



Dean's End of Year Bulletin

June 2013
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DEAN'S END OF THE ACADEMIC YEAR BULLETIN
July, 2013

I hope you are enjoying your summer!

This End of the Year Dean's Bulletin contains information and updates and highlights the successes of our students, faculty, and staff.

UPDATES

Results of the 2013-14 COS elections:

Academic Senate:	Jeff Lodge (2013-16)
	Hossein Shahmohamad (2013-16)
Academic Affairs Committee:	Raluca Felea (2013-15)
Faculty Affairs Committee:	Michael Radin (2013-15)
Eisenhart Selection Committee:	Larry Buckley (2013-15)
Student Affairs Committee:	Carol Marchetti (2013-15)

We have proposed a new degree offering to the Provost's Office, the **BS in Integrated Science**.

The College of Science, in conjunction with the Saunders College of Business and the B. Thomas Golisano College of Computing and Information Sciences, has proposed a new degree offering to the Provost's Office, the **MS in Computational Finance**.

Fourteen high school juniors in the Rochester area will work as science researchers through the *Chester F. Carlson Center for Imaging Science internship program* this summer. For seven weeks the students will work as full-time employees on research topics varying from space weather to ultrasound imaging. Sixty total applicants will undergo a rigorous selection process, including questions, an essay, recommendations, and interviews, but only the fourteen best students will earn this great opportunity.

Calendar Conversion: The advising plans (IAPs) for all our undergraduate students are successfully completed. Many thanks to our staff and advisors who worked very hard to complete this important task! Congratulations on a job well done!

COS Strategic Plan: We are in the process of implementing Phase I of our strategic plan which includes the following:

Ph.D. program in Mathematical Modeling: The concept paper for a new interdisciplinary Ph.D. program was reviewed by the RIT community and received positive comments. The

Provost endorsed the concept paper and gave us his approval to proceed with the development of the full proposal.

Space Audit and Space Plan: We conducted a thorough audit of the space we currently occupy. This was used along with our strategic plan to devise a three-year and a five-year space plan which was submitted to the Provost.

Center for Advancing Science Teaching, Learning and Education (CASTLE): We are getting ready to launch a new interdisciplinary center for advancing science and mathematics teaching, learning and education. The mission of this center will be to promote innovation in science and math education through discipline-based education research, scholarship of pedagogy, student-centered curricular reform, rigorous assessment, focused professional development, and through creating opportunities for collaboration among existing programs in the STEM colleges.

Materials Science and Engineering: We conducted an assessment of the strengths, weaknesses, opportunities and threats (SWOT analysis) of our Materials Science and Engineering programs. This analysis is going to be used by the Materials Science Steering Committee to draft a strategic plan which will help us to enhance and grow our materials science and engineering academic and research programs.

Undergraduate Research:

- We are running 2 NSF-funded REUs (Research Experience for Undergraduates) programs this summer; one in the Chester F. Carlson Center for Imaging Science and the other in the School of Mathematical Sciences.
- *Summer undergraduate research fellowships:* Supported 15 undergraduate research fellowships.
- *Weekly Undergraduate Research Seminar:* Supported Weekly Undergraduate Research Seminar to promote interdisciplinary collaboration. Faculty and students participated to listen to presentations given by students from all math and science programs.

Global Education: Our Task Force led by **Mike Kotlarchyk** has developed a plan that will guide us on how to participate in the institute's efforts to expand our global education initiatives through exchange programs, 2+2 programs, international co-ops and other opportunities. We will implement this plan in the upcoming year.

COS External Advisory Board: We held our second meeting of the year in April and had a very productive discussion on how to successfully implement our strategic plan.

Development Plan: We developed a prioritized *Case for Support* for our college titled, *The Campaign for 21st Century Sciences*. The development plan has been shared with the upper administration and we are in the process of implementing it.

CELEBRATING OUR SUCCESSES

Congratulations to all our faculty, staff, and students for their accomplishments, successes, and contributions to our college and institute. For more details and news releases, be sure to check out rit.edu/cos/in-the-news.

STUDENT SPOTLIGHT

Research & Fellowships:

Philip Salvaggio was invited into the *2013 National Science Foundation (NSF) Graduate Research Fellowship Program (GRFP)*. The Fellowship is funded for a maximum of three years and may be used for any three 12-month periods during the next five years. Philip will have access to many advantages through the GRFP such as international research collaboration opportunities, as well as a \$30,000 stipend for each Fellowship Year.

Kimberly Kolb of the Center for Detectors was able to receive funding for her research, "Single Photon Counting Detectors for NASA Astronomy Missions", over the 2013 – 2014 academic year through the *NASA Earth and Space Science Fellowship (NESSF)*. Hers was one of nine awards granted from a total of 114 astrophysics research applications.

This year we had a tie during the selection process for the *2012 - 2013 NYSG/AST Graduate Student Fellowship*. The award will be shared equally between **David Principe** and **Christine Trombley**, who will each receive a \$5000 stipend as well as up to \$2000 in support of their research projects, including travel, publication, and equipment expenses. The Fellowship is partly funded by a grant from the New York Space Grant Consortium, which is administered by Cornell University.

Scholarships & Awards:

Goldwater Scholars: The following students were named Goldwater Scholars:

Tessa DiDonato (School of Chemistry and Materials Science)

Bryan Ek (School of Mathematical Sciences)

John Wiley Jones Outstanding Students in Science: The following students were named John Wiley Jones Outstanding Students in Science:

Nicole Kinlock (School of Life Sciences)

Joy Snyder (School of Chemistry and Materials Science)
Benjamin Liu (School of Mathematical Sciences)
Hao Shi (School of Physics and Astronomy)
Christopher Lapszynski (Chester F. Carlson Center for Imaging Science)

Baldwin Memorial Scholars: The following students were named *Baldwin Memorial Scholars*:

Christina Catavero
Jeffrey "Nick" Fisk
Haeja Kessler
Marissa Masek
Gabriel Pendleton
Harshita Sood

Outstanding Undergraduate Scholars: Nine of our students are the recipients of the *Outstanding Undergraduate Scholars Award*. They all have completed over 125 quarter credit hours of study and have established a cumulative GPA of 3.85 or higher. They were also chosen based on demonstrated creativity, employment histories, student committees, civic activities, and independent research projects they completed.

Colin Axel
Michael Bayer
Rebecca Bailey
Samuel Kennedy
Haeja Kessler
Madolyn MacDonald
Marissa Masek
Lydia Perkins
Hao Shi

Imaging science Ph.D. student **Sanjit Maitra** received a travel grant from *IEEE International Geoscience and Remote Sensing Society* to attend their conference in Melbourne, Australia.

Another imaging science student, **Mohammed Yousef Hussien** won the *Best Student Paper award* at a Conference on Data Analysis hosted by SPIE, the international society for optics and photonics.

Environmental science student **Harshita Sood** and imaging science student **Rose Rustowicz** were both recipients of the *Alfred L. & Ruby C. Davis Leadership Award*. The College of Science was also represented among the 2013 RIT Leadership Award Scholarships

through biochemistry student **Jasmine Edwards**, who was among the winners of the 2013 *Frederick Douglass Memorial Scholarship*.

Recognition

At this year's *Academic Convocation*, imaging science student **Colin Axel** was selected to speak on behalf of the College of Science Undergraduates and imaging science Ph.D. student **Siddharth Khullar** was chosen to represent Graduate students. As delegates, both addressed the College of Science at its Commencement Ceremony.

FACULTY SPOTLIGHT

Research & Grants:

The following professors received *Grant Writers Bootcamp awards* from the Office of the Vice President for Research:

Feng Cui, GSOLS
Paul Wenger, SMS
John-David R. Rocha, SCMS
Nathan Eddingsaas, SCMS
Erin Ontiveros, CIS

A research team led by **Joel Kastner** won eight more days of observing time with the *Chandra X-ray satellite observatory* later this year to follow up their work in 2012 that surveyed and imaged nearly two dozen planetary nebulae. Their earlier work offered the most comprehensive X-ray survey to date for objects such as dying stars. The observations are part of the Chandra X-ray Survey of Planetary Nebulae (ChanPlaNS).

David Merritt submitted his proposal, "Dynamics of galactic nuclei" to the *Astrophysics Theory Program (ATP)* which was reviewed by a panel appointed by NASA. His proposal was one of only 28 selected for funding out of 181 total submissions.

Mathematics professors **Kara Maki** and **David Ross** are part of a grant that was awarded to the *Rochester Regional Optics, Photonics, and Imaging Accelerator (RRPA)* program. The entire \$2.6 million project involves funding from various agencies and companies that supports research at RIT and the University of Rochester. \$100,000 specifically will be given to Kara and David to continue Kara's tear film work with Bausch & Lomb to pioneer a new design methodology for contact lenses.

The National Science Foundation Major Research Instrumentation Program approved a proposal from physics professor **George Thurston** to acquire a Small-Angle X-Ray Scattering system for Biomaterials and Nanomaterials Research and Education.

Chemistry professor **Thomas Kim** studied how undergraduate biochemistry students at Michigan State University interpreted information from simple illustrations to highly detailed representations of biochemical concepts. He conducted his educational research at Michigan State's *Collaborative Research for Educational Assessment and Teaching Environments for Science, Technology, Engineering and Mathematics* institute where he received a fellowship and a \$40,000 stipend.

NASA awarded the **Center for Detectors** \$1.1 million to advance new large format infrared detectors. The Center is collaborating with Raytheon Vision Systems to design, fabricate, and test the hybrid detectors grown on silicon water substrates. The RIT-Raytheon detectors could help us further understand dark matter and dark energy, as well as help us find Earth-like exoplanets.

Dina Newman and **Harvey Pough**, from the Gosnell School of Life Sciences, won a *Provost's Learning Innovation Focus Grant for 2013*. This year, the grant supported funds for faculty who successfully used a flipped classroom model, which had students view a pre-recorded lecture and related content online prior to meeting in person. Classroom time was then used for discussion, problem solving, and other activities. Dina and Harvey's project was entitled, "Conversion of AP Scholars Introduction to Biology to a Cinematic Lecture Inverted Course."

Sandra Connelly and **Michael Long**, also from the Gosnell School of Life Sciences won a *Provost's Learning Innovation Exploration Grant* for their project, "D/W/F Rate: What is the problem?" The grant provides seed funding for a project that will investigate an innovative model of teaching that has potential to positively impact the student experience and learning at RIT.

Imaging science professor **David Messinger** and professor of electrical and microelectronic engineering **Eli Saber** were awarded two grants from the *Department of Defense*, totaling more than \$1.1 million to continue advancing technology to more effectively process and analyze high-resolution, remotely sensed images. Due to the rapid development of satellite and sensor technology, more images are being generated than researchers may process manually. David and Eli's technology will effectively distinguish objects, scale, complexity, and organization electronically.

Recognition:

Imaging science professor **Carl Salvaggio**, and his doctoral students, **David Nilosek** and **Katie**

Salvaggio (no relation) put a new spin on RIT's 28th Annual *Big Shot* at Cowboys Stadium in Arlington, TX. This year's version of the annual community photo project lit the stadium with flashlights and camera flashes. Salvaggio and his graduate students produced a three-dimensional reconstruction of the stadium based on these images, which they hope to continue for future Big Shots.

Sukanya Chakrabarti, a new hire in the School of Physics and Astronomy, is organizing an upcoming conference, *Probes of Dark Matter on Galaxy Scales 2013* sponsored by the American Astronomical Society. The conference, held July 14–19 in Monterey, CA, will feature leaders in the field to meet and discuss the mysteries of dark matter, which cannot be directly observed, only inferred by its gravitational effects on other objects. Sukanya also recently made an appearance on the new Weather Channel show, *Deadliest Space Weather*, where she talked about the biggest storm in the Solar System - Jupiter's Great Red Spot.

Carlos Lousto was elected a *Fellow of the American Physical Society*. The election is a way for peers to recognize outstanding contributions to physics and is limited to no more than one half of one percent of the membership. Carlos was elected for key contributions that tied perturbation theory and numerical relativity, along with contributing to understanding how to simulate binary black holes.

Mathematics professor **Kara Maki** is presenting a poster on her contact lens work at the *Indo-American Frontiers of Science Symposium*, which convenes in partnership with the U.S. National Academy of Sciences. The symposium is the Academy's premiere event for distinguished young scientists and participation is by invitation only.

Grover Swartzlander has been appointed the incoming editor-in-chief of the *Journal of the Optical Society of America B*. The international scientific publication of the Optical Society of America has been in print since 1917. It currently publishes approximately 450 papers per year on optical physics.

Jan van Aardt was invited to be a part of the *Neon Airborne Observation Platform waveform LiDAR Technical Working Group*. The group will assess current techniques for LiDAR and waveform digitizer instrument calibration and data validation, operational instrument testing, and product data formatting. They will then recommend a strategy for developing or implementing these techniques in regard to vegetation remote sensing.

Faculty members **Bruce Smith** and **John Schott** were both honored with inductions into the *Innovation Hall of Fame*:

Bruce Smith received all three of his imaging science degrees from RIT (BS '86, MS

'89, and Ph.D. '95). He was the third student ever at RIT to complete the requirements for the Ph.D. in imaging science. Since then he has held 27 patents in optics, microelectronics, and nanolithography, and has become the Director of RIT's Ph.D. program in microsystems engineering, a professor of electrical engineering, and part of the faculty for the graduate program in imaging science.

John Schott was the Frederick and Anna Wiedman Professor in the Chester F. Carlson Center for Imaging Science and was recently appointed a member of NASA's Landsat Science Team. Through this team and the U.S. Geological Survey, he will give input on using satellite data to monitor fresh and coastal waters. He also helped to create the imaging science program at RIT. His research has focused on solving problems related to imaging science and remote sensing. John Scott, after a tremendous year of accolades, also retired this past spring.

Awards:

Christina Goudreau was one of the recipients of the 2012-2013 *Eisenhart Award for Outstanding Teaching*. The selection process involved a laborious review by two committees, and it represents RIT's highest teaching award.

Seth Hubbard was one of two recipients of this year's *Trustees Scholarship Award*. The selection process involved an extensive examination by a committee within the College of Science as well as all of the deans. A final selection was made by the Education Committee of the RIT Board of Trustees.

Robert Teese received the *Provost's Innovative Teaching with Technology Award*. A selection committee considered a large number of highly qualified nominees and selected Robert after careful deliberation.

Christopher Collison was one of a handful of professors to receive the *Provost's Excellence in Faculty Mentoring Award*. There were many highly qualified nominees, but Christopher was picked by a selection committee after a thorough review.

EVENTS

The College of Science provided many successful booths at Imagine RIT! Among them was the nanomaterials booth, which was run by students and faculty in the **School of Chemistry and Materials Science**. Their hands-on demonstrations of futuristic materials, including memory metal, temperature-sensitive LCDs, and RIT-designed nanocomposites attracted everyone from young children to senior citizens. This was a follow-up to **NanoDays** at

the Rochester Museum and Science center, which RIT developed as our own contribution to the national NanoWeek celebration of all things tiny. That crowd experienced interactive exhibits such as a guess box demonstrating the principle of atomic microscopy, a solar powered fuel cell, and a memory metal spring.

Imagine RIT also featured *AstroDance*, a performance that tells the story of black holes and gravity through narration, imagery, film, and dance. Physics professor **Manuela Campanelli**, Insight Lab Director **Jake Noel-Storr**, and several other RIT artists and scientists worked to create this fascinating performance through funding by the National Science Foundation.

SPEAKERS

Tyrone B. Hayes, a professor in the department of integrative biology at the University of California, Berkeley gave the Spring John Wiley Jones Distinguished Lecture, titled "From Silent Spring to Silent Night: A Tale of Toads and Men." He discussed the negative health impacts of pesticides evident from the effects that the herbicide atrazine has on male amphibians.

Our Distinguished Alumnus, **Jon Roberts** '70 gave a widely attended talk, "WHO'D A THUNK IT? - Inventing and naming your brainchild." Jon, a senior partner with the Marbury Law Group who specializes in patent and clearance law, spoke about the process of inventing and naming products.

Many thanks to all of you for your contributions and dedication to our students and to your profession.

Have a great and productive summer!

Respectfully,



Sophia A. Maggelakis, Ph.D.
Dean of the College of Science
Professor of Mathematics