

R·I·T Science+Math

MONTH IN REVIEW

SEPTEMBER / OCTOBER 2017



Message from the Dean

Fall is a busy time in the College of Science. So much is happening all around us: teaching and learning, research and discovery, open houses, renovations, inaugurations and celebrations. We welcomed many alumni back to campus for Brick City weekend and National Labs Day, celebrated our legacy with our 2nd Annual Retirees Luncheon, and celebrated the accomplishments of our research collaborators with the LIGO research group who won the Nobel Prize for Physics this year!

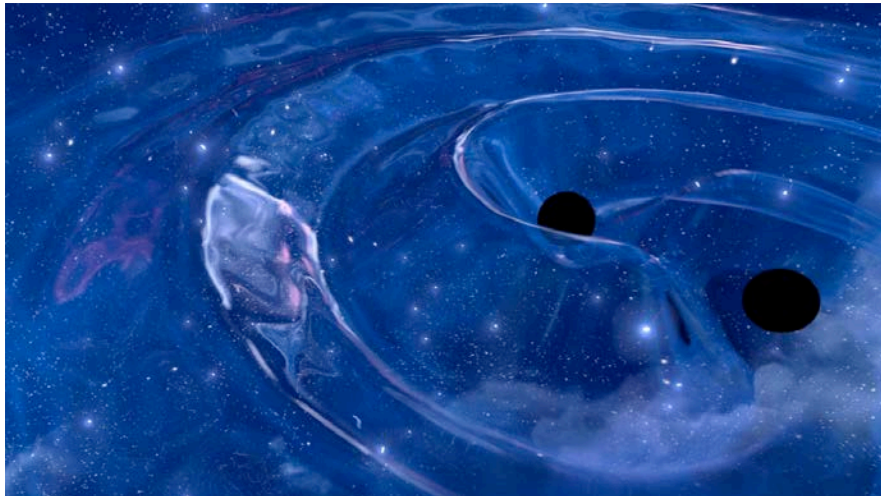
As you read about some of the accomplishments of our faculty, staff, students and alumni over the past month, you'll see that College of Science faculty and staff continue to be leaders in their fields and create an environment that prepares our students for success in life after college.

SOPHIA MAGGELAKIS
Dean, RIT College of Science



Generous benefactor, Georgia Gosnell contributes \$5M

In 2012, estate of our generous benefactor, Georgia Gosnell, endowed \$5M dollars to name the School of Life Sciences, the Thomas H. Gosnell School of Life Sciences. This summer this generous gift arrived and will be invested to grow the School's academic and research programs and to improve its infrastructure. Mrs. Gosnell is pictured here with former RIT President William Destler and Provost Jeremy Haefner during the dedication ceremony in 2012.



RIT Connection to the 2017 Nobel Prize in Physics

Big News in the College of Science! We were delighted to hear that the LIGO Scientific Collaboration, with ties to the Center for Computational Relativity and Gravitation (CCRG) research group, headed by **Dr. Manuella Campanelli** here at RIT, won the Nobel Prize in Physics

in early October. CCRG researchers developed a visualization of what the waves produced by the collision of two black holes would look like if detected. That visualization helped the LIGOs researchers to know when they had found the illusive proof that Einstein's theory was correct. For more information about the Nobel Prize connection, visit the [CCRG](#) homepage.



College of Science professors hold Preparing for Careers workshop

On September 15, **Nathan Cahill**, associate dean for industrial partnerships, hosted the first in a series of monthly workshops designed to help students prepare for life after college. Over 35 students attended the session to ask questions and seek advice from a panel of COS experts who shared their insights and strategies for finding future employment and obtaining internships and co-ops. Thank you to the panel which included a representative from each school in COS: **Joe Pow**, CIS, **Kate Wright**, GSoLS, **Ben Zwickl**, SoPA, **Michael Coleman**, SCMS, and **David Ross**, SMS.



College of Science Alumni, Faculty & Student Networking Brunch

Over 60 Alumni, Faculty & Students were in attendance for the Speed Networking event hosted by the College of Science Student Advisory Board (COSSAB) during Brick City Weekend. They gathered to discuss research, graduate education, industry work, and more.



WISe hosts Graduate School Bootcamp

Congratulations to **Lea Michel**, SCMS, **Laura Muñoz**, SMS, **Kate Wright**, GSoLS, and **Julie Thomas**, GSoLS for organizing and running a very successful WISe Graduate School Bootcamp workshop. Over 35 students attended a fun and lively workshop with great food and great advice for continuing their studies in graduate school.

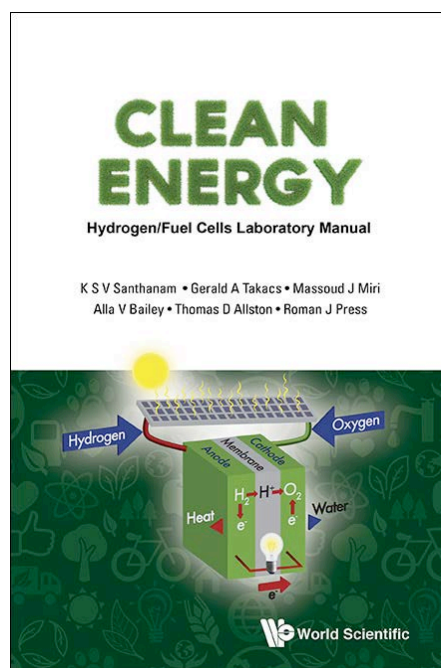


Presidential Awards for Outstanding Staff

On October 19, RIT's office of the President hosted the 2017 Presidential Awards for Outstanding Staff. There were a number of nominees from all around the university and the College of Science Staff were well represented for the honor. Sincerest congratulations to the COS nominees and the recipients of the awards. Read the full list of nominees [here](#).

Catherine Mahrt-Washington, Assistant Dean and Director of Student Advising, is the recipient of the **2017 Dancy Duffus Outstanding Citizenship Award** which recognizes a staff member of the utmost integrity who consistently shows imagination, creativity and innovation, exceptional service to students and university constituents, outstanding leadership qualities, and is a model of service to the RIT community.

Additionally, **The COS Staff Advisory Council (COSSAC) – Valerie Hemink, Cari Hindman, Jennifer Liedkie, Jane McGowan, Jessica Small, Melanie Warren** – are the recipients of one of the **2017 Staff Excellence Awards** for outstanding service to the College of Science and the Institute. The Staff Excellence Awards recognize staff who have excelled in the performance of their duties as well as promoted team work and inspired excellence in others.



New & Notable Titles 2017: Clean Energy

Congratulations to **K S V Santhanam, Gerald Takacs, Massoud (Matt) Miri, Alla Bailey, Thomas Allston & Roman Press** on the publication of their book **Clean Energy Hydrogen/Fuel Cells Laboratory manual** from World Scientific. Listed on the World Scientific “New & Notable Titles 2017” webpage, the book is designed to be readable by a general audience interested in clean energy, global warming solutions, fuel cells, hydrogen gas safety tests as well as undergraduate students taking general chemistry course or energy as minor, graduate students who wish to learn the basic fuel cells, or mechanical and electrical engineering students.

National Labs visit RIT

Representatives from five of the most prestigious national laboratories were on campus on Thursday, October 19 to highlight research, co-op, internship, and career opportunities at national laboratories across the United States. The 17 national labs work on critical scientific challenges, from fighting climate



change to discovering the origins of our universe. We were glad to welcome back RIT alumni who were here to represent their lab during this event.

Los Alamos: Amanda Ziemann ('10 BS Applied math, '11MS Applied and computational math, PhD Imaging Science)

Sandia: Nick Leathe (BS '11, MS '11Mech Eng)

Oak Ridge: Dave Kelbe ('10 BS Imaging science, '15 PhD Imaging Science)

Savannah River: Katie Salvaggio ('10 BS Imaging Science, PhD Imaging Science)



Thomas H. Gosnell School of Life Sciences hosts its first annual External Advisory Board meeting

The GSoLS external advisory board consists of six members. The members were curated through recommendations from faculty, staff, and alumni relations in the spring of 2017, and they were all invited to attend a full-day meeting during Brick City Homecoming on October 13. Members include three alumni, Dr. Sesquile Ramon (Biotechnology 2007), Travis Money (Environmental Science 2004), and Dr. Terry Wright (Biotechnology 1990), and two external members, Dr. Helene McMurray (University of Rochester), and Dr. Toby Bloom (New York Genome Center). Dr. Andre Hudson is the sixth member as Chair. The meeting included presentations from faculty, a student panel discussion, and a facilities tour and renovation discussion. The advisors are expected to provide recommendations on topics such as curricular changes and updates, the expertise of future faculty hires, and potential partnerships with regional companies for co-ops, internships, and workforce training.



The School of Physics and Astronomy External Advisory Board meets for their first annual meeting

The School of Physics and Astronomy External Advisory Board met for their first annual meeting over the course of a day and a half on October 20-21. The SoPA board consists of 13 members from university academia and administration, industry, the American Physical Society, NASA, and high-school teaching. There are two RIT Physics alums on the Board. The Board Chair is Dr. Judith Piper (Emeritus Professor of Astronomy, University of Rochester). The meeting included an opening presentation by SoPA Head, Michael Kotlarchyk, visits to and presentations by various SoPA research groups, and focus/discussion sessions with various cohorts of faculty and students throughout the day on October 20. The morning of October 21 was for discussions about preliminary recommendations amongst the Board members, followed by an initial debriefing session with the Michael Kotlarchyk and the Interim AST Director, Joel Kastner. The Board will be providing a full written report that includes recommendations about topics related to programs and curricula, student career paths, experiential learning opportunities, research focus areas, development of new academic programs, and the School's overall environment.



CIS scientist organizes second international symposium on ‘Global Women of Light’

Jie Qiao, associate professor, CIS is collaborating with the Optical Society (OSA) Foundation to host the second annual symposium for women in optics and photonics on September 17 in Washington, DC as part of the Frontiers in Optics OSA Conference. [Read more>](#)



RIT plays host to Hockey Analytics Conference

The latest research in analytics for college and professional hockey – and for sports in general – were explored at the third annual RIT Hockey Analytics Conference on October 21 organized by **Matt Hoffman**, associate professor, SMS and Ryan Stimson, editor at Hockey-Graphs. About 100

attendees gathered to discuss advances in data collection and analysis that make it possible to quantify performance in the fast-paced, complex sport of hockey. [Read More>](#)



RIT researchers help usher in era of multi-messenger astronomy with LIGO discovery, and give astronomers (and hitchhikers) a new guide

Rochester Institute of Technology researchers in the LIGO-Virgo scientific collaboration played a significant role in an international announcement that has changed the future of astrophysics. The breakthrough discovery of colliding neutron stars marks the first time both gravitational waves and light have been detected from the same cosmic collision. [Read More>](#) and [Read more>](#)



Collaboration strengthens Rwanda through education

Anthony Vodacek, professor, SCMS and **Ernest Fokoue**, associate professor, SMS are working with faculty at the University of Rwanda and the University of Kibungo, promoting that nation's development by helping to build graduate programs and a culture of scholarship in a country healing from civil war and genocide. [Read More>](#)

NEWSMAKERS

Kaitlin Stack Whitney, visiting research scholar in GSOLS was quoted in a September 21 article in the Democrat and Chronical headlined [To bee or not to bee: Wasp population booms.](#)

Jie Qiao, CIS was highlighted in an article in Optics & Photonics News in an article titled [Fixing the Leaky Pipeline.](#)

Brian Koberlein, senior lecturer of physics, was quoted in several publications this month, including: [Astronomers Just Found the First Interstellar Object From Beyond our Solar System, Futurism;](#) [Space-Based Test Proves Light's Quantum Weirdness, Scientific American;](#) [Everything You Need to Know About the Latest 'Physics-Breaking' EM Drive Research, Futurism;](#) [ESO Scientists Unveil an 'Unprecedented Discovery' About Gravitational Waves, Futurism.](#)

Richard O'Shaughnessy, associate professor, School of Mathematical Sciences, was quoted in several publications this month, including: [Neutron star collisions may have created most of the gold in the universe, Popular Science;](#) [Neutron star discovery marks breakthrough for 'multi-messenger astronomy', The Christian Science Monitor;](#) [First Detection of Gravitational Waves from Neutron-Star Crash Marks New Era of Astronomy, Space.com;](#) [Neutron star collision showers the universe with a wealth of discoveries, Science News;](#) [A New Rosetta Stone for Astronomy, The Atlantic;](#) [Gravitational Wave Astronomers Hit Mother Lode, Scientific American.](#)

[RIT on TV: Colliding neutron stars](#)

Carlos Lousto, professor in RIT's School of Mathematical Sciences, interviewed, WROC-TV, Oct. 16 (Link)

[First Cosmic Event Observed in Both Gravitational Waves and Light](#)

Manuela Campanelli, director, Center for Computational Relativity and Gravitation, quoted, Universe Today, Oct. 16 (Link)

[LIGO Nobel: How a new era of astronomy will ride on gravitational waves](#)

Manuela Campanelli, director, Center for Computational Relativity and Gravitation, quoted, The Christian Science Monitor, Oct. 3 (Link)

[Gravitational Wave Works Wins Physics Nobel Prize](#)

Carlos Lousto, professor in RIT's School of Mathematical Sciences, quoted, NBC.com, Oct. 3 (Link)

[Gravitational Waves Detected by 2 Observatories After Black Holes Collide](#)

Images by **Nicole Rosato**, mathematical modeling Ph.D. student, Space.com, Sept. 27 (Link)

[WATCH: Genetics, ancestry, and health](#)

Rick Kittles '89 (biology) featured, WXXI.org, Sept. 17 (Link)

From a quiet farm to Rochester

Men's hockey players and fourth-year students **Brady and Chase Norrish** featured, Pucks and Recreation, Sept. 16 ([Link](#))

Henrietta company's aerial imaging technology helps hurricane victims

Stephen Schultz '89 (computer science) mentioned and **Carl Salvaggio**, professor of imaging science, quoted, Democrat and Chronicle, Sept. 14 ([Link](#))

ALUMNI SPOTLIGHT



Zackery P. Bulman (GSoLS) '11 After completing his PharmD and an Infectious Diseases Fellowship at the University at Buffalo, Zackery Bulman accepted a position as an Assistant Professor of Pharmacy Practice at the University of Illinois at Chicago. His research focuses on novel pharmacotherapeutic approaches that aim to overcome drug resistant bacteria and improve patient outcomes.



Julio Rivera (GSoLS) '08 Since graduating from RIT, Julio joined Marguerite Butler's lab at the University of Hawaii at Manoa where he studied phylogenetics and performance of microhylid frogs from Papua New Guinea. During his tenure at UH, he co-authored a \$750,000 NSF grant that paid for his fieldwork and salary. He also co-designed a curriculum that allowed middle school students from PNG and Hawaii to share stories about their everyday life as well as talking about biodiversity in their respective islands. Julio recently accepted a post-doctoral position at Arizona State University with Emilia Martins to develop phylogenetic techniques to model ancestral ranges of animals using fossil and climate data.



Kenneth Reed (SCMS) '70 Dr. Kenneth J. Reed, co-founder and CTO of ZeroValent NanoMetals, has been selected as the 2017 *Entrepreneur of the Year* by the Rochester Section of the American Chemical Society. The award, in recognition of Dr. Reed's development of innovative new chemistry and its commercialization at several local companies, was presented at the Section's

Annual Recognition Dinner at the Brook House on October 11. This award, and the impressive technical and business achievements of the nominees, highlight the continuing central role of chemistry in the economic development of the Rochester area.



Puru V. Purushotham named 2017 Distinguished Alumnus of the College of Science Over three decades of experience in various leadership roles in best in class global companies, including international entrepreneurship spanning North America, Europe, Asia and Israel. Served as the founding President and CEO of a high technology joint venture between two internationally renowned brands, resulting in operations in the US and Europe. Specialized in nurturing innovations and successfully commercializing breakthrough technologies in markets around the globe. Personal strengths and interest include strategic planning, shaping long term business alliances, leading merger and acquisition initiatives, building and nurturing international teams, and building new business operations spanning the entire value chain from research and innovation to global sales and customer support.

Serves on the boards of several for-profit and non-profit organizations in the US and abroad. Member of President's Round Table at the Rochester Institute of Technology, Rochester, New York, USA

SPONSORED RESEARCH

Herbert Bernstein, SCMS, is the PI on a \$45,000 grant from the DHHS, National Institutes of health/Lawrence Berkeley National Lab to support the project titled *"Improvements to cell distance algorithm for clustering of XFEL images."*

Andre Hudson, GSoLS, is the PI on a \$467,754 grant from the National Institutes of Health to support the project titled *"Genetic and structural analysis of L,L-Diaminopimelate Aminotransferase (DapL): An attractive target for the development of narrow-spectrum antibiotics."*

Michael Gartley, CIS, is the PI on a \$10,000 contract with the DOD, Department of the Air Force, Material Command/Altamira Technologies Corporation to support the project titled *"FY17 Passive GEOINT Research and Development, Phase1."*

Michael Murdoch, PoCS, is the PI with co-PI Susan Farnand, PoCS on a \$34,300 contract with the Center for Operator Performance / Wright State University to support the project titled *"Operator Display Background Color."*

Carmody (Carrie) McCalley, GSoLS, is the PI on a \$63,307 grant from NASA-National Aeronautics and Space Administration / University of New Hampshire to support the project titled *"From Archaea to the Atmosphere: Integrating Genetic, Isotopic and Landscape-Scale Observations to Quantify Methane Emissions from Global High-Latitude Ecosystems."*

Michael Zemcov, SoPA, is the PI on a \$39,900 grant from NASA—National Aeronautics and Space Administration to support the project titled *"Probing the History of Structure Formation through Intensity Mapping of the Near-Infrared Extragalactic Background Light."*

Christopher Collison, SCMS, is the PI on a \$49,951 contract with the Hewlett-Packard Company to support the project titled *"Self-Healing Fuser Film- Exploring Possible Smart Materials."*

Joel Kastner, CIS, is the PI on a \$31,927 contract with NASA—National Aeronautics and Space Administration to support the project titled *"Mass Loss at Higher Metallicity: Quantifying the Mass Return from Evolved Stars in the Galactic Bulge."*