



# Dean's Midyear Bulletin

January 2016

## Dean's Message

I am pleased to share with you my biannual bulletin, which summarizes our accomplishments, updates, and initiatives for the period from July 1, 2015 to December 31, 2015. I am very pleased with our accomplishments, and I am thankful to all of you for your dedication to our students and your contributions to the mission of our college.

I am looking forward to working with you during the Spring Semester.

Happy New Year!

~ **Sophia Maggelakis**  
Dean, RIT College of Science

## Updates

### Imaging Science Director Named

David Messinger was named director of the Chester F. Carlson Center for Imaging Science after serving as interim director. [University News >](#)



### Secured \$1 million Emerson Foundation Endowment

The new Emerson Endowed Fellowship Program for Undergraduate Research in the College of Science will allow us to double the number of undergraduate students conducting full-time scientific research during the summer. The Emerson Foundation offered to give the university a \$250,000 challenge grant contingent upon RIT raising the remaining \$750,000 in new gifts and pledges by October 1. [University News >](#)

### Top Producer of Physics Graduates

The School of Physics and Astronomy was ranked 20th on the American Institute of Physics list of universities conferring the largest number of undergraduate physics degrees.

[University News >](#) [AIP >](#)



## Research and Scholarship

Scholarship, research, and professional activities have increased. Our faculty members are presenting their work at national and international conferences, are publishing in peer-reviewed journals, and are involved in outreach activities. Across every discipline, our college is the leader for the remarkable growth in RIT's undergraduate student research programs and for the growth of peer reviewed publications and external grants awarded to its faculty each year.

We received **\$12,179,163** in Sponsored Research and there were **395** refereed publications that were reported by the academic units.

Dean's Research Initiation Grants (D-RIG): This has been a successful program so far and has given us a good return on our investment. Some of the accomplishments since its inception in 2012 include:

- 38 refereed journal papers submitted/published,
- 69 conference presentations,
- 37 grant proposals submitted to 12 sponsors (21 proposals to NSF),
- ~\$11.8M in proposals submitted (~\$6M to NSF), ~\$2M of these grants funded (more in follow-up proposals),
- 28 awards totaling about \$500K and producing,
- 62 students funded on research projects.

## Fundraising

We met and exceed our fundraising goal. We attained **\$2,195,108** through various fundraising activities.

## Faculty Research Symposium

The fifth annual COS Faculty Research Symposium was held September 11. The event provided research presentation opportunities for faculty returning from sabbatical, heads of large research groups, faculty receiving D-RIG or FEAD grants, and others. Participants included:

### Sabbatical Returnees

- **Manuela Campanelli**, SMS
- **Darren Narayan**, SMS
- **Hossein Shahmohamad**, SMS
- **John Whelan**, SMS
- **Gary Skuse**, GSOLS

### Lab Directors

- **Scott Franklin**, CASTLE
- **Tony Harkin**, CACM

- **Manuela Campanelli**, CCRG
- **Don Figer**, CfD
- **Tony Vodacek**, DIRS
- **Joel Kastner**, LAMA
- **Joe Hornak**, MRL
- **Jeff Pelz**, MVRL
- **Mark Fairchild**, MCSL

D-RIG (Dean's Research Initiation Grants) Recipients

- **Linda Barton**, SoPA
- **Michael Osier**, GSOLS
- **Joe Hornak**, CIS
- **Jeff Lodge**, GSOLS
- **Michael Pierce**, SoPA
- **Jie Qiao**, CIS
- **Thomas Smith**, SCMS
- **Julie Thomas**, GSOLS

FEAD (Faculty Professional Development Grants) Recipients

- **Matt Miri**, SCMS
- **Sandi Connelly / Jeff Mills**, GSOLS/SCMS
- **Nathaniel Barlow**, SMS
- **Lea Michel**, SCMS
- **Michael Cromer**, SMS
- **Sukanya Chakrabarti**, SoPA
- **Greg Babbitt**, GSOLS
- **Wei Quan**, SMS
- **Christy Tyler**, GSOLS

Contributed Talks:

- **Andre Hudson**, GSOLS
- **Mishkat Bhattacharya**, SoPA
- **Grover Swartzlander**, CIS
- **Richard O'Shaughnessy**, SMS

## Undergraduate Research

Many of our faculty members are engaging a number of undergraduate students in their research and in solving challenging and complex problems.

- 4 NSF-Funded REUs (Research Experience for Undergraduates): We were awarded and run **4 NSF-funded REUs** programs. This is a huge success for our university and college.
- Summer Undergraduate Research Fellowships (SURF): Every year, I have been able to

support, through fundraising, Summer Undergraduate Research Fellowships. This year we were able to fund fifteen such fellowships and the Honors Program funded an additional eight fellowships.

- Pre-freshmen Research Internships – Fast Forward Program. We established our Fast Forward program that supports pre-freshmen summer research internships. The goal of the program is to provide to qualified pre-freshman college experience during the summer before attending RIT in the upcoming fall term. Students are participating and contributing to a professional research project mentored by our faculty members. We were able to fund 10 students and their mentors this summer.
- Student Research Symposium: Students participating in the summer REU “Imaging in the Physical Sciences” and the Fast Forward program for COS Honors Students hosted a poster session and set of presentations at the Chester F. Carlson Center for Imaging Science August 5. Participants included:
  - Matthew Portman, “Variable AGB Stars in the Small and Large Magellanic Clouds”
  - Lauren Morehouse, “Terahertz Characterization for Detection Technology”
  - Klemens Gowin, “Metrology of Freeform Optics and Exploring Freeform Surfaces Using a Deformable Mirror”
  - Aviriana Follett, “Progress in the Search for Martian Life”
  - Merlin Hoffman, “LFEP Spectroscopy of Ceramic and Marble Objects with Cultural Heritage Significance”
  - Caroline Trier, “Automatic registration of multi-sector long limb X-ray images”

## Women in Science

WISe hosted:

- **SUNY Geneseo President:** Denise Battles shared her experiences with RIT faculty at a luncheon on Nov. 20 sponsored by RIT Women in Science and the Engineering Connect Team.
- **STEM Writer:** Eileen Pollack, a novelist, essayist and short-story writer, presented a seminar on her latest book, *The Only Woman in the Room: Why Science is Still a Boys’ Club* on Sept. 25. The event was supported by an AdvanceRIT Connect grant, Women in Science and the Kate Gleason College of Engineering.

[University News >](#)



## Infrastructure

A number of renovations have taken place. These include:

- Roof replacement of the Gosnell Building
- A \$6M renovation of our chemistry laboratories

- Renovations and updates to our physics workshops
- Phase-I of air-conditioning the Gosnell building (will start in June)

## NSF-funded Project IMPRESS

RIT University News produced a video about the NSF-funded Project IMPRESS program that teaches students self-reflection and self-assessment skills—key components of metacognition, or thinking about how one thinks and learns. [YouTube >](#)



## Initiatives

### Lecturer Professional Development and Career Advancement Grants

A call went out this fall for proposals that will promote Non-Tenure Track faculty professional development, career advancement, and scholarly activities, and will lead to improved educational opportunities for students and/or expanded educational activities within our college. I am funding up to six professional development proposals (maximum \$5K per award) that are going to promote scholarly activities, as I believe all faculty members should deliver quality education and up-to-date curricula and should remain current in their field.

### Staff Professional Development and Career Advancement Grants

A call went out this fall for proposals that will promote staff professional development and career advancement. I am funding up to five staff professional development proposals (maximum \$2K per award) that are going to help our staff to attend workshops, conferences, take advanced studies, attend a course, and other activities that are related to professional development and career advancement.

### Interdisciplinary Projects Approved

The RIT RFP Committee selected the following recipients for the Innovation and Interdisciplinary Teaching grants:

- *Climate Change Curriculum*. The project's COS representation includes **Nathan Eddingsaas**, SCMS; **Matthew J. Hoffman**, SMS; and **Christy Tyler**, GSOLS.
- *Capstones Across Colleges*. The project's COS representation includes **Susan Farnand**, PCS.
- *World Making and the Creation of Responsible Knowledge: An Integrated Salon and Labinar Approach to Innovation in Graduate Education*. The project's COS representation includes **Carlos Lousto**, School of Mathematical Sciences.

## Photonics workforce development study focuses on Rochester

**Ben Zwickl**, SoPA, and **Kelly Martin**, CLA, along with postdoctoral researcher Anne Leak are developing a study of current practices in the photonics and optics industry will help educators better understand how to prepare students for job opportunities in that burgeoning field. The project is funded by a three-year \$400,000 NSF grant to study workplace trends in a field that encompasses science, technology, engineering and mathematics or STEM disciplines.



[University News >](#) [WXXI >](#) [RBJ >](#) [ASEEE First Bell >](#)  
[D&C >](#) [Photonics.com >](#) [WHEC >](#)

## Online Learning

SMS's **Carrie Lahnovych**, **Bernard Brooks**, **Joel Dreibelbis**, and **Tamas Wiandt**, each received support (GOLD grants) from the Interactive Learning Institute (ILI) to create a high-quality online course.

## Outreach

**RIT-Ithaca collaboration.** The increased need for math and science teachers at the secondary level has led to an agreement between Rochester Institute of Technology and Ithaca College to prepare RIT students considering careers in middle- and high-school education. The arrangement allows qualified undergraduate students in RIT's College of Science to complete their BS degree while simultaneously pursuing graduate-level coursework in the Ithaca College teacher education program. [University News >](#)



**Alternative Energy Education.** For the second year, **Alla Bailey** and **Gerald Takacs** were awarded \$25,000 by Constellation Energy to develop a K-12 program that focuses on educating students and teachers about alternative sources of energy.



**Celebrate Science and Math.** Students and faculty from each COS academic unit participated in a public exhibition attended by three high school groups, RIT students, and alumni visiting during Brick City Homecoming Weekend.

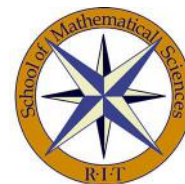


**SMASH** Held the 2nd annual Summer Math Applications in Science with Hands On Experience workshop for middle school girls exploring mathematics as the language of science and solving problems through mathematical modeling.





**RIT Summer Math Workshop.** SMS hosted its second annual workshop in July for high school students who participate in math competition. The topics this year were complex numbers, functions, set theory and logic, and graph theory. Activities also included a visit from Provost **Jeremy Haefner**; a guest lecture by **Tony Harkin**, SMS, and **Jennifer Zirnheld**, RIT Admissions Office; a tour of campus and CCRG; and workshops on problems from the US Math Olympiads.



**Project SEED.** The American Chemical Society's Project SEED program offered economically disadvantaged students entering their junior or senior years a chance to gain hands-on experience in a 10-week chemistry internship at RIT. The program was coordinated for the fourth year by **Lea Michel**, SCMS, and included **Callie Babbitt** and **Gabrielle Gaustad** from the Golisano Institute for Sustainability; **Christy Tyler**, GSOLS; and assistant professor **John-David Rocha**, SCMS.



[University News >](#)

## Global Education

**RIT partnership with the University of Tokyo.** RIT has signed an agreement with the University of Tokyo to facilitate student and faculty exchanges and increase collaboration between researchers at the two institutions. **Michael Richmond**, SoPA, spent five weeks in Tokyo on a science and outreach fellowship. One of the goals of his visit was to find appropriate collaborators and make introductions.



[University News >](#) [RBJ >](#)

**Chinese Delegates Visit.** Two Vice Presidents and three professors from Changchun Institute of Optics, Fine Mechanics and Physics of the Chinese Academy of Science visited the Chester F. Carlson Center for Imaging Science on November 10. The group was hosted by **Zoran Ninkov**, **Grover Swartzlander**, **Tony Vodacek**, **Jie Qiao**, **David Messinger**, **John Kerekes**, and **Lindsey Schwartz** (CIS undergraduate student).



## Student Spotlight

- **Emily Berkson**, a first-year imaging science graduate student, co-authored "Curtain eruptions from Enceladus' south-polar terrain," which appeared in *Nature* May 8, 2105. [CIS >](#)



- **Lucas Dailey**, a fourth year student majoring in biotechnology and molecular bioscience, was awarded an American Society for Microbiology Undergraduate Research Fellowship.

[University News >](#)



- **Brenna DeAngelis and Solan Sooriakumar** were featured in an Athenaeum article about their trip to the Galápagos Islands led by Bob Rothman, GSOLS. The story was featured in the fall on the front-page slider of the RIT main website.

[Athenaeum >](#)



- **RIT SPEX.** Students in the RIT Space Exploration Research Group, advised by SMS School Head, Mihail Barbosu, successfully launched a high-altitude weather balloon carrying experiments to an altitude of nearly 100,000 feet before popping and drifting into the state of Maine.

[University News >](#) [TWC News video >](#)



- **Christian Gordillo**, a fourth year biotechnology and molecular bioscience student, was featured in a University News Q&A. Gordillo is a first-generation American who speaks fluent English and Spanish.

[University News >](#)



- **SpaceX Hyperloop Competition:** A team of imaging science students moved forward in the SpaceX Hyperloop Competition to build a new form of high speed transportation. The team, led by **Kristina Carucci**, are developing a communications system and a sensor system to detect faults in the walls of the tubes that carry transport pods. The team is comprised of **Tyler Kuhns**, second-year imaging science, Hamburg, N.Y.; **Ryan Hartzell**, second-year imaging science, Danielsville, Pa.; **Zachary Assenmacher**, second-year physics, Danielsville, Pa.; **Jeff Maggio**, second-year imaging science, Cincinnati, Ohio; **Nate Dileas**, second-year imaging science, Buffalo, N.Y.; **Emily Faw**, second-year motion picture science, Sellersville, Pa.; **Catherine Meininger**, second-year motion picture science, Oklahoma City, Okla.; and **Kristina Carucci**, second-year imaging science, Massapequa Park, N. Y. Faculty advisors are imaging professors **Harvey Rhody** and **Joe Pow.** [University News >](#)





# Faculty Spotlight

**Casey Miller**, director of the Materials Science and Engineering program, is working on a new metal alloy system could lead to commercially viable magnetic refrigerants and environmentally friendly cooling technologies. Dr. Miller and his colleagues published their findings in the Oct. 28 issue of *Scientific Reports*, an online open-access journal from the publishers of *Nature*.

[University News](#) > [AZO Materials](#) > [Science World Report](#) >  
[R&D Magazine](#) > [Nature World News](#) > [Phys.org](#)



**Lea Michel**, co-president of RIT Women in Science, was recognized as one of 100 women to win the national INSIGHT Into Diversity award, from *INSIGHT Into Diversity* magazine, for encouraging young women to consider STEM careers.

[WXXI](#) >



**Seth Hubbard** has been appointed director of NanoPower Research Labs. In his new role, Dr. Hubbard replaces NPRL interim director Paul Stiebitz, who has retired. Dr. Hubbard will continue to lead the Photovoltaics and Nanomaterial Technologies Group at the NPRL Labs. The group develops high-efficiency multijunction photovoltaics that use quantum dots and cells optimized for high levels of light concentration.

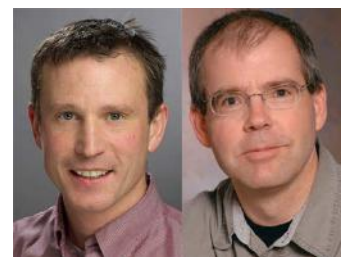


**Don Figer** and the Center for Detectors were awarded \$2 million in second-phase NSF funding to work with Raytheon Vision Systems to develop infrared detectors grown on silicon wafers for ground-based astronomy. The detectors are designed to deliver the highest sensitivities available with today's detectors at a much lower cost. [University News](#) > [SpaceRef.com](#) > [RBJ](#) >



**Chris Collison and Scott Williams**, SCMS, are co-principal investigators on a team with Denis Cormier, the Earl W. Brinkman Professor in the industrial and systems engineering program. Cormier was awarded nearly \$600,000 by the National Science Foundation for a project called "Partnership for Innovation in Printed Devices and Materials." The project includes Rochester-based company Intrinsic and national companies NovaCentrix and Optomec. The university-corporate partnership collaborates to further develop ink chemistries suited to aerosol jet printing and photonic sintering. The partnerships also target development of multi-material printing techniques to enable the synthesis of devices such as micropumps for drug delivery, organic solar cells, among other new applications.

[Research at RIT](#) > [Rochester Business Journal](#) >



**Mishkat Bhattacharya**, SoPA, co-hosted a meeting on levitated optomechanics at the Optics Society of America headquarters in Washington, D.C. from December 2-4.

[University News >](#)



### **AdvanceRIT Connect Grants**

The following COS faculty were named in 11 projects funded by the Connect program, which supports female faculty's professional development in specific research areas, as well supporting networking, external leadership development, proposal development, mentorship, and case study development. These grants are:



- *"From WISE to WISE: Networking for Women in Science and Engineering"*  
**Lea Michel and Kara Maki.**
- *"Attendance at Ultrafast Optics 2015"* **Jie Qiao.**
- *"Communication and Outreach Through Mentored Media Engagement and Networking Teams"*  
**Kara Maki, Matthew Hoffman, and John-David Rocha.**

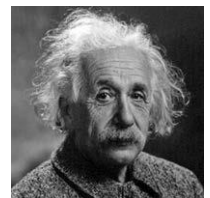
### **Wallace Center Faculty Career Development Services grants**

Congratulations to the following faculty who received Provost's Faculty Mentoring grants, Lecturer's Professional Development grants, and Adjunct Faculty Professional Development grants:



- *Deana Olles*, Faculty Mentoring Program
- *Hans Schmitthener*, Grant Writing in Molecular Imaging Team
- *Paul Wenger*, Doceamus: the Pedagogical Mentorship Group in Mathematics
- *Dawn Carter*, Lecturer's Professional Development Grants
- *Michelle Friedman*, Adjunct Faculty Professional Development Grants

**The American Physical Society's General Relativity Centennial website** is a collection of seminal papers celebrating 100 years of Einstein's theory of general relativity in November highlights research conducted by Manuela Campanelli, Carlos Lousto and Yosef Zlochower, professors in RIT's School of Mathematical Sciences and the founding members of Center for Computational Relativity and Gravitation; and Pedro Marronetti, a researcher at the National Science Foundation. The curated papers begin with Einstein and include J.R. Oppenheimer and Stephen Hawking, among others.



[University News >](#) [APS Relativity site >](#)

Various CCRG faculty members were featured in a University News article about gravity wave astronomy as part of the Laser Interferometer Gravitational-wave Observatory in Livingston, Louisiana. [University News >](#)



Hans Schmitthenner, SCMS, was featured in a *Science* magazine web article titled "Industry experience as a platform for academic careers." [Science >](#)



Sandi Connelly, GSOLS, contributed to the curriculum of the summer Bioscience Camp held July 20-24 at the Center for Bioscience Education and Technology. The camp theme was "Chemistry in My Cookies." [University News >](#)



NY releases test data; opt-out effect downplayed. Bernard Brooks, SMS, was quoted in a Democrat and Chronicle article about New York's Common Core testing. [D&C >](#)



Brian Koberlein, SoPA, was featured on WUHF following the discovery of liquid water on the surface of Mars. He also commented on the movie, *The Martian*, in which Matt Damon portrays a botanist stranded on Mars. [WUHF >](#)



Elizabeth Hane, Associate Head of GSOLS, presented "Supporting Underrepresented Students in STEM Disciplines through Metacognitive Practices" at Crossing Boundaries: Transforming STEM Education, sponsored by the American Association of Colleges and Universities, held in Seattle on Nov. 13.



Brandon Rodenburg, postdoctoral research associate in SoPA, presented "Theory of Feedback Cooling of an Optically Trapped Nanoparticle into the Quantum Ground State" at the Frontiers In Optics conference, held in San Jose, Calif., from Oct. 18-22.



**Ben Zwickl**, assistant professor of physics, presented a poster and talk on “Preparing Students for Physics-Intensive Careers in Optics and Photonics” at the American Association of Physics Teachers in College Park, Md., on July 25-29. He also co-presented “Implementing the AAPT Recommendations for the Undergraduate Physics Lab” with colleague Joe Kozminski of Lewis University at Beyond First Year Lab Conference in College Park, Md., on July 22-24.



**Manuela Campanelli** presented “Revealing the Hidden Universe with Supercomputer Simulations of Black Hole Mergers” at the Association for Computing Machinery and IEEE Computer Society’s Supercomputing Conference on November 18. [SC15 Event Page >](#) [University News >](#)



**Jie Qiao** was the general co-chair of the international conference on Ultrafast Optics UFO X taking place in Beijing from Aug. 16 to 21. [University News >](#)

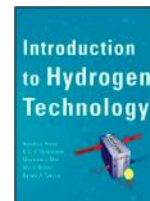


**KSV Santhanam, Gerald Takacs, Massoud Miri, Alla Bailey, and Thomas Allston**, all of SCMS, published the lab manual *Hydrogen/Fuel Cells Laboratory Manual* with World Scientific.

[Book Listing >](#)



**KSV Santhanam, Gerald Takacs, Massoud Miri, and Alla Bailey**, all of SCMS, are authors of *Introduction to Hydrogen Technology* in its second edition by Wiley-Blackwell.



# Staff Spotlight

**David Lake**, Facilities and Operations Manager, received the Presidential Award for Outstanding Staff on October 8. Von Murphy, an accountant who works at COS, was recognized as part of the Sponsored Programs Accounting team. Congratulations to our nominees, who were



*Allison Healy, COS Thomas H Gosnell School of Life Sciences,  
Rosanne Klingler, COS Office of the Dean,  
David Lake, COS Office of the Dean,  
Autumn Madden, COS Chemistry & Materials Science,  
Von Murphy, Sponsored Programs Accounting,  
Brenda Matrangelo, Academic Advisor  
Angela Dolliver, Senior Financial Analyst*

## University News >

**New advising position.** The College of Science has been granted funding for a half time student advisor through June 30.

# Events

**Geminid meteor shower.** On December 14, the RIT Observatory opened its doors to the public for a viewing of the Geminid meteor shower and the planet Uranus. [University News >](#)



**Hockey Analytics.** Matt Hoffman, SMS, organized a one-day Hockey Analytics Conference October 10 that drew around 150 people.

[University News >](#)



**Lunar Eclipse.** The observatory also held an open house for the total lunar eclipse the last weekend in September. [University News video >](#)





## Distinguished Speaker Series

**Flip Phillips**, Skidmore College Professor of Psychology and Neuroscience presented “Molyneux’s Empirical Problem,” which covered an Enlightenment-era philosopher’s question about the relationship between vision and shape perception and detailed modern approaches to the problem. Phillips is on sabbatical from Skidmore and is in residence at the Chester F Center for Imaging Science.



**Jamie Bock**, Professor of Physics at the California Institute of Technology, presented “Vibrations from the Big Bang,” which detailed his work in detecting cosmic microwave background radiation from the early violent inflation of the universe using telescopes in orbit and at the South Pole.



**Chris Garrett**, from Novartis Pharmaceuticals Corporation presented “The Art and Science of Drug Development.” The talk provided an introduction to the pharmaceutical development process and highlighted some of the scientific roles, which must couple art and science, to successfully develop and launch new therapies intended to address the unmet medical needs of patients around the world.



## Alumni

**Thomastine Sarchet**, PEN International Senior Project Associate at NTID, was awarded the Isaac L. Jordan Award at the Presidential Staff Awards ceremony. Ms. Sarchet is a 2003 graduate of RIT’s biology program.



**High Impact Research.** Two graduates of the Astrophysical Sciences and Technology Ph.D. program were among 15 scholars who had papers selected as “high impact research publications” by the International Astronomical Union General Assembly.



**Rudy Montez ('10)**, along with Joel Kastner, published “The Chandra X-Ray Survey of Planetary Nebulae (CHAMPLANS): Probing Binarity, Magnetic Fields, and Wind Collisions.”



**Fabio Antonini ('11)**, who was advised by David Merritt, published “Origin and Growth of Nuclear Star Clusters Around Massive Black Holes.”



**Valerie Rapson**, a graduate of the Astrophysical Sciences and Technology Ph.D. program, was featured on WNYT for her new role as director of the Dudley Observatory in Schenectady.

[WNYT >](#)

