projects and Methods
Joseph Wiegarten	Effects of HGF on 3D Epithelial Morphogenesis
Robert Centore	Formation of Hyperbranched Poly(Lysine) by Thermal Polymerization of Free Base Lysine Ethyl Ester
Maio Qi	Diverse Collaborations and Overall Performance/Milgram 'Small World' Experiment
James Buchwald	Effective Hamiltonian Models for Understanding Water Oxidation Catalyst Stability
Hannah Trasatti	Proteomic-Level Identification of SDS-Resistant Proteins, Complexes & Aggregates in Human Plasma
Jane Thibeault	Identifying the Kinetically Stable Sub-Proteome of Bacillus Subtilis
Kaylyn Bell	The Muscle Mechanical Basis of Freeman-Sheldon Syndrome
Chris Newhard	Investigations into the Converter Subdomain of Drosophila Myosin
Casey Doyle	Effects of Bursty Communication Patterns on Naming Game Simulations
Avi Weinstock	Efficient Secure Multiparty Function Evaluation
Charles Martin	Hercules Halo Stream and Hermus Stream

Staff News

- **Sharon Simmons,** Administrative Coordinator in Computer Science, retired on March 25.

Alumni News and Notes

Dr. Liang Chen ’14 (Department of Physics, Applied Physics and Astronomy) won the Materials Research Society (MRS) Best Poster Award nominees in the session “Novel solar energy harvesting concepts.” His poster title was “Ge Heteroepitaxy Growth on Cube-Textured Ni(001) Foils Through CaF_2 Buffer Layer.”

The interdisciplinary team members are: L. Chen, T.-M. Lu, I. Bhat*, W. Xie, **S.B. Zhang, G.-C. Wang, Rensselaer Polytechnic Institute, Physics Dept., *ECSE Dept., Troy,** NY, A. Goyal, TapeSolar Inc. and U. at Buffalo, Research and education in eNergy, Environment, and Water (RENEW) Institute, Buffalo, NY. L.H. Zhang and K. Kisslinger, Brookhaven National Lab, Center for Functional Nanomaterials, Upton, NY

Upcoming Events

Undergraduate Research Symposium 2016

The Seventh Annual Undergraduate Research Symposium will be held on Wednesday, May 4, from 3 to 5 p.m. in the CBIS second-level atrium. The best posters and presentations are recognized with awards and honorariums. All student participation is welcome, and students being supported with Undergraduate Research Program (URP) funds are expected to participate. For more details, please go to: http://ugrs.rpi.edu/

Registration Open for Work Force Team Challenge

The CDPHP® Workforce Team Challenge, a 3.5-mile race, will take place on Thursday, May 19, at 6:25 p.m. at the Empire State Plaza in Albany. Each year thousands of runners, walkers, and volunteers from hundreds of organizations throughout the area gather with their co-workers to take part in the largest annual road race in the Capital Region. Registration ends at 11 p.m. on May 6, 2016 or at 10,000 entrants, whichever comes first.

2016 Commencement Ceremony

It's all been leading up to this day, so get ready to celebrate! The 210th Commencement Ceremony will be held on Saturday, May 28 at 8:30 a.m. at the East Campus Athletic Village Stadium.

Upcoming School of Science Events

Biological Sciences Seminar Series

Monday, May 2 • 12 – 1 p.m. • Bruggeman Conference Center, CBIS
Refreshments served at 11:45 a.m.
Guest Speaker: Dr. Jacqueline Cherfils, Ecole Normale Superieur de Cachan
Presentation Title: "Allosteric regulation of small GTPases at the membrane interface"

Monday, May 9 • 12 – 1 p.m. • Bruggeman Conference Center, CBIS
Refreshments served at 11:45 a.m.
Guest Speaker: Dr. Carrie Partch, University of California-Santa Cruz
Presentation Title: "Dissecting the Molecular Basis of Circadian Timekeeping"

Computer Science Colloquium

Tuesday, May 3 • 4 – 5 p.m. • Location: Troy 2018
Guest Speaker: Dr. Vladimir Kolesnikov, Bell Labs
Presentation Title: "Practical Private DB Querying"

Department of Earth and Environmental Sciences

Wednesday, April 27 • 4 – 5 p.m. • CBIS Auditorium
Guest Speakers: Dr. Kenneth Farley, Mars 2020 Project Scientist and Keck Foundation Professor of Geochemistry at Caltech
Presentation Title: "Geology on Mars: Ongoing Results from Curiosity and Planning for the Next Mars Rover"

Department of Mathematical Sciences

Thursday, May 5 • 4 – 5 p.m. • Amos Eaton 214
RTG/SIAM Seminar
Guest Speakers: Lee Ricketson, Courant Institute of Mathematical Sciences, NYU
Presentation Title: "Sparse and multilevel methods for particle-in-cell simulations in plasma physics."

Physics, Applied Physics, and Astronomy Colloquium

Wednesday, May 4 • 4 – 5 p.m. • Location: George M. Low Center for Industrial Innovation (CII) 3051
Guest Speaker: Dr. Pankaj Mehta, Boston University
Presentation Title: "Information, Computation, and Thermodynamics in Cells."

Wednesday, May 11 • 4 – 5 p.m. • Location: George M. Low Center for Industrial Innovation (CII) 3051
Guest Speaker: Marivi Fernandez-Serra, Physics and Astronomy Department, Stony Brook University
Presentation Title: "Role of polarizability in the structure and dynamics of liquid water."

Catch more School of Science updates on social media!