

# August - September 2016

## Message from Dean Breneman



Well, the planning season for fall 2016 is over – and the Class of 2020 has officially arrived! It's the largest, most accomplished, most diverse class that Rensselaer has ever enrolled, and we're proud of them! Of course, we never really stop planning, because that's what keeps our curriculum fresh and campus life exciting. Incidentally, the weather became even warmer since my last message, but the periodic soft rain and occasional thunderstorms that echoed around campus

means that the grass has become green again and I get to ride around on my lawn tractor harvesting more cellulose and chlorophyll... Well, you know what I mean!

There've been some great things happening around campus and beyond so far this fall: For example, on September 24, President Shirley Ann Jackson spoke at the opening of the National Museum of African American History and Culture – together with an amazing group of dignitaries that included President Barack Obama, President George W. Bush, and Rep. John Lewis, not to mention Robert De Niro, Stevie Wonder, and many others. President Jackson was also recently recognized by *Savoy Magazine* for her many accomplishments. Wow!

Kudos and congratulations are due to Chulsung Bae, associate professor of chemistry and chemical biology. Chulsung just received a \$2.2M ARPA-E grant for developing a new class of highly efficient fuel cell membranes has been funded as one of 16 projects supported by a \$37 million national program! Congratulations are also due to Assistant Professor of Biological Sciences Jennifer Hurley – in the past two months, she received two new research grants (\$100k and \$580k) related to her work on circadian rhythms. Way to go, Jenn!

In other great news, National Academy of Science member Bruce Watson (Institute Professor of Earth & Environmental Science) and Assistant Professor of Earth & Environmental Science Morgan Schaller just jointly received a nearly \$900k grant from the U.S. Department of Energy! That's a great collaboration too.

In student news, Krystyna Kornecki, Ph.D. student (Mimi Katz) in Earth and Environmental Science and a Presidential Research Fellow, took part in the Chief Scientist Training Cruise operated by the University-National Oceanographic Laboratory System (UNOLS), sailing from Duluth, MN to Milwaukee, WI.

Congratulations are also due to Information Technology and Web Science (ITWS) program manager Linda Kramarchyk – our newest "Pillar of Rensselaer." This is the highest honor that Rensselaer can

bestow on a staff member, and she certainly deserves it for her dedication to the success of the ITWS program and its students.

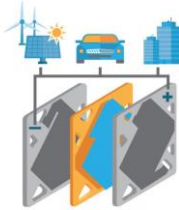
As we approach the Fall Reunion (October 7, 8, & 9), my thoughts turn to our many successful alumni – and there are so many amazing people who have passed through our classrooms and labs on their way to doing great things! Speaking of which, our Science Leadership Council has been founded – this is a select group of accomplished and distinguished Rensselaer graduates whose advice and resources will help to propel the School of Science to the next level. The establishment of the Science Leadership Council is a true milestone in the development of our research programs and innovative pedagogy.

Great things are always happening in the Rensselaer School of Science!

Come to Rensselaer and Change the World!

*Curt Breneman, Dean of Science*

## \$2 Million, Grant Develops Membrane To Overcome Fuel Cell Limitations



Rensselaer has been awarded \$2.2 million in funding from the U.S. Department of Energy’s Advanced Research Projects Agency-Energy (ARPA-E) to develop innovative ion conduction materials for next-generation renewable energy conversion and storage technology.

The award is part of a \$37 million package of funding from ARPA-E in support of 16 innovative new projects as part of the new [Integration and Optimization of Novel Ion-Conducting Solids \(IONICS\)](#) program. IONICS project teams are paving the way for technologies that overcome the limitations of current battery and fuel cell products. The IONICS program is focused on creating high-performance parts built with solid ion conductors – solids in which ions can be mobile and store energy – and processing and integrating these parts into devices to accelerate commercial development. In particular, [IONICS projects](#) will work to improve energy storage and conversion technologies in three categories: transportation batteries, grid-level storage, and fuel cells.

At Rensselaer, [Chulsung Bae](#), associate professor of chemistry and chemical biology and a member of the New York State Center for Polymer Synthesis and the New York State Center for Future Energy Systems, will lead an effort to develop highly ion conductive, chemically stable, and mechanically durable alkaline membrane materials. Such membranes will serve as a critical component in next-generation fuel cells designed to allow efficient and clean conversion of chemical energy directly to electricity.

[See more](#)

## The Origin of Life: RNA World Deep Beneath the Surface

Where did life begin—in a shallow lagoon, or in a vent of superheated water spewing from the ocean floor? If we knew, we might know where to look for life elsewhere in the universe. The “RNA World” hypothesis, which suggests that ribonucleic acid (RNA) was the original prebiotic molecule, has traditionally looked to a shallow, sunlit pool of water. But researchers at [Rensselaer](#) say other environments on early Earth could have supported the formation of RNA.



“There’s research to suggest that the surface of the early Earth was an inhospitable place, and that the deep oceans or deep within the crust would have been much more protected locations,” said [Karyn Rogers](#), associate director of the [New York Center for Astrobiology at Rensselaer](#) (NYCA). “If an RNA World could have been much more widespread on early Earth than has been traditionally thought, then the location of life’s origin could have been equally widespread.”

Rogers, an expert in extremophiles and assistant professor of earth and environmental sciences, is part of a team of researchers exploring alternate environments in which RNA could have formed. She is joined in the research by Rensselaer professors [Linda McGown](#), an analytical chemist, and [Bruce Watson](#), a geochemist with expertise in early Earth environments and director of the NYCA. Their work is supported by a \$438,000 grant from the National Aeronautics and Space Administration (NASA), and expands upon a long history of Rensselaer research concerning the chemistry of early life in extreme environments.

[See more](#)

## Calculating the Role of Lakes in Global Warming



As global temperatures rise, how will lake ecosystems respond? As they warm, will lakes—which make up only 3 percent of the landscape, but bury more carbon than the world’s oceans combined—release more of the greenhouse gases carbon dioxide and methane? And might that create a feedback loop that leads to further warming?

To predict the effects of rising air temperatures on the carbon cycle of lakes, [Rensselaer](#) researchers will link computer models of changing weather, water temperature, and emissions of carbon dioxide and methane for 2,000 lakes across the United States, including Lake George, through 2105. The project is supported with a \$300,000 grant from the National Science Foundation, and led by [Kevin Rose](#), an assistant professor in the Department of Biological Sciences at Rensselaer and the Frederic R. Kolley '52 Career Development Chair in Freshwater Ecology.

[See more](#)

## Faculty News and Notes

### Incoming Faculty Bring New Areas of Research to Rensselaer

From strategic marketing decisions, to material fabrication, to bio-imaging for musculoskeletal research, [Rensselaer](#) is welcoming new experts in research as 13 professors join the faculty in the 2016-17 academic year.



Rensselaer President Shirley Ann Jackson greeted returning and incoming faculty members during the annual Faculty Welcome Back reception, held this year at the President's Residence on September 1. In her remarks to faculty, Jackson spoke about the founding vision of Rensselaer as a school that would instruct students "in the application of science to the common purposes of life." That founding vision has served to define Rensselaer as a place where practical experience and hands-on learning are integral to education.

"We not only pioneered education in science and engineering, we pioneer true interactive and engaged learning— through, for example, the studio classroom and the flipped classroom," Jackson said. "We still encourage, in every way possible, our students to be active participants in their own learning, and partners with our faculty in research."

Jackson discussed how that historical fabric is a fitting basis for The New Polytechnic, a modern construct that is reshaping Rensselaer as a crossroads for collaboration across disciplines, sectors, and geographic regions to address complex global challenges. The New Polytechnic is an emerging paradigm for higher education which recognizes that global challenges and opportunities are so great they cannot be adequately addressed by even the most talented person working alone. Research at Rensselaer addresses some of the world's most pressing technological challenges—from energy security and sustainable development to biotechnology and human health. The New Polytechnic is transformative in the global impact of research, in its innovative pedagogy, and in the lives of students at Rensselaer.

"We have great traditions here at Rensselaer, and an even more remarkable future ahead of us—thanks to the remarkable quality of our faculty, and your inventive instruction and research," Jackson told the faculty. "We are very proud of the work all of you do, in collaborating with each other, in solving the hard problems, and in teaching the next generation of discoverers and innovators to be equally nuanced, and equally bold."

Faculty who will join The School of Science at Rensselaer during the 2016-2017 academic year are:

**Scott Forth**, assistant professor in the Department of Biological Sciences, with a research focus on the molecular mechanisms that power and control the physical motion of genetic material within cells as they undergo division and replication. Forth earned bachelor of physics and bachelor of music degrees from Oberlin College, and a doctorate in physics from Cornell University.

**Alex Gittens**, assistant professor in the Department of Computer Science, with a research focus on the intersection of large-scale machine learning, high-dimensional probability and statistics, and numerical linear algebra, to develop statistical and computational theory and tools to extract value from massive datasets. Gittens earned a bachelor's degree in electrical engineering and mathematics from the California Institute of Technology, and a doctorate in computational mathematics from the University of Houston.

**Jacob Shelley**, assistant professor in the Department of Chemistry and Chemical Biology, with a research focus on developing, building, and applying atmospheric pressure plasma-based mass spectroscopy instrumentation to provide rapid and in-depth characterizations of samples in situ. Shelley earned a bachelor's degree in chemistry from Northern Arizona University, and a doctorate in analytical chemistry from Indiana University.

**George Slota**, assistant professor in the Department of Computer Science, with a research focus on efficient solution of large-scale graph-theoretic problems on many-core architectures such as GPUs and Xeon Phi. Slota earned a bachelor's degree in computer engineering and a doctorate in computer science and engineering from Pennsylvania State University.

[See more](#)

## Faculty News in Brief

- **Dr. Jennifer Hurley**, assistant professor in the department of biological sciences, has just received an award through an U01 cooperative agreement funded by the Department of Defense and the NIH National Institute of Biomedical Imaging and Bioengineering titled, "Multiscale Modeling of Circadian Rhythms". The total award is \$3,932,000 with Dr. Hurley's funding at \$580,000. The lead PI is Dr. William Cannon of the Pacific Northwest National Laboratory with Drs. Jennifer Hurley (Rensselaer) and Jay Dunlap (Dartmouth) as Co-PIs. This project will extend a new method of modeling that makes the simulation of coupled chemical reactions, such as those found in metabolism, much easier to implement and apply. Dr. Hurley and her collaborators will apply this new method to understand the dynamical behavior and circadian rhythms of cells. Circadian rhythms are found in organisms ranging in complexity from cyanobacteria to humans and represent a major aspect of cellular regulation in the majority of eukaryotes. These rhythms control many aspects of cellular behavior, ranging from the release of cellulases in fungi to degrade cellulose in the environment to the dynamics of human cells. Circadian dysfunction in humans underlies metabolic, behavioral, and cognitive disorders. The new approach is based on recent developments in physics, and in statistical thermodynamic fluctuation theories. In these approaches, modeling the relative time dependence of reactions can be shown to be much easier than modeling the absolute time. This team of investigators will apply these methods not only to the enzymatic reactions of metabolism, but also to the

regulatory network that comprises the circadian clock which controls the metabolism of cells over a period of 24 hours.

Dr. Hurley is also a PI for a grant funded by The Department of Energy “Towards a metabolic model of circadian clock control of metabolism in *Neurospora crassa*”, two year grant for \$100,000.

- **David Isaacson**, professor in the department of mathematical sciences gave invited lectures on “Electromagnetic Inverse Problems in Biomedical Imaging”, as part of the Graduate Student Workshop on Inverse Problems from August 8-11 at Colorado State University. The workshop was sponsored in part by the Institute for Mathematics and its applications (IMA).
- **Lee Ligon**, professor in the department of biological sciences has been elected by The Executive Committee of the American Society for Cell Biology to serve as the Chair of the Public Information Committee for a 3-year term from January 1, 2017 – December 31, 2020. The Public Information Committee oversees activities to foster education of public audiences in cell biology, and thereby Lee will work with the ASCB Communications & Education Director and the ASCB Science Writer. This is quite an honor with an important agenda.

Lee along with Kristen Mills (MANE) organized a joint Rensselaer: Mt. Sinai Symposium at the Icahn School of Medicine on Sept 20, 2016. The Symposium, “New Connections in Cancer Research: Bridging Basic Science, Clinical Science, and New Technologies,” had over 30 speakers (split evenly between MSSM and RPI). There were sessions on Mechanical and Biophysical Approaches to Cancer, Innovative Imaging in Cancer Research and Diagnosis, and Systems Biology Approaches to Cancer. All generated very active discussions and will hopefully lead to increased collaboration between faculty at the two institutions.

- **Rick Relyea**, Director, Darrin Fresh Water Institute, professor in the department of biological sciences is pleased to report that their NSF MRI grant to fund the remainder of the Smart Sensor Network was fully funded for \$917K.  
This was a tremendous team effort that involved our JP partners (IBM, FUND for Lake George) and the following RPI collaborators: **Peter Fox, Deb McGuinness, Jim Hendler, Sandra Nierzwicki-Bauer, Larry Eichler, Kathleen Ruiz, Karyn Rogers, Morgan Schiller, Mimi Katz, and Kevin Rose.**
- **Gwo-Ching Wang**, Travelstead Institute Chair and professor of physics, applies physics and astronomy presented a talk entitled “RHEED Pole Figure – An “old” Technique for Polycrystalline and Nanostructured Surface Texture Analysis” in the International Conference 2016 Advances in Functional Materials held in South Korea from August 8 to 11, 2016. The talk publicized former RPI graduate students Drs. Fu Tang and Liang Chen’s research work and the book “RHEED

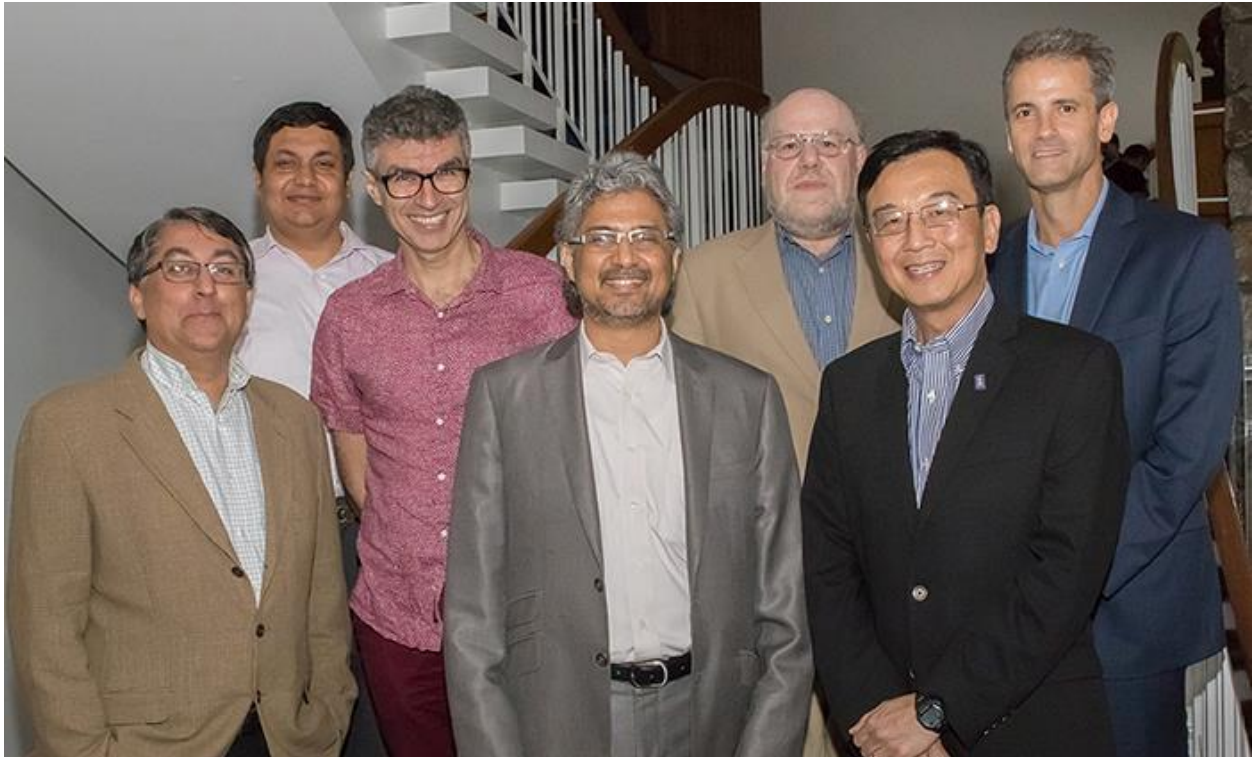
Transmission Mode and Pole Figures: Thin Film and Nanostructure Texture analysis” authored by Rensselaer faculty Gwo-Ching Wang and Toh-Ming Lu, Springer 2014.

- **Bruce Watson** - After a long wait following the unofficial notice last summer, Morgan Schaller and I just received a grant of \$896,758 from the U.S. Department of Energy (Office of Basic Energy Sciences) to support 3 years of research on "Storage and Diffusion of Carbon and Nitrogen in Crustal Materials". Our proposal targets the basic science of dispersed carbon and nitrogen in the solid Earth, focusing on the continental crust because of its direct importance to humankind. Three key questions drive the research: 1) Could crystalline silicates constitute a significant reservoir of C and/or N in the crust?; 2) Do there exist unique crustal materials -- e.g., crypto-crystalline silicates -- capable of retaining memories of C and/or N in their formation environments?; and 3) How mobile are C and N within and between rock-forming minerals. New techniques in experimental and analytical geochemistry will be brought to bear on materials that are either potentially important reservoirs of dispersed C and/or N (e.g., polymerized silicates) or strategically valuable hosts of ancient atmospheric gases. The project is collaborative with Prof. Suzanne Baldwin of the Department of Earth Sciences at Syracuse University, who will receive ~\$300,000 for the 3-year duration of the grant.



## Research News

### Rensselaer Part of IBM Research Cognitive Horizons Network



Leaders in Artificial Intelligence research: IBM Research Cognitive Horizons Network members. TOP ROW (left to right): Anupam Joshi, University of Maryland, Baltimore County; Yoshua Bengio, University of Montreal; Jim Hendler, Rensselaer Polytechnic Institute; James DiCarlo, Massachusetts Institute Technology BOTTOM ROW (left to right): Satinder Singh Baveja, University of Michigan; Guru Banavar, Chief Science Officer, Cognitive Computing and VP, IBM Research; Wen-Mei Hwu, University of Illinois Urbana-Champaign.

Six universities, including Rensselaer, have joined with IBM Research to launch the Cognitive Horizons Network, a network committed to accelerating the development of core technologies needed to advance the promise of cognitive computing.

The Cognitive Horizons Network—which includes Rensselaer; Massachusetts Institute of Technology; the University of Illinois at Urbana-Champaign; the University of Maryland, Baltimore County; the University of Michigan; and the University of Montreal—was announced as part of the fifth annual IBM Research Cognitive Colloquium held Sept. 18-20 at IBM's T.J. Watson Research Center in Yorktown Heights. The colloquium brings together academics, researchers, and influencers in the field of cognitive computing for three days of lectures, panel discussions, breakout sessions, and informal interactions aimed at developing a comprehensive and shared vision of the research agenda.

[See more](#)

## Student News and Notes

- Krystyna Kornecki, Ph.D. student (**Mimi Katz**) in Earth and Environmental Sciences and Presidential Research Fellow, participated in the Chief Scientist Training Cruise operated by the University-National Oceanographic Laboratory System (UNOLS), sailing from Duluth, MN to Milwaukee, WI.
- In the spring of 2016, 10 students were accepted into our Science Ambassador program. These students (Faith Avens, Kayla Bell, Erik Bergland, Andrew D'Aoust, Aidan Gorby, Connor Napierala, Harwant Sethi, Angela Zheng, Edwin Fernando Cruz Aguirre, and Shreya Patel) along with three returning science ambassadors (Sam Ellman, Katelyn Fallows, and Mitchell Mellone), and their supervisor, Jordan Vener, attended the [Engineering Ambassador Conference at Penn State](#) from September 9-11. This two-and-a-half day workshop focuses on the presentation skills the new science ambassadors will need to be successful in their roles. Our Science Ambassador program is a part of the Engineering Ambassador Network, which now includes more than 30 universities worldwide.
- The School of Science Undergraduate research award recipients gave their final presentations on Wednesday, September 21; their abstracts will be included in next month's newsletter.
  - Jennifer Freedberg (Ethan Brown's lab)
  - Zachary Harris (Esther Wertz's lab)
  - Sherese Morgan (Rick Relyea's lab)
  - Stephen Notley (Catherine Royer's lab)
  - Jackie Pelham (Jennifer Hurley's lab)
- [Medalist day](#) - **For 100 years**, Rensselaer Polytechnic Institute, in conjunction with high schools around the world, has awarded the Rensselaer Medal to promising secondary school students who have distinguished themselves in mathematics and science. The Medal was first presented in 1916 with two purposes: to recognize the superlative academic achievement of young men and women, and to motivate students toward careers in science, engineering, and technology. This merit scholarship, with a minimum value of \$25,000 per year, is guaranteed for four years (five years for the Bachelor of Architecture program or the Co-Terminal Program) for each medalist who is accepted and enrolls at Rensselaer.
  - The Physics, Applied Physics, and Astronomy department hosted students and visitors for Rensselaer's Medalist Day, Saturday, September 10, 2016
    - Highlight of activities:
      - Info/welcome table
      - Open labs: astro particle physics, optical physics
      - Demos and DIY activities

## Student Briefs

This summer the Department of Biological Sciences received funding to support three fellowships for undergraduate research.

### **Talina Bastille:**

Talina is majoring in Biology and a rising senior who has worked in Professor Blanca Barquera's lab the past year. Her project focused on the sodium ion pumping membrane protein, Na<sup>+</sup>-NQR of the microbe *Vibrio cholera*. *Vibrio cholera* is a Gram-negative marine bacterium with pathogenic strains. When ingested, *V. cholera* can cause diarrhea and vomiting, which can lead to cholera especially in undeveloped nations. Talina's project was directed to understand how NQR functions as part of the respiratory chain that generates the energy for this bacterium to survive and therefore lead to infections. Talina engineered several strains with mutated versions of NQR to assess their ability to generate oxidoreductase activity, to see how these mutations affect function, and to determine whether there are residues or sites in NQR that can be targeted for small molecule inhibition and ultimately drug development.

Talina is continuing her research this year with Dr. Barquera and plans to graduate May 2017. After graduation, Talina plans enter a Ph.D. program to pursue a career in microbiology.

### **Sam Fordyce:**

Sam is a rising junior, a Biology major, and is in the Accelerated Physician Scientist Program. This seven-year program is a partnership between Rensselaer and Albany Medical College to train physicians who have experience in scientific research.

This summer Sam continued his project with Professor Jennifer Hurley to ask the question, "to what extent does circadian rhythm regulate the production and expression of global proteomics outputs?" Circadian rhythms are key biological processes that underlie a variety of important daily functions within organisms from bacteria to humans. The circadian clock is an intricate network of interconnected feedback loops that dictate global molecular output depending on the time of day and environmental cues. This 24-hour, endogenous molecular system is sensitive to a variety of environmental inputs. Previous research has only looked at isolated circadian regulated components; therefore, this research aimed to isolate key differences between mRNA and protein expression levels on a global scale that have previously been left untouched. To accomplish these goals, Sam relied on comprehensive computational analysis on a global data bank related to the known model for circadian rhythm in *Neurospora crassa*, and laboratory work using luciferase assays and western blots to identify, isolate and quantify a variety of different genes (mRNA & protein expression levels) (global proteomic outputs).

Sam will continue his research with Dr. Hurley this year and will transition to medical school in fall 2017.

### **Joy Puthawala:**

This summer, Joy Puthawala, a premed Biochemistry and Biophysics major (BCBP), was supported by a summer undergraduate research program grant from the Department of Biological Sciences to work in

Professor Douglas Swank's muscle physiology laboratory. Joy helped investigate the mechanism behind familiar hypertrophic cardiomyopathy, an inherited heart disease that is a leading cause of death in young adults. The disease is characterized by an enlarged heart that restricts the outflow of blood from the ventricles. The mutations that cause the disease are found in muscle proteins including the molecular motor that powers muscle contraction, myosin. She used *Drosophila* (fruit flies) as a model for the disease due its simple genetics that enable the disease mutations to be easily replicated and studied. "I'm extremely grateful for the opportunities that the SURP offered me," said Joy. "By allowing me to continue my research this summer, I was able to build a solid foundation of laboratory skills, as well as pursue a longtime interest by researching the effects of cardiovascular disease."

Joy will continue to study hypertrophic cardiomyopathy during her senior year and to obtain her master's degree in BCBP through RPI's co-terminal program. She will focus on how the mutation impairs the mechanical performance of heart muscle. This additional education and research experience will enhance her chances of being accepted into medical school, and provide her with unique insights into heart and muscle diseases that she can use to help her future patients.

## Staff News

- **Linda Kramarchyk Named 2016 Pillar of Rensselaer** - Linda Kramarchyk, program manager in information technology and web science, has been named the 2016 Pillar of Rensselaer. The highest honor Rensselaer gives to a staff member, the award was presented to Kramarchyk at the 44th annual Service Recognition & Retirement Dinner held August 26 at the Hilton Garden Inn.
- The Physics Department is pleased to welcome **Kevin Melsert as laboratory supervisor**. Kevin received his Bachelor's in Physics from Siena College and his Master's of Science in Architectural Sciences from Rensselaer. Kevin will provide technical and logistic support for introductory and advanced undergraduate laboratories.

## Alumni News

### Rensselaer Alumnus Robert L. Godgart 82, founder of Autotask and ChannelEyes, To Be Honored October 7

[Rensselaer](#) alumnus and serial entrepreneur, inventor, and technology executive [Robert L. Godgart '82](#) has been selected as the 2016 William F. Glaser '53 Rensselaer Entrepreneur of the Year. Established in 1990, the award brings the world of entrepreneurship and innovation into Rensselaer classrooms by recognizing successful entrepreneurs and role models who share their wisdom and experiences with students.



[See more](#)

### 2016 Rensselaer Alumni Association Awards

Congratulations to the winners of the 2016 RAA Awards. These alumni and friends are recognized for outstanding service and commitment to Rensselaer Polytechnic Institute, their contributions to their professions, their communities, and the world. They will be publicly honored during Reunion & Homecoming weekend, October 6-9, 2016.

#### Distinguished Service Award

Nancy S. Mueller

#### Albert Fox Demers Award

Roger A. Grice '87 Ph.D.  
Raul E. Lopez-Palm '77G  
Jeffrey M. Schanz

#### Alumni Key Award

Allan R. Ginsberg '62  
Bonnie L. Hepburn '66, '67G  
Christian C. Johnson '86  
Aldo Manzini P'16  
Robyn Ratcliffe Manzini P'16  
Peter F. Pedone  
Sandeep Sharma '88G  
G. Reid Wiseman '97

#### RAA Teaching Award

Eric H. Ledet '95G, '05 Ph.D.  
Associate Professor  
Biomedical Engineering

#### RAA Red & White Emerging Leader Award

Tanner J. Hart '17  
Julia J. Lane '17  
Claire E. Lukasiewicz '17

#### Director's Award

Kathleen M. Coderre '06  
David J. Haas '82  
Benjamin F. Hom '89  
Emily A. Grandstaff-Rice '99, '00  
Hector J. Toro '11  
Garett M. Vassel '10

#### Alumni Admissions Recognition of Excellence Award

Harry Rosenthal '60  
Gordon L. Snyder '66

#### Craig W. Angell '35 Chapter of the Year Award

Washington, D.C./Baltimore  
Christian C. Johnson '86, President

## Upcoming Events

- Reunion and Homecoming – October 6-9.
- Family Weekend – October 21-23.

## Upcoming School of Science Events

### Biological Sciences Seminar Series

*Monday, October 3 • 12 – 1 p.m. • Bruggeman Conference Center, CBIS  
Refreshments served at 11:45 a.m.*

**Guest Speaker:** Sean Quinn, Rensselaer Biochemistry & Biophysics Graduate Student

**Presentation Title:** “TBA”

**Guest Speaker:** Josephine Loricco, Rensselaer Biochemistry & Biophysics Graduate Student

**Presentation Title:** “TBA”

*Monday, October 17 • 12 – 1 p.m. • Bruggeman Conference Center, CBIS  
Refreshments served at 11:45 a.m.*

**Guest Speaker:** Diana Bogorodskaya, Rensselaer Biology Graduate Student

**Presentation Title:** “TBA”

**Guest Speaker:** Deepika Vaidyanathan, Rensselaer Biology Graduate Student

**Presentation Title:** “TBA”

*Monday, October 24 • 12 – 1 p.m. • Bruggeman Conference Center, CBIS  
Refreshments served at 11:45 a.m.*

**Guest Speaker:** Dr. Thomas Giarla, Siena College

**Presentation Title:** “TBA”

## Chemistry and Chemical Biology Fall Seminar Series

### *The 42nd Rauscher Memorial Lecture*

Tuesday, October 25 • 4 – 5:00 p.m. • Darrin Communications Center (DCC) 330  
Refreshments served at 3:45 p.m.

~All are welcome

**Guest Speakers:** Professor Christopher Kemper Ober, Francis Norwood Bard Professor of Materials Engineering, The Department of Materials Science and Engineering, Cornell University

**Presentation Title:** "Fifty Years of Moore's Law: Towards Fabrication at Molecular Dimensions"

## Department of Mathematical Sciences Colloquium

Thursday, October 27 • 4 – 5:00 p.m. • Amos Eaton 214

**Guest Speakers:** Beverly K. Berger

**Presentation Title:** "When black holes collide: a new window on the universe."

## Physics, Applied Physics, and Astronomy Colloquium

Wednesday, October 5 • 4 – 5 p.m. • Location: Darrin Communication Center (DCC) 337

**Guest Speaker:** Professor Vinod Menon, City College of New York

**Presentation Title:** TBA

Wednesday, October 12 • 4 – 5 p.m. • Location: Darrin Communication Center (DCC) 337

**Guest Speaker:** Professor David Schaffner, Bryn Mawr

**Presentation Title:** TBA

Wednesday, October 19 • 4 – 5 p.m. • Location: Darrin Communication Center (DCC) 337

**Guest Speaker:** Professor Ravishakar Sundararaman, Rensselaer Polytechnic Institute

**Presentation Title:** TBA

**Catch more School of Science updates on social media!**

