July 2014

RITSCIENCE

Dean's Summer Bulletin

I hope you are having a pleasant and productive summer, and I am looking forward to welcoming you back to the College of Science in the fall. The college made many exciting accomplishments in the spring semester, and I invite you to review these remarkable achievements.

Sincerely,

Dr. Sophia Maggelakis
Dean, RIT College of Science

Dean's Report

Strategic Plan: We completed the implementation of Phase I of the COS Strategic Plan, which approved in April 2012.

Undergraduate Research:

- We were awarded **three NSF-funded REUs** (Research Experience for Undergraduates) programs! This is a huge success for our institute and college.
- Summer undergraduate research fellowships: Supported through

fundraising twenty undergraduate research fellowships.
- We supported weekly undergraduate research seminars to promote interdisciplinary collaboration. Faculty and students participated to listen to presentations given by students from all math and science programs.

Online Learning: We formed a task force that developed a plan for our college and identified courses and programs that are good candidates to be offered online. We funded twelve faculty (by giving them summer stipend) to develop online courses and certificates that we can offer soon.

Inclusive and Global Education: We continue to encourage students and faculty to participate in study abroad programs. We formed a task force that developed a plan for our college and identified opportunities and programs for studying abroad. This plan was endorsed by our faculty and Jim Myers. We are now in the process of implementing the plan.

Women in Science: The Women in Science (WISe) program had a very successful year with many activities, invited speakers, panels featuring successful STEM professionals.

CASTLE: The college established the Center for Advancing Science/Math Teaching Learning and Evaluation, a continuation of recent COS initiatives in science and mathematics education. The mission of CASTLE is to improve science and math education and outreach initiatives at RIT and foster collaboration between science and math educators and education researchers.

New Programs: The following programs, which are part of our strategic plan, are under consideration:

- Ph.D. in Mathematical and Computational Modeling: We are working on the proposal
- Actuarial Sciences: We are waiting approval from NYSED to append this speciality onto our Applied Statistics degree.

Joint Programs in progress

- MS in Computational Finance (with SCB): the program was approved by NYSED and we have started recruiting.
- MS in Data Science (with GCCIS and KGCOE): We are working on the proposal.

Evaluating Teaching Effectiveness Plan: Our faculty approved our plan for evaluating teaching effectiveness. This plan will be used, in addition to the course evaluations, to evaluate teaching, and it will be in effect in September.

Advising: This was the first year we implemented our centralized COS Advising plan that was developed last year. I am pleased to report that it went very well.

Fundraising: We have identified opportunities and fund raising priorities for our college and have developed a prioritized *Case for Support*: *the Campaign for 21st Century Sciences*. I am pleased to report that we met and exceeded our goal for this year.

Retention: We have developed a set of recommendations and best practices to be used for improving retention that was successfully implemented. The grades were reviewed quarterly and instructors were asked to follow our recommendations for improving student success in those courses that were identified as problematic.

Faculty Searches: We conducted faculty searches to fill eight tenure-track lines.

COS Space Plan: We conducted a comprehensive space audit of the space allocated to our college in ten different RIT buildings. The resulting space audit and the COS space policy were used to assess our space needs and to find additional ways to most effectively utilize existing teaching, research, and office space. We still, however, have not addressed our growing space needs affecting our student and faculty recruitment.

Distinguished Lecture Series: We sponsored **four distinguished lectures** (http://www.rit.edu/cos/distinguished-speaker-series). All these lectures were well attended.

Updates

Applied Statistics strengthens focus on actuarial sciences

Pending state approval, the official name of the Applied Statistics BS program will change to Applied Statistics and Actuarial Sciences. Two actuarial-based courses have been added as requirements: Actuarial Mathematics and Topics in Mathematics of Finance. Upon completion, students will be well-prepared to take the first two preliminary exams offered by the Society of Actuaries and to take coursework to prepare for the third exam.

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Initiatives

Chemistry labs in Gosnell Hall renovated

Construction continues inside chemistry labs at Gosnell Hall. Two large labs were split into three, with modern systems and safety systems. The labs went live in February 2014 for general chemistry and will go live for analytical chemistry in the fall 2014.

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FACULTY SPOTLIGHTS

Celebrating Our Successes

Dr. Carl Lutzer is a 2014 winner of the Eisenhart Award for Outstanding Teaching

Dr. Lutzer's own collaborative research with RIT colleagues across disciplines and colleges tackles problems like mobile ad hoc communication networks, proteins in the human eye and how crowds flow. In his teaching, he illustrates examples of mathematical concepts to relate to students from different majors. He might draw upon cellular processes, beam bending or planetary orbits to connect to their interests. **MORE >**

RIT honors astrophysics researcher for outstanding scholarship

Dr. Manuella Campanelli, director of the Center for Computational Relativity and Gravitation is a winner of the 2014 **RIT Trustees Scholarship Award** recognizing outstanding research. Campanelli was recognized for breakthrough work on numerical relativity, the dynamics of black holes, and relativistic astrophysics.

RIT, NTID, and the NSF teams up to present dance describing the

physics of black holes

Dr. Campanelli, along with Drs. Yosef Zlochower and Warfield and performers at RIT and NTID, presented an interpretive dance project called "AstroDance," an astrophysics and dance public engagement program.
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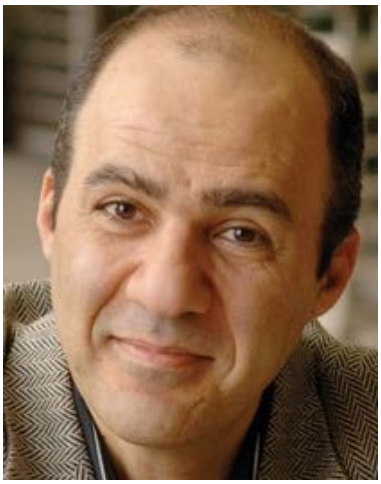
Shahmohamad receives Provost's mentoring award



Dr. Hossein Shahmohamad, of the School of Mathematical Sciences, was given a Provost's Excellence in Faculty Mentoring Award. The award recognizes an RIT faculty member who has provided outstanding support to non-tenured and tenure-track faculty members.

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Dr. Susan Farnand named to national post; and leads students to design camera rig for the Met

Susan Farnand, an assistant research scientist at RIT's Center for Imaging Science, was named the Society for Imaging Science and Technology's Vice President of Publications.
MORE >

Additionally, a group of RIT engineering students supervised by Dr. Farnand constructed a camera rig for the New York City Metropolitan Museum of Art to be used for art too big or too fragile to be moved for photography. **MORE >**

RIT scientists and alumni recognized for contributions to Landsat 8

Scientists and alumni from the Chester F. Carlson Center for Imaging Science were recognized as members of the Landsat Calibration/Validation team with the 2013 Robert H. Goddard Award for exceptional scientific achievement.

MORE >

RIT Science professors recognized as a "PI Millionaires"

Drs. Scott Franklin and Robert Teese of the School of Physics and Astronomy, along with Dr. Richard Hailstone and Joseph Hornak of the Chester F. Carlson Center for Imaging Science, were recognized as "PI Millionaires" at the annual Research at RIT awards ceremony. Dr. Franklin is also director of the Science and Mathematics Education Research Collaborative. The four RIT Science professors were among sixteen university-wide inducted into the group of PIs who have achieved funding of $1 million or more since 2000. **MORE >**

SMS faculty member obtains patent for "seeing" cardiac electrical waves

Dr. Niels Otani and collaborators Stefan Luther, Robert F. Gilmour, Jr., and Rupinder Singh, were awarded a United States patent for a new mathematical method for revealing electrical waves in ultrasound images of the heart.

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Dr. Cherry recognized as outstanding referee; elected to professional society office

Dr. Elizabeth Cherry was named an Outstanding Referee for journals published by the American Physical Society. Out of 60,000 currently active referees, only 143 were honored with this award. Dr. Cherry was also elected to a two-year term as Secretary of the Activity Group on Dynamical Systems for the Society for Industrial and Applied Mathematics.

MORE >

RIT leads collaboration effort between Western New York college math departments

Dr. Mihail Barbosu, head of the School of Mathematical Sciences, organized a workshop at Buffalo State College April 25â€“26 for the benefit of the leadership of college math departments throughout the region. The workshop included presentations from each department, sharing programs and strategies, as well as discussions on student recruitment and retention. A number of other SMS faculty members spoke on various research interests at the Seaway Meeting, including College of Science Dean Sophia Maggelakis.

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Paper questions assumptions about galaxy formation

A study published by Dr. David Merritt, of the RIT School of Physics and Astronomy, pokes holes in the current understanding of galaxy formation and questions the accepted model of the origin and evolution of the universe. Dr. Merritt's paper will appear in an upcoming issue of ***Monthly Notices of the Royal Astronomical Society.***

MORE >

STUDENT SPOTLIGHTS

Two from the RIT College of Science earn Goldwater Scholarships

Two undergraduate students in Rochester Institute of Technologyâ€™s College of Science have won awards from the Barry M. Goldwater Scholarship and Excellence in Education Program. Alexander Triassi and Taylor Barrett will receive $7,500 for their senior years at RIT. They were among 283 sophomores and juniors selected from 1,166 nominees. **MORE >**

Imaging science students awarded for deer alert system at Imagine RIT

First-year Ph.D. students in the Chester F. Carlson Center for Imaging Science built a long-range infrared dual camera system to warn drivers of deer in their vicinity.

The project, led by Dr. Roger Dube, won a "most creative" citation by Imagine RIT corporate partner Paychex. **MORE >**

Blake chosen to speak at 2014 Convocation

Kimbria Blake, a biochemistry major and winner of the 2014 Goldwater Research Scholarship, was selected to speak at the 2014 Convocation held May 23 at Gordon Field House. As Undergraduate Delegate for the College of Science, Blake also addressed fellow graduating seniors at the college commencement ceremony May 24. She joined Graduate Delegate, David Principe.

Imaging science student reports back from New Zealand following study abroad experience

Malachi Schultz finishes his third year in the Chester F. Carlson Center for Imaging Science, a year that included a five-month study abroad experience.

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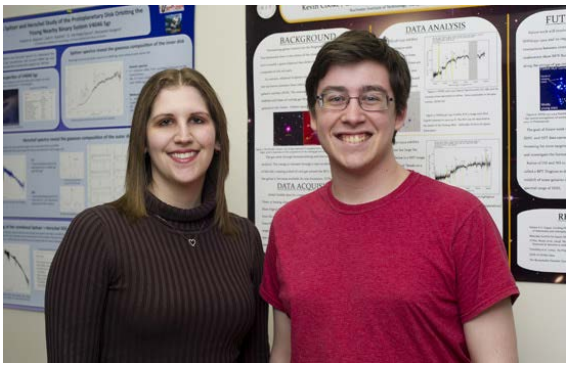
Astrophysical sciences and technology students

awarded for excellence



Kevin Cooke and Valerie Rapson, graduate students in the astrophysical sciences and technology program were recognized with **Chambliss Astronomy Achievement Student Awards** for their outstanding research posters at the 223rd American Astronomical Society meeting in Washington, D.C., in January. **MORE >**

Imaging science Ph.D. student promotes photonics funding on congressional visit

Imaging Science graduate student Amanda Ziemann participated in the National Photonics Initiative Congressional Visits Day in Washington, D.C., on May 9 to promote government funding and investment in photonics-driven technology. She represented the professional organization SPIE (the International Society for Optics and Photonics) in support of the **National Photonics Initiative**, an alliance of industry, academia and government. **MORE >**

RIT student presents renewable plastics at "Posters on the Hill" in Washington, D.C.

Laura Parisi capped her undergraduate career at the Posters on the Hill event in Washington,

D.C., April 28â€“29. Pictured here with Dr. Massoud Miri, professor of chemistry, and Rep. Louise Slaughter, Parisi was one of 60 undergraduate researchers selected from 600 applicants to present her project to the scientists and members of Congress attending the annual event, sponsored by the Council on Undergraduate Research. **MORE >**

Imaging Science Ph.D. student wins regional remote-sensing â€˜Student of the Yearâ€™ award

Imaging Science graduate student Javier Concha was named Student of the Year by the Central New York Region of the **American Society for Photogrammetry and Remote Sensing**. He was awarded a one-year society membership, a certificate and $250 at the annual meeting in Rochester on April 15. **MORE >**

RIT imaging science student wins â€˜best paperâ€™ at regional IEEE conference

A novel technique for detecting thyroid cancer presented by Saugata Sinha, an imaging science Ph.D. student, was the topic of the Best Student Paper award at the 2013 IEEE Western New York Image Processing Workshop.

MORE >

Events

RIT hosts regional ACS Symposium

The RIT School of Chemistry and Materials Science hosted the annual Undergraduate Symposium for the Rochester Section of the American Chemical Society. Dr. Michael Coleman was the symposium organizer. The event is hosted each year by one of the colleges or universities in Monroe, Orleans, Genesee, Livingston, Ontario, or Wayne counties.

MORE >

First applied mathematics competition held at RIT

Students from several Rochester-area high schools and universities competed in the first annual Applied Mathematics Competition held April 12 by the RIT School of Mathematical Sciences. Faculty members James Marengo, Anurag Agarwal, and Tamas Wiandt designed the questions to test students on different applied mathematics topics, such as optimizing the distance between phone towers and finding the percentage of light reflected or absorbed by panes of glass.

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Climate Change report leads to discussion series

Dr. Matt Hoffman, of the School of Mathematical Sciences, organized a series of five talks April 9 entitled "Conversations on Climate Change." Neil Leary, an editorial board member for several reports from the International Panel on Climate Change, was the keynote speaker.

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Speakers

Distinguished Alumni Speaker offers insights into race and prostate cancer

Dr. Rick Kittles, a 1989 RIT Science graduate, presented "The Epidemiology of Prostate Cancer: Genomic Insights" as part of the Distinguished Alumni series. Dr. Kittles is associate professor in the Department of Medicine and the Division of Epidemiology and Biostatistics at the UniverÂsity of Illinois, Chicago.
MORE >

Nuclear safety expert looks at international inspection processes as annual John Wiley Jones Distinguished Speaker

Dr. Arden Dougan, a nuclear safeguards program manager in the US Department of Defense, gave the annual College of Science John Wiley Jones presentation March 20. Her lecture covered the technology and processes inspectors use to ensure the safety of nuclear plants overseas.

MORE >

Human brain network dynamics is topic of Distinguished Speaker lecture

As part of the College of Science Distinguished Speaker Series, Dr. Danielle Bassett explored how neuroscientists are charting the ever-reconfiguring network structure of the human brain. Dr. Bassett is Skirkanich Assistant Professor of Innovation in the Department of Bioengineering at the University of Pennsylvania.

Alumni

AST doctoral graduate earns three-year post-doc fellowship at Yale

Dr. Grant Tremblay, one of the first Ph.D. graduates from the Astrophysics Science and Technology program, has been selected for one of the twelve Einstein Fellowships awarded in 2014. Dr. Tremblay has continued his collaborations with Drs. Christopher O'Dea and Stefi Baum at the headquarters of the European Southern Observatory (ESO) in Garching, Germany, where he holds an ESO Fellowship. Dr. Tremblay will take his three-year fellowship at Yale University working on the project, "Star Formation amid Kinetic Black Hole Feedback - The unified power of Chandra and ALMA." Dr. Tremblay's post-doctoral career **was profiled** by RIT University News in 2011.

Three AST graduate students share New York Space Grant Consortium fellowships

A $10,000 NYSG fellowship in astrophysical sciences and technology is being shared evenly between RIT graduate students Dennis Bowen, Ian Ruchlin and Dmitry Vorobiev. In addition to a $3,333 stipend, each student was also awarded $1,333 to support research projectsâ€”including travel, publication costs, and equipment.

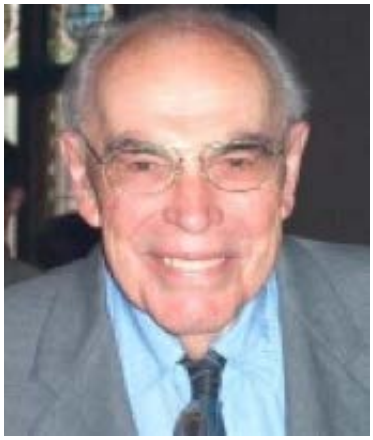
News Items

RIT sends large contingent to American Astronomical Society meeting

RIT sent twenty-one presentations by faculty, graduate students, undergraduates, alumni, and high school students to the 223rd Astronomical Society Meeting in Washington, D.C. January 5â€“9, 2014.

View list of presentations >

In Memoriam: Dr. Vladimir Vokanovic



Distinguished Professor Emeritus, Dr. Vladimir Vukanovic passed away January 29. Dr. Vukanovic concentrated on research in plasma chemistry, teaching, and developing a laboratory for plasma science. His research resulted in collaborations with Columbia University, Laboratory for Laser Energetics (University of Rochester), and IBM-Endicott.

From the **School of Mathematical Sciences Spring 2014 Newsletter**

Faculty and Staff Funding and Awards

- **Dennis Bowen:** New York Space Grant Fellowship 2014. Faculty mentor: **Carlos Lousto.**
- **Nathan D. Cahill and Marc Niethammer,** PIs: National Institutes of Health. Image-based Quantification and Analysis of Longitudinal Lung Nodule Deformation. August 2013â€“July 2015.
- **Elizabeth M. Cherry,** RIT PI: National Science Foundation. Next-Generation Model Checking and Abstract Interpretation With a Focus on Embedded Control and Systems Biology, September 2012â€“August 2014 (renewal).
- **Selene Chew:** RIT College of Science Summer Undergraduate

Research Fellowship. Juneâ€“August 2014. Project: Designing Graph Theoretical Algorithms for Understanding Medical and Remotely Sensed Images. Faculty mentor: **Nathan D. Cahill.**

- **Elizabeth Davis:** RIT Outstanding Undergraduate Scholarship Award.
- **Bryan Ek:** Honorable Mention for National Science Foundation Graduate Research Fellowship.
- **Oladayo Eluyefa:** RIT College of Science Summer Undergraduate Research Fellowship. Juneâ€“August 2014. Project: Rigorous Theoretical and Numerical Study of an Inverse Problem in a Blood Flow Model. Faculty mentor: Baasansuren Jadamba.
- **Clarissa C. Garvey, Nathan D. Cahill, et al.:** Top 10% Paper Award for the paper â€œNonrigid image registration with two-sided space-fractional partial differential equations,â€ presented at the 2013 IEEE International Conference on Image Processing.
- **Emily Holz:** SURF NIST Boulder for Summer Undergraduate Research Fellowship @ National Institute of Standards and Technology Boulder.
- **Brennan Ireland:** New York Space Grant Fellowship 2014. Faculty mentor: Manuela Campanelli. Brennan Ireland: Best Talk Award, RIT Graduate Research Symposium, April 2014. Faculty mentor: **Manuela Campanelli.**
- **Raphael Kahler:** RIT Outstanding Undergraduate Scholarship Award. Lea Michel (PI) and Kara Maki (co-PI): WISe Networking and Leadership Initiatives, RIT Connect Grant Program.
- **Paul Wenger:** Deanâ€™s Research Initiation Grant. October 2013â€“September 2014. Project: Seed Funding for the Multipartite Saturation Project.