

Sigma Xi Today

A NEWSLETTER OF SIGMA XI, THE SCIENTIFIC RESEARCH HONOR SOCIETY

Support a Student: Be a Judge for the Student Research Showcase



Student Research SHOWCASE

What motivated you when you were a student? Who encouraged you to pursue your goals? What did they say to motivate you?

You can have a direct impact on high school, undergraduate, and graduate students' research careers by volunteering as a judge in the online 2018 Sigma Xi Student Research Showcase. From their homes or offices, judges will leave questions and comments on students' websites April 16–30, 2018. They judge when it fits into their schedule and collectively select division winners, who receive up to \$500 each.

Qualified Sigma Xi members can sign up as judges by completing the volunteer form at www.sigmaxi.org/volunteer. Nonstudent members are qualified if they have experience in the research field that they are judging.

Those who can't judge can still follow the competition and leave comments on participants' websites at www.sigmaxi.org/srs. The more constructive feedback students receive, the more they will learn. After judging ends, the public can vote for the People's Choice Award. The winner receives \$250.

From the President

Soft Skills

Sigma Xi's emphasis on honoring excellence in science and technology and promoting policies that ensure the health of the scientific enterprise is important, but that is not the sole emphasis of our mission. Nomination and election to membership in Sigma Xi is an important distinction for an individual who is off to a promising start in a scientific career. Looking more closely at what we have emphasized as an honor society, one can find resources focused on at least two other topics that are important to one's career: the importance of research communication and ethics in the scientific and engineering workplace.



Stuart L. Cooper

Communication with others in one's own profession as well as with society in general are equally important. Research communication, however, is often considered an optional activity to engage in if that is one's proclivity or if it leads to a desired professional destination, such as a career as a science journalist. Regardless of whether you are in an academic institution, a corporation, a government laboratory, or are an entrepreneur, the ability to write well, speak persuasively, and prepare content for internal talks or outside meetings is essential for success in your career. Now more than ever, those who have advanced to some recognition in their scientific endeavors should feel an obligation to communicate some of their knowledge to the general public. This includes interacting with students along the K–12 pipeline and reaching out to senior citizens who would appreciate your insights into the world around us. Sigma Xi regularly has workshops on research communication at its Annual Meetings and is also exploring a new initiative, Grants-in-Aid of Research Communications, to support the "science of science communications."

Individuals must also adhere to ethical responsibilities to avoid devastating consequences: Falsifying a curriculum vitae, plagiarizing part of a scientific article, or publishing fabricated or doctored data will derail a career. Sigma Xi has published several monographs about ethics in science that are available in electronic format. Most of our members likely belong to scientific or engineering societies or institutes that have published codes of ethics. Significant ethical violations can result in job loss. How we treat others in the workplace is also an important contemporary topic. Sexual harassment and attention to diversity and opportunity are important issues which one must be sensitive to as one's career advances.

Beyond what one learns in the classroom, there are norms that correlate to success in the real world. Research communication and ethics are among those that you and Sigma Xi should care about.

A handwritten signature in black ink that reads "Stuart L. Cooper". The signature is written in a cursive style.

Stuart L. Cooper

Bring a Distinguished Lecturer to Your Chapter

Apply by March 1 for financial assistance.

Sigma Xi chapters can bring lecturers who are on the leading edge of science to their area and receive financial support to do so. Chapters can apply for a subsidy to help cover the costs of hosting a distinguished lecturer. The application deadline is March 1, 2018, to receive funds in time for a lecturer visit between July 1, 2018, and June 30, 2019. Apply online at www.sigmaxi.org/programs/lectureships/chapter-subsidy.

The Committee on Lectureships decides which chapters receive the subsidy and gives priority to those that show evidence that the lecture will provide the greatest possible benefit. Committee members review the applying chapter's location, budget, institution size, and opportunity to co-

ordinate the visit with other chapters. The committee typically announces funding decisions in May.

The current cohort of lecturers can speak to a range of topics including how to build a sustainable future, improve diversity in research, understand the biology of HIV protein assemblies, or learn about space-time. See the list of 2018–2019 lecturers at www.sigmaxi.org/programs/lectureships/2018-2019-lecturers.

Distinguished lecturers are also featured in online talks that are free, interactive, open to the public, and moderated by *American Scientist* editors. The 2018 schedule will be available soon. Recordings of past talks are available at www.sigmaxi.org/programs/lectureships/previously-recorded-q-a-sessions.

Top Research Associations Form Alliance



Sigma Xi Chief Executive Officer Jamie L. Vernon, on left, and AAAS Chief Executive Officer Rush D. Holt signed an agreement to expand a partnership between the two organizations on January 9, 2018. The signing took place at the AAAS office in Washington, DC. (Photo courtesy of Stephen Waldron/AAAS.)

Two organizations, each with a history of supporting the scientific enterprise for more than 100 years, are building a partnership to promote, protect, and improve all aspects of science and engineering.

Sigma Xi, The Scientific Research Honor Society and the American Association for the Advancement of Science (AAAS) agreed on January

9, 2018, to explore ways to enrich opportunities for their members—such as promoting membership in each other's organizations, opening each other's programs to participation by both sets of members, and collaborating on publishing opportunities between AAAS's *Science* family of journals and Sigma Xi's *American Scientist* magazine—and to expand joint actions on policy issues relating to ethics, education, perception of science and evidence-based decision-making, and investment in science.

Sigma Xi, an affiliate organization of AAAS and a member of the AAAS Science and Human Rights Coalition, has a history of working with AAAS on critical legislative issues.

"Sigma Xi and AAAS have been working toward similar goals, mainly to strengthen the research community and to help the public benefit from science and engineering," said Jamie L. Vernon, Sigma Xi executive director and chief executive officer. "We can do more by sharing our resources, bringing our members together, and making science more relevant and accessible for all."

Stay in Touch with the Society

To get the most from your membership, Sigma Xi needs your up-to-date contact information. Updating your profile information is easy when you follow these steps.

1. Go to www.sigmaxi.org, and click "Login" in the top-right corner. If you haven't created a password, click "Forgot Your Password?" on the next screen. Then enter the email address that Sigma Xi currently has on file for you, and follow the steps to create a password.
2. Once logged in, click on your name in the top-right corner. Select "My Sigma Xi" from the drop-down menu.
3. On the My Sigma Xi page, under the Self-Service section, select "Update Profile Information."
4. Update your email address, phone number, chapter affiliation, and more. The Society prefers a nonwork and nonschool email address. Scroll to the bottom of the page and click the Submit button.
5. Return to the My Sigma Xi page, and select "Manage Addresses" to edit your mailing address.

A current mailing address ensures you receive *American Scientist*. A print subscription is included in active membership. Active members also receive an e-newsletter every other week and have access to Sigma Xi's online member community, The Lab: Members to Members.

Find Your Chapter

Visit www.sigmaxi.org to find a chapter near you. Select "Locate a Chapter" from the drop-down menu under "Chapters."

Sigma Xi Today is edited by Heather Thorstensen and designed by Justin Storms.

Sigma Xi Members Elected as 2017 AAAS Fellows

The American Association for the Advancement of Science (AAAS) Council elected the following Sigma Xi members among its 2017 Fellows in recognition of their contributions to innovation, education, and scientific leadership. The new Fellows were recognized on February 17 during the 2018 AAAS Annual Meeting in Austin, Texas. Congratulations!

Section on Agriculture, Food, and Renewable Resources

Sylvie M. Brouder, Purdue University
Changhui Peng, University of Quebec at Montreal (Canada)

Thomas Edward Spencer, University of Missouri, Columbia

Section on Anthropology

Marilyn A. Norconk, Kent State University
Michael E. Smith, Arizona State University

Section on Astronomy

Amy J. Barger, University of Wisconsin-Madison

Karen S. Bjorkman, University of Toledo
Steven Robert Federman, University of Toledo
Wilton Turner Sanders III, NASA (retired)

Section on Atmospheric and Hydrospheric Sciences

Christopher J. Poulsen, University of Michigan

Section on Biological Sciences

Craig W. Benkman, University of Wyoming
David A. Bernlohr, University of Minnesota
Adriana Darielle Mejía Briscoe, University of California, Irvine

Carla Eva Cáceres, University of Illinois, Urbana-Champaign

James J. Champoux, University of Washington
Sudhansu K. Dey, Cincinnati Children's Hospital Medical Center/University of Cincinnati

Andréa Geneviève Grottoli, The Ohio State University

Ashley T. Haase, University of Minnesota Medical School

Sally D. Hacker, Oregon State University

Iqbal Hamza, University of Maryland

Geoffrey E. Hill, Auburn University

Martha S. Hunter, University of Arizona

Robert B. Jackson, Stanford University

John L. Koprowski, University of Arizona

Ian Gregory Macara, Vanderbilt University

Lynn Bloxom "Marty" Martin II, University of South Florida

Randolph Martin Nesse, Arizona State University

Robert B. Petersen, Central Michigan University College of Medicine

Amanda D. Rodewald, Cornell University

Jason R. Rohr, University of South Florida

Ellen V. Rothenberg, California Institute of Technology

Thomas Dyer Seeley, Cornell University

Stephen M. Shuster, Northern Arizona University
Richard B. Simerly, Vanderbilt University School of Medicine

Jay F. Storz, University of Nebraska-Lincoln

Sharon M. Swartz, Brown University

Kathleen Kay Tresseder, University of California, Irvine

Lisette P. Waits, University of Idaho

Mark T. Wallace, Vanderbilt University

Susan S. Wallace, University of Vermont

Joshua S. Weitz, Georgia Institute of Technology

Wei Yan, University of Nevada, Reno School of Medicine

Section on Chemistry

Igor V. Alabugin, Florida State University

Marvin H. Caruthers, University of Colorado Boulder

Ronald C. Cohen, University of California, Berkeley

Sean M. Decatur, Kenyon College

Peter K. Dorhout, Kansas State University

Michael L. Gross, Washington University in St. Louis

Jeffrey B. Johnson, Hope College

Gerald F. Joyce, Salk Institute for Biological Studies/Genomics Institute of the Novartis Research Foundation

Susan M. Lunte, University of Kansas

Anne J. McNeil, University of Michigan

Kristopher McNeill, Swiss Federal Institute of Technology (Switzerland)

Qing-Xiang Amy Sang, Florida State University

Laura Smilowitz, Los Alamos National Laboratory

William Tumas, National Renewable Energy Laboratory

Marcey L. Waters, University of North Carolina at Chapel Hill

Winnie Kwai-Wah Wong-Ng, National Institute of Standards and Technology

Section on Education

David J. Asai, Howard Hughes Medical Institute

Roger H. Bruning, University of Nebraska-Lincoln

Lawrence K. Duffy, University of Alaska Fairbanks

Kristin P. Jenkins, BioQUEST Curriculum Consortium

Jennifer E. Lewis, University of South Florida

Section on Engineering

Steven James Battel, Battel Engineering

Rory Alan Cooper, University of Pittsburgh/U.S. Department of Veterans Affairs

Steven M. Cramer, Rensselaer Polytechnic Institute

Joseph J. Heible, Dartmouth College

Joyce Y. Wong, Boston University

Section on General Interest in Science and Engineering

Rosalind Reid, Council for the Advancement of Science Writing

Section on Geology and Geography

Dominique M. Bachelet, Oregon State University

Kari M. Cooper, University of California, Davis

Charles Thurston Driscoll, Jr., Syracuse University

Francisca E. Oboh-Ikuenobe, Missouri University of Science and Technology

John B. Rundle, University of California, Davis/
Santa Fe Institute/Jet Propulsion Laboratory/
Tohoku University (Japan)

Roger D. K. Thomas, Franklin and Marshall College

Section on History and Philosophy of Science

Ron Amundson, University of Hawaii at Hilo

David Benjamin Resnik, National Institute of Environmental Health Sciences/National Institutes of Health (NIH)

Janet D. Stemwedel, San Jose State University

Section on Information, Computing, and Communication

Andrew P. Bernat, Computing Research Association

H.V. Jagadish, University of Michigan

M. Tamer Özsu, University of Waterloo (Canada)

Paul S. Rosenbloom, University of Southern California

Peter J. Weinberger, Google, Inc.

Section on Medical Sciences

Kurt H. Albertine, University of Utah

Blossom Andrea Damania, University of North Carolina at Chapel Hill

Paula Grammas, University of Rhode Island

Otoniel Martínez-Maza, University of California, Los Angeles

Griffin Platt Rodgers, National Institute of Diabetes and Digestive and Kidney Diseases/NIH

Jayant P. Shenai, Monroe Carell Jr. Children's Hospital at Vanderbilt University

David Kendal Stevenson, Stanford University

Section on Neuroscience

Joshua A. Gordan, National Institute of Mental Health/NIH

Michael N. Lehman, University of Mississippi Medical Center

Richard J. Miller, Northwestern University Feinberg School of Medicine

Vladimir Parpura, University of Alabama at Birmingham

Daniel Tranel, University of Iowa

Section on Pharmaceutical Sciences

William H. Gerwick, Scripps Institution of Oceanography/University of California, San Diego

Patrick M. Woster, Medical University of South Carolina

Section on Physics

Todd Adams, Florida State University

Umesh Garg, University of Notre Dame

Michael P. Hickey, Embry-Riddle Aeronautical University

Marc Kamionkowski, Johns Hopkins University

Efstratios Manousakis, Florida State University

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Warren E. Pickett, University of California, Davis

Terry L. Schalk, University of California, Santa Cruz

Bobby G. Sumpter, Oak Ridge National Laboratory

Section on Psychology

Kimberly Andrews Espy, University of Arizona

Darlene V. Howard, Georgetown University

Diane M. Mackie, University of California, Santa Barbara

Lynn Twarog Singer, Case Western Reserve University

Michael J. Tarr, Carnegie Mellon University

Section on Societal Impacts of Science and Engineering

Roger Christianson, Southern Oregon University

Russell Moy, Southeastern Universities Research Association

Section on Statistics

Nicholas Jon Horton, Amherst College

Eric D. Kolaczyk, Boston University

Sigma Xi Awards Its First Climate Science Grant



Anna Knochel

A new chapter has begun for Sigma Xi's 96-year-old Grants-in-Aid of Research (GIAR) program. It has awarded its first grant from the program's new category of climate science. The award went to Anna Knochel, an undergraduate student at Rice University.

"More than anything, receiving this grant has helped solidify my confidence as a researcher," said Knochel. This is her first grant. She plans to graduate in 2019 with a bachelor's of science degree in ecology and evolutionary biology.

Under the guidance of her advisor, Sigma Xi member Adrienne M.S. Correa, PhD, in the Biosciences Department at Rice, Knochel will use the \$764 grant to investigate the role that viruses play in coral reef ecosystems, particularly in single-celled algae that live in coral tissues, *Symbiodinium* spp., and in a phenomenon known as coral bleaching. A coral turns white or pale when the symbiotic relationship between it and organisms that live in its tissue becomes stressed and the organisms leave, making the coral susceptible to disease. According to the National Oceanic and Atmospheric Administration, increased ocean temperature caused by climate change is the leading cause of coral bleaching.

"The plausible role that viruses play in the mechanism of coral bleaching, death, and recovery is crucial to understanding how reef community dynamics will shift in the near future," Knochel wrote in her grant proposal.

She will use her GIAR funds to purchase different genetic types of *Symbiodinium* and to learn techniques in transmission electron microscopy to observe signs of viral infection. Then she will expose thermosensitive and thermotolerant *Symbiodinium* to heat stress, observe their viral infection rate, and look at the viruses' potential influence on coral colony bleaching susceptibility.

"I am very proud to represent my laboratory and our research," Knochel said about becoming the first climate science GIAR awardee. "I am especially happy that this type of award is now available. Climate change is causing significant impacts globally, and this award category gives coral reefs and other impacted systems the attention they desperately need."

Correa, who had four students before Knochel receive GIAR awards, knows the grant will help her student in more ways than completing this research project.

"Sigma Xi's Grants-in-Aid of Research program has provided Anna with valuable experience in grant writing and pushed her to think deeply about her proposed experiments and their broader impacts," said Correa. "These funds will allow Anna to test additional coral microbial cultures for evidence of viral infection than she could have otherwise, giving her a better chance of publishing her work in a peer-reviewed scientific journal. Listing her prestigious award on her [curriculum vitae] will also help Anna demonstrate to potential PhD supervisors that she is a strong candidate for their graduate programs. I'm very excited for Anna that she has received this award, and extremely happy that Sigma Xi is taking a strong stance on the importance of climate science."

How to Get a Grant

Apply by March 15, 2018, at www.sigmaxi.org/programs/grants-in-aid.

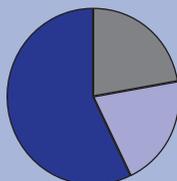
In the fall 2017 cycle, the program:



received 661 applications



awarded 121 grants totaling \$116,096



Awardees by education level

- 27 undergraduates
- 25 master's students
- 69 doctoral candidates