

R·I·T Science+Math

MONTH IN REVIEW

November & December 2017



As the fall semester draws to a close, I'd like to take a moment to thank our faculty and staff for all they do to continually make the College of Science an exceptional environment for our students to learn and grow. The articles below highlight the significant contributions our faculty are making to the research community and you'll see that staff are continually finding new ways to improve the experience for all of us here in the College of Science.

I wish you peace and joy in the coming holiday season.

SOPHIA MAGGELAKIS
Dean, RIT College of Science

College of Science welcomes Distinguished Speaker, Chris Leighton

On November 3, COS welcomed **Chris Leighton**, a Distinguished McKnight University Professor of Chemical Engineering and Materials Science, a graduate faculty member in Physics and Director of Undergraduate Studies in Materials Science at the University of Minnesota to speak about “Complex Oxide materials: From Minerals to Next Generation Electronics.”





COS Staff members receive Dean's professional development grants

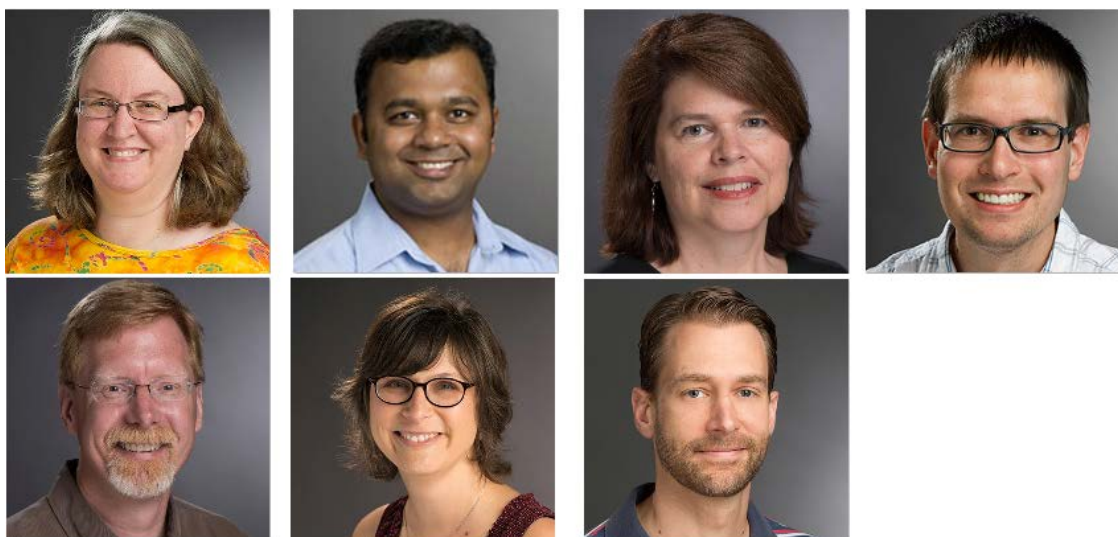
Six members of the College of Science staff applied for and were awarded Dean's Staff Professional Development Grants to enhance their professional skills. Congratulations to **Amanda Dolan**, GSoLS, **Jane McGowan**, SoPA, **Cheryl Merrell**, CIS, **Allison Healy**, GSoLS, **Jenn Santoru**, GSoLS, and **Melanie Warren**, CIS.



Lecturers' Professional Development Grant winners

announced

Sandra Connelly, GSoLS, **Fazal Abbas**, SMS, **Petko Kitanov**, SMS and **Aditya Yechan Gunja**, SoPA are among the winners of this year's Lecturers' Professional Development Grants sponsored by the Provost's office and Faculty Career Development. The grant project results will be shared with the campus community on the [Faculty Career Development website](#), and in other RIT publications. Recipients may also be invited to present on their projects at a faculty showcase next academic year. Congratulations all!



COS faculty featured in Provost Learning Innovations Grant (PLIG) Showcase

Several COS faculty members were featured in the Provost Learning Innovations Grant Showcase held at the University Gallery on November 15. Congratulations to them on their work and being chosen to have their innovations highlighted at the event:

- **Karl Korfmacher**, GSoLS and **Elizabeth Hane**, GSoLS, *Urban Ecology*
- **Bonnie Jacob**, NTID, **Jackie McClive**, NTID, **Carol Marchetti**, SMS, and **Jobby Jacob**, SMS, *Proof in Sign: Communication of Abstract Discrete Math Content to Students who use ASL*
- **Michael Murdoch**, PoCS, and **Susan Farnand**, PoCS, *Lab-Quality Instrumentation for Remote Students*
- **Benjamin Zwickl**, SoPA, *Creating a Flipped Lab Environment for University Physics 1*



First REU Bootcamp a success

Congratulations to **Kara Maki**, SMS, **Kate Wright**, GSoLS, and **Jeyhan Kartaltepe**, SoPA for organizing and running the first ever REU Bootcamp on November 8. There were 40 students in attendance to learn about the Research for Undergraduate Scholars summer program.



SCMS Head shares insights

On November 7, **Paul Craig**, Head of the School of Chemistry and Materials Science, was the invited speaker at the RADSCC (RIT ASL and Deaf Studies Community Center). His talk was entitled, "What I Have Learned from Working with Undergraduate Research Students."



MCAS Students Meet & Greet with COS Administrators

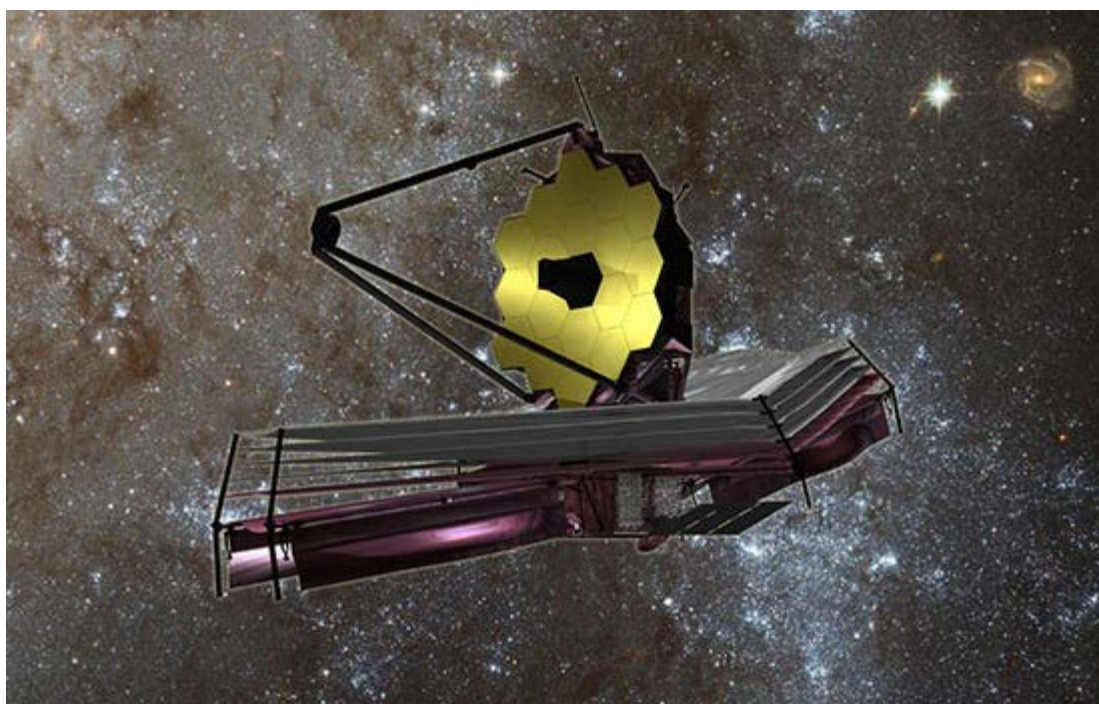
The Multicultural Center for Academic Success hosted a Meet & Greet for COS students and administrators on Wednesday, December 6. Students and faculty gathered in the Bruce & Nora James Atrium in Gosnell Hall for pizza and networking.



RIT collaboration recognized in Biogas award announcement

CH4 Biogas was honored to receive the Project of the Year award for Synergy Biogas. Facility performance was evaluated by Cornell University and found to be the most efficient digester in the state. CH4 and RIT conducted a microalgae study that successfully reduced phosphorus levels in land applied liquid and produced alternative feedstock for the digester. GSoLS professor, **Jeff Lodge** was the PI on the project.

University News



COS faculty will be among the first to utilize new telescope

SoPA assistant professor, **Jeyhan Kartaltepe** is part of a team that will be among the first group of researchers to get time with the new James Webb Space Telescope when it is launched in 2019. A total of 106 proposals requesting 3683.4 hours of observations were submitted in response to the DD ERS call. 13 Proposals for 460 hours were approved by the director. The team proposes to construct a data set exploring galaxy assembly and evolution that will be made available to the entire science community. The project will exercise JWST imagers and spectroscopy in ways that are important for future proposals.

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COS graduate students present award-winning presentations at 10th Annual Graduate Showcase

More than 100 Rochester Institute of Technology master's and Ph.D. students presented their latest research projects and creations at the 10th annual [Graduate Showcase](#) on Nov. 3. Hundreds of attendees had the opportunity to learn about the graduate students' cutting-edge findings on topics varying from cybersecurity to Paleolithic cave art. Twelve students were awarded for their outstanding oral presentations, and the top three poster presentations were recognized as well. Five College of Science graduate students delivered award winning presentations at the showcase:

- **Kevin Cooke**, ASTP-PHD, for *Tracing the Assembly of the Most Massive Galaxies in the Universe*.
- **Jordana O'Brien**, ACMTH-MS, for *A Mathematical Model of Fluid Flow in Evaporating Colloidal Droplets*.
- **Ryan Ford**, IMGS-PHD, for *Monitoring Cyanobacteria Blooms Using Satellite Imagery*.
- **Mandy Nevins**, IMGS-PHD, for *An Image Restoration Technique for Low Voltage Scanning Electron Microscopy*.
- **Yashashree Jadhav**, ASTP-PHD, for *The Quasar E1821+643:A*

Gravitationally Recoiling Blackhole or Super Wind?

Additionally, a paper co-authored by SCMS professor, **K.S.V. Santhanam** and lead-authored by KGCOE graduate student, Nuzhet Nihaar Nasir Ahamed entitled "A New Graphene Quantum Dot Sensor for Estimating an Antibiotic Concentration" was selected for the best paper presentation award in the category "Human Health." The paper was also accepted for presentation at the Materials Research Society meeting in Boston on November 28.

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RIT study suggests where to find massive black-hole mergers

The outskirts of spiral galaxies like our own could be crowded with colliding black holes of massive proportions and a prime location for scientists hunting the sources of gravitational waves, said researchers at Rochester Institute of Technology in an upcoming paper in *Astrophysical Journal Letters*. **Sukanya Chakrabarti**, SoPA assistant professor and **Richard O'Shaughnessy**, SMS assistant professor and member of the LIGO Scientific Collaboration are researchers at RIT's Center for Computational Relativity and Gravitation. The center is a hub of multimessenger astronomy research and home to the Frontiers in Gravitational Wave Astronomy initiative, an RIT signature research

area.

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First Women's Caucus launched as part of RIT Academic Senate

Carol Marchetti, SMS professor of statistics and coordinator of the RIT Women's Caucus, formally launched the caucus, a new campus advocacy organization, at the Nov. 16 Academic Senate meeting. She shared her vision for the caucus as one of advocacy and involvement. It will establish and promote Senate priorities, develop an agenda based on priority issues defined by the caucus such as student behavior in the classrooms of female faculty, and policies and procedures related to harassment and discrimination. The group will also host informational sessions and networking activities and encourage community and governance involvement.

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Newsmakers

[Seth Hubbard](#), SoPA associate professor and director of the NanoPower Research Laboratory, co-wrote an article, “Highlights of the 2017 IEEE Photovoltaic Specialists Conference,” in the October issue of the *IEEE Electron Devices Society Newsletter*, vol. 24, No. 4. Hubbard served as technical program chair of the event held in Washington, D.C., in June. The IEEE Photovoltaic Specialists Conference is the leading international meeting on photovoltaic science and technology.

[Why Google Doodle Marks Quantum Physicist Max Born's 135th Birthday](#)

Brian Koberlein, senior lecturer, physics, quoted, *Inverse*, Dec. 11 ([Link](#))

[RIT scientist to be among the first to use new Webb Telescope](#)

WXXI.org, Dec. 8 ([Link](#))

[Extreme radiation around small stars may not doom life nearby](#)

Jason Nordhaus, assistant professor of physics, quoted, *New Scientist*, Dec. 4 ([Link](#))

[A Russian Billionaire, Not NASA, May Uncover Alien Life](#)

Brian Koberlein, senior lecturer, physics, quoted, *Futurism*, Dec. 2 ([Link](#))

[Technology to the Rescue](#)

Jan van Aardt, professor, Chester F. Carlson Center for Imaging Science, cited, *Risk Management Magazine*, Dec. 1 ([Link](#))

[NASA Scientist Says We Need to Stop Worrying About the Apocalypse](#)

Brian Koberlein, senior lecturer, physics, quoted, *Futurism*, Dec. 1 ([Link](#))

[Two Stars Slammed Into Each Other And Solved Half Of Astronomy's Problems. What Comes Next?](#)

Richard O'Shaughnessy, associate professor, School of Mathematical Sciences, quoted, *FiveThirtyEight*, Nov. 14 ([Link](#))

[icitizen: It's like Facebook, but for politics. Seriously.](#)

Anthony Harkin, associate professor, School of Mathematical Sciences, featured, *Democrat and Chronicle*, Nov. 9 ([Link](#))

[Do black holes lurk on galaxy edges?](#)

Sukanya Chakrabarti, assistant professor of physics, and Richard O'Shaughnessy, assistant professor, School of Mathematical Sciences, quoted, *Sky at Night*, Nov. 1 ([Link](#))

[**Massive Earthquakes Could Be Linked to Tiny Changes in Earth's Molten Core**](#)

Brian Koberlein, senior lecturer of physics, quoted, *Newsweek*, Oct. 31 ([Link](#))

[**'Massive black holes may be lurking on edge of Milky Way'**](#)

Sukanya Chakrabarti, assistant professor of physics, and Richard O'Shaughnessy, assistant professor, School of Mathematical Sciences, quoted, *The Times of India*, Oct. 31 ([Link](#))

[**Here Be Monsters: Study Identifies Likely Location of Merging Black Hole Giants**](#)

Sukanya Chakrabarti, assistant professor of physics, quoted, *Space.com*, Oct. 31 ([Link](#))

Sponsored Research

Seth Hubbard, SoPA, is the PI on a \$45,251 grant from Magnolia Optical Technologies and USAF and a \$44,877 contract with Microlink and USAF to support the project titled, "Resonant-Cavity-Enhanced Quantum Well Multijunction Solar Cells."

John Kerekes, CIS, is the PI on a \$100,000 contract from Intelligent Automation, Inc. and the USAF to support the project titled, "Phenomenology and Modeling Support for Human View, Phase 2 SBIR."

Jeff Lodge, GSoLS, is the PI on a \$10,000 grant from the Pollution Institute in conjunction with BioSand Bag Filter LLC, to support the project titled, "Biofilm Growth Acceleration testing."

David Messinger, CIS, is the PI on a \$1,383,948.00 contract from the DOD National Reconnaissance Office along with key personnel from the Digital Imaging & Remote Sensing Lab: Charles Bachman, Emmett Ientillucci, John Kerekes & Carl Salvaggio. The contract will support the project titled, "LASS Research in Sensor and System Modeling."

Andrew Robinson, SoPA, is the PI on a \$55,333 grant from the Space Telescope Science Institute and NASA to support the project titled, "Monsters on the Move: Confirming gravitational wave recoiling supermassive black hole candidates."

Michael Zemcov, SoPA, is the PI on a \$33,036 contract from the Jet Propulsion Laboratory and NASA to support the project titled, "Concept Study Report Preparation for SPHEREx MIDEX Phase A."



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