

# R·I·T Science+Math

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**SUMMER IN REVIEW • JUNE/JULY 2016**

## Message from the Dean

I hope everyone is having a relaxing and productive summer. I would like to introduce you to our new "Month in Review" newsletter, a look back at recent faculty and student activity which we will send eleven times a year.

We are certainly proud of our colleagues at the Center for Computational Relativity and Gravitation, whose work with LIGO continues to attract headlines and funding. However, please also take note of our faculty members who are beginning work on science pedagogy, X-ray astronomy, and algae and renewable energy. We are especially proud of students like Taylor Wolf, a biochemistry major presenting research at the National Undergraduate Research Symposium held at the St. Jude Children's Research Hospital.



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

Please enjoy the sunny days of August. I look forward to seeing you again for the start of the fall semester.

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## In the News

### **Lousto and O'Shaughnessy create new method for identifying black holes**

Two researchers in the Center for Computational Relativity and Gravitation have developed a faster, more accurate way to assess gravitational wave signals and infer the astronomical sources that made them. [University News >](#)



### **Study, published in *Nature*, predicts a universe crowded with black holes**

The paper, co-authored by Richard O'Shaughnessy of RIT's Center for Computational Relativity and Gravitation and Krzysztof Belczynski of Warsaw University, presents one of the most complete models of matter in the universe and predicts hundreds of massive black hole mergers each year observable with the second generation of gravitational wave detectors. [University News >](#)



#### **Related Story**

- [The universe is crowded with black holes, astronomers predict](#)  
*Science Daily*, June 22

### **RIT and UW-Madison study high-tech workforce, 21st century competencies**

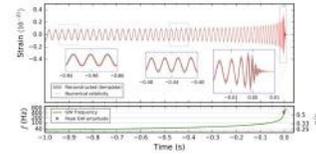
RIT will receive \$650,000 from the National Science Foundation to support its role in the project led by Ben Zwickl, assistant professor in RIT's School of Physics and Astronomy, and Kelly Martin, assistant professor in RIT's School of Communication. The study will identify how and when students and employees learn transferrable skills that are critical for success in school, life and work. [University News >](#)



## New gravitational waves observed from second pair of black holes

Gravitational waves from a second pair of colliding black holes has validated the landmark discovery from earlier this year that confirmed Einstein's general theory of relativity. RIT scientists contributed to the initial breakthrough and to the second discovery announced Wednesday by the Laser Interferometer Gravitational-wave Observatory.

[University News >](#)

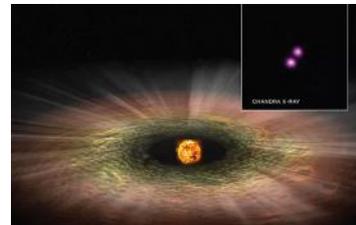


### Related Stories

- [Second gravitational wave discovery heralds 'astronomy of the 21st century'](#)  
Carlos Lousto, professor in School of Mathematical Sciences, quoted, *Christian Science Monitor*, June 15
- [It Wasn't a Fluke - Scientists See Black Holes Collide Again](#)  
Richard O'Shaughnessy, assistant professor in School of Mathematical Sciences, and John Whelan, associate professor in School of Mathematical Sciences, quoted, *NBC.com*, June 15
- [RIT gravity wave predictions further confirmed](#)  
*Democrat and Chronicle*, June 15

## Smaller stars pack big X-ray punch for developing planets

Young stars much less massive than the sun can unleash a torrent of X-ray radiation that can significantly shorten the lifetime of planet-forming disks surrounding these stars. This result comes from a new study of a group of nearby stars using data from NASA's Chandra X-ray Observatory and other telescopes. RIT astronomer Joel Kastner led the study. [University News >](#)



Kastner was recently awarded 4.5 days of observing time at the Chandra Observatory, his fourth "Chandra LP" award as a principal investigator. This award will allow his team to continue work characterizing and understanding the high-energy environments or planet-forming regions around the lowest-mass young stars.

## **RIT partners with Synergy Biogas to tap algae's 'green' power for cleaner water, biofuels**

Jeff Lodge, associate professor in RIT's Thomas Gosnell School of Life Sciences, is running a three-month pilot program at Synergy Biogas, a high-tech anaerobic digester located on Synergy Farms in Covington, N.Y, to grow microalgae on digested biomass. Microalgae will consume contaminants in wastewater and produce an algal biomass that Lodge will use as a feedstock for renewable energy.

[University News >](#)



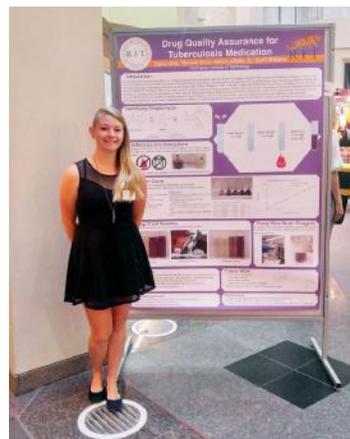
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## **July 2016**

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### **Biochemistry student presents method for counterfeit vaccine detection**

Taylor Wolf, a senior biochemistry major in RIT's College of Science, presented research this week at the National Undergraduate Research Symposium at the St. Jude Children's Research Hospital in Memphis. Her project aims to create a method to detect counterfeit tuberculosis vaccines. According to her faculty mentor, Scott Williams, counterfeit vaccines are a global problem that affect medications for tuberculosis, malaria, and other deadly diseases.



### **Chakrabarti to share dark matter research and Chabot Space and Science Center Aug. 5**

Chakrabarti, an assistant professor in RIT's School of Physics and Astronomy, will present "The Mystery of Dark Matter" at 8 p.m. on Aug. 5, as part of the center's popular First Friday lecture series in Oakland, California. Her talk will be open to the public.

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## **RIT scientists from LIGO group attend international general relativity conference**



Researchers from RIT's Center for Computational Relativity and Gravitation who attended the meeting at Columbia University from July 10-15 included Carlos Lousto and Yosef Zlochower, professor and associate professor, respectively, in RIT's School of Mathematical Sciences, and Brennan Ireland and Jam Sadiq, Ph.D. students in the astrophysical sciences and technology program. Ten RIT researchers and students are members of the LIGO collaboration.

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## **Unmanned Aircraft System project featured on radio and television**

WXXI news featured the drone photography project of Carl Salvaggio, professor in the Chester F. Carlson Center for Imaging Science. The radio and television news stories highlighted changes in

[WXXI >](#)



## **RIT/NTID celebrates growing number of Ph.D. candidates**

Four RIT/NTID students were enrolled in the Rochester Bridges to the Doctorate program that is helping to fill the gap that exists when it comes to deaf and hard-of-hearing students earning doctoral degrees in science disciplines. The program is in partnership with University of Rochester and funded by a grant from the National Institute for General Medical Science.

[University News >](#)



## **RIT awarded a total of \$1 million from NSF for gravitational-wave astronomy**

## Campanelli and Lousto win separate awards

Carlos Lousto and Manuela Campanelli, director of RIT's Center for Computational Relativity and Gravitation, won separate multi-year grants from the National Science Foundation worth \$600,000 and \$435,000, respectively.



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### Related Stories

- [Feds award RIT astronomy researchers \\$1M in funding](#)  
*The Associated Press*, July 1
- [RIT gets funds to research gravitational waves](#)  
*Democrat and Chronicle*, July 13
- [RIT gets grant to research gravitational waves](#)  
*Rochester Business Journal*, July 13

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## Newsmakers

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- [Sandra Connelly receives award for classroom accessibility](#)  
Sandra Connelly, assistant professor in the Thomas H. Gosnell School of Life Sciences, received the Brightspace Excellence Accessibility Award for developing a fully online general education biology course. The course was implemented through Brightspace to heighten student engagement, improve student time-on-task ratios, and decrease the time burden on instructors.
- [Moumita Das earns grants for biophysics research](#)  
Moumita Das, assistant professor of physics, was among six teams of researchers to win funding to probe the fundamental physical processes at the cellular level fundamental to all living organisms. Das was a member of two of the six research teams formed at a cross-disciplinary conference called [Scialog: Molecules Come to Life](#). The conference was sponsored by the Gordon and Betty Moore Foundation, the Research Corporation for Science Advancement, and the Simons Foundation.
- [RIT environmental science students participate in science museum green infrastructure project](#)  
Students working with Christy Tyler in the environmental science program are working with the Rochester Museum and Science Center on a \$1.4 million project to install rain gardens, porous pavement and retention basins.
- [Satellite Spies International Space Station Orbiting Earth](#)  
Michael Gartley, assistant research professor, Chester F. Carlson Center for Imaging Science, was

featured in *Scientific American*, July 5

- [7 ways photonics will change your life](#)  
Zoran Ninkov, associate professor, Chester F. Carlson Center for Imaging Science, mentioned, Democrat and Chronicle, June 24
- [Photonics to play a role in Starshot program](#)  
WROC-TV talked to Donald Figer, director of RIT's Center for Detectors, about how photonics will play a big role in the Starshot program, which aims to create a proof of concept for a “nanocraft,” a space probe that could be propelled into outer space by a light beam.
- [A Rare View of the Space Station From Above](#)  
Michael Gartley, assistant research professor, Chester F. Carlson Center for Imaging Science, mentioned, City Lab, June 24
- [Ancient Stars Unleashed a Space-Time Tsunami Felt on Earth](#)  
Richard O'Shaughnessy, assistant professor, School of Mathematical Sciences, quoted, National Geographic, June 22
- [RIT to offer doctorate in mathematical modeling in 2017](#)  
Henrietta Post, June 9
- [Connections: Monthly Science Roundtable - The Science Of Drought](#)  
Josh Goldowitz, professor of environmental sustainability, health and safety, and Matthew Hoffman, assistant professor in the School of Mathematical Sciences, featured at WXXI.org, June 6
- [Connections: The Strangest Star in the Galaxy](#)  
Brian Koberlein, senior lecturer of physics and astronomy, featured, WXXI.org, June 3
- **LaLonde voted onto Albion Central School Board**  
Steven LaLonde, director of the Applied Statistics graduate program, was elected to a five-year-term to the Albion Central School Board.
- [Scott Franklin quoted in Title IX gender equity act](#)  
Scott Franklin, professor of physics and director of the Center for Advancing STEM Teaching, Learning and Evaluation, was quoted in Representative Louise Slaughter's official press release announcing the Patsy Mink Gender Equity in Education Act.

