

# Sigma Xi Today

A NEWSLETTER OF SIGMA XI, THE SCIENTIFIC RESEARCH HONOR SOCIETY

## Join us in Raleigh

Sigma Xi invites science and engineering professionals and the public to attend its Symposium on Atmospheric Chemistry, Climate, and Health on November 10, 2017, at the Raleigh Convention Center in Raleigh, North Carolina, and its Student Research Conference, which will be held the following day.

The professional gathering will feature presentations by five top researchers that focus on the intersections between climate change, environmental health, and human health. It will also include a panel discussion about policies for sustainable solutions to problems posed by climate change. For more details, see the advertisement on the inside front cover of this issue.

### Scheduled Speakers:

- Barbara Finlayson-Pitts
- A. R. Ravishankara
- C. Arden Pope III
- David Archer
- Jeffrey Shaman

On November 11, the Student Research Conference will showcase a research poster presentation competition for high school, undergraduate, and graduate students across disciplines in the morning. The afternoon will feature professional development workshops and a networking event. Sigma Xi members are encouraged to attend the conference to serve as judges for poster presentations and to network with students. At the evening banquet, the poster session's top presenters will be recognized and an induction ceremony will be held to welcome new members of Sigma Xi. Students who rank as the top presenters in their division and research category will receive a monetary award and a free year of membership.

For details, see <https://www.sigmaxi.org/meetings-events/symposium-and-student-research-conference>.

## From the President

### Interesting Times

It is my great honor to have been elected to serve as president of Sigma Xi for the next year. Interestingly, my year seems to be coincident with significant stress in the science and technology communities. The health of the research enterprise, in terms of federal research funding, is fragile. The professional well-being of researchers is of prime importance to Sigma Xi. Our organization must help make the case that our future as a nation depends significantly on a vibrant scientific enterprise at universities and national laboratories, and in industry. An example of Sigma Xi in action on this topic is that we, along with other scientific societies, supported and participated in the March for Science on April 22. It was heartening to see the hundreds of thousands of individuals who came out for this event in Washington, DC, as well as in many other cities in this country and abroad. I hope that the messages the marchers conveyed—regarding the need for protection of the scientific enterprise, the value of research, and the importance of fact-based decision-making on a whole host of societal initiatives—were heard.

Sigma Xi has a role to play in promoting public understanding of science and technology and in supporting the infrastructure that is educating the youth of our nation. K–12 education in science and technology needs to be supported and improved to provide the next generation of knowledgeable citizens. Sigma Xi resources such as the Student Research Showcase, the *Chronicle of The New Researcher*, and the newly established category of Sigma Xi Explorers can provide the excitement to draw in those students who will be our future scientists and engineers. All of these initiatives are facilitated from the ground up by having a robust and active network of local chapters. Support of our local chapters is vital, and by reaching out to find local leadership, we will continue our efforts to rejuvenate those chapters that have become inactive over the years.

Finally, I would like to report on a project I worked on during my year as president-elect. In 2017, we are having a shortened fall meeting, and this will allow time to conduct an interesting experiment by coupling a Science Symposium with our Student Research Conference. We were able to organize a one-day symposium on Atmospheric Chemistry, Climate, and Health, which will be held on Friday, November 10, in the Raleigh Convention Center. The Student Research Conference will be held the next day, on Saturday, November 11. For the symposium, we have lined up five outstanding researchers in the field, and we expect to have significant attendance both by scientists in the region and by the students who will be participating in the Saturday activities. See the article to the left of this page for more information. There is much going on at Sigma Xi. Join us and find companionship.



President Stuart L. Cooper

Stuart L. Cooper

## New Executive Director and CEO Named



Sigma Xi has selected Jamie L. Vernon as its next executive director and chief executive officer. His appointment will begin on July 1, 2017. Vernon, who is a Sigma Xi member, has been on the So-

ciety's staff since 2014 as the director of science communications and publications as well as editor-in-chief of *American Scientist*. Vernon also served as interim co-director of operations of Sigma Xi from 2014–2015, working closely with co-director Jasmine Shah and Sigma Xi's executive committee to manage the headquarters budget and operations following the departure of the previous executive director.

Vernon will fill the position currently held by John C. Nemeth, who has served as interim executive director and CEO since October 2015. Historically, the role also involves serving as publisher for *American Scientist*.

Vernon earned his bachelor of science degree in zoology at North Carolina State University, a master of science degree in molecular biology/biotechnology at East Carolina University, and a doctor of philosophy degree in cell and

molecular biology at The University of Texas at Austin.

"All of us at Sigma Xi welcome Dr. Vernon as executive director and CEO of the Society," said Tee L. Guidotti, who was Sigma Xi president at the time of the appointment and who oversaw the search committee. "He is a distinguished public scientist, an accomplished and innovative communicator, and a consummate ambassador who will nurture and protect the health and integrity of the research enterprise."

"Sigma Xi is an international leader in recognizing excellence in scientific research, promoting ethical conduct of science, and translating that research so the public can use it to improve their lives," Vernon said. "I look forward to advancing these efforts by growing our community of members and strengthening the Society's relationship with the public."

## New Leadership Elected

Congratulations to the following Sigma Xi members who were elected to leadership positions on December 14, 2016, by their fellow members. They are listed below with their Sigma Xi chapter affiliation. Thank you to all of the candidates who volunteered to be in the election.

### President-Elect

**Joel R. Primack**, *University of California-Santa Cruz*, will serve a three-year term. He will be Sigma Xi's president-elect from July 1, 2017, to June 30, 2018, and president from July 1, 2018, to June 30, 2019. Then, he will serve as past president from July 1, 2019, to June 30, 2020.

### Treasurer

**David W. Baker**, *Colorado School of Mines*, has served as treasurer since December 14, 2016. His term runs through June 30, 2018.

### Directors

These directors will serve three years, beginning July 1, 2017.

**Membership-at-Large Constituency**  
**Vijay Kowtha**, Membership-at-Large

### Research and Doctoral Universities Constituency

**Tammy Maldonado**, *University of Colorado*

### Mid-Atlantic Region

**Frank Dane**, *Hollins University*

### Northeast Region

**Eugene Santos**, *Dartmouth College*

### Southeast Region

**Richard Watkins**, *University of North Carolina at Chapel Hill*, Term: December 14, 2016, through June 30, 2018

### Associate Directors

These associate directors will serve three-year terms, beginning July 1, 2017.

### Area Industries, State, and Federal Laboratory Constituency

**HollyAnn Harris**, *Omaha*

### Comprehensive Colleges & Universities Constituency

**Tieli (Tilly) Wang**, *California State University - Dominguez Hills*

### Research and Doctoral Universities Constituency

**Anthony Lupo**, *University of Missouri*, Term: December 14, 2016,

through June 30, 2018

### Northwest Region

**Kristen A. Mitchell**, *Boise State University*

### Southeast Region

**Lori Eckhardt**, *Auburn University*

### Committee on Nominations

The following elected committee members will serve three-year terms, which began at the conclusion of the election in December 2016.

### Canadian/International Constituency Representative

**Anna Elizabeth Sienko**, *University of Calgary*

### Mid-Atlantic Regional Representative

**Uvetta Dozier**, *Howard University*, Term: December 2016 to November 2018

### North Central Regional Representative

**Nicholas Ziats**, *Case Western Reserve University*

### Southwest Regional Representative

**Hayriye Merve Yurdacan**, *University of Southern California*

## Results of the 2017 Student Research Showcase

One hundred and sixteen science and engineering students from high schools, colleges, and universities around the world gathered online in early April in hopes of being determined to have the best research project and the best science communication skills. They were there to compete in the fifth annual Student Research Showcase run by Sigma Xi, The Scientific Research Honor Society.

Students enter the competition by creating a website that contains a slideshow, a research abstract, and a video. Each component challenges students to communicate their research findings to different audiences. For example, the slideshow is intended for an audience with a technical background, whereas the video targets a broader audience.

Approximately 60 Sigma Xi members volunteered to judge the websites from April 3 through April

10. Judges assessed the quality of the project's scientific thought and method. They also critiqued how well the students did the following things: communicated enthusiasm for their projects; explained the significance of their research; used text, charts, and diagrams; and responded to questions.

Judges picked top presenters in the high school, undergraduate, and

graduate divisions. Division winners received a \$500 award from Sigma Xi. Judges also picked top presenters in each of the research subject areas.

All participants received a certificate. High school participants were invited to submit a research manuscript to *Chronicle of The New Researcher*, which is Sigma Xi's journal for precollegiate research in science, technology, engineering, and mathematics.

### 2017 Division Winners

#### High School Division

**Improving Nitration Activity of Fused TxtE-CYP102AI Reductase Domain by Optimizing the Linker Length**

Padmavathi Reddy, American Heritage High School

Section: Cell Biology and Biochemistry

#### Undergraduate Division

**Protein Expression in T-Cell Acute**

#### Lymphoblastic Leukemia

Amanda Baskfield, Ball State University  
Section: Microbiology and Molecular Biology

#### Graduate Division

**FeverPhone: Point of Care Diagnosis of Acute Febrile Illness using a Mobile Device**

Xiangkun (Elvis) Cao, Cornell University  
Section: Engineering

## San Diego March for Science Celebrates Outreach



Rain or shine, the March for Science headlined Earth Day celebrations across the world, welcoming throngs of scientists, science enthusiasts, and concerned citizens to advance science and promote benefits of scientific research. Sigma Xi proved its commitment to the cause by being the first science organization to partner with the global event, sending staff delegates to the signature march in Washington, DC. To aid in the efforts of the more than 600 satellite marches across the world, Sigma Xi also served

as a fiscal sponsor for the New York City, Columbus, Chicago, San Francisco and San Diego marches, managing donations taken in by organizers.

Planners with the San Diego march saw the crowds of nearly 15,000 at its science outreach gathering. Robert Cooper, a quantitative biology post-doc at the University of San Diego and a Sigma Xi member, noted his city's march welcomed participants of all ages and backgrounds, "probably mostly people whose job titles didn't include 'scientist.'" He and his fellow advocates championed the benefits of scientific research and its role in society.

He noted that his city's science expo at the end of the march was completely crowdsourced, that the community's passion for science inspired a multitude of science exhibitors, ranging from museums to biotechs to research institutions to entrepreneurs to science outreach groups to individual scientists to a craft brewery.

"People want to be closer to science in their everyday lives, and scientists are excited, and maybe a bit pleasantly surprised, to see how interested

the public is in supporting science and knowing more about what we do," said Cooper.

He believes the next steps involve connecting all people with science "no matter who they are, what they do, or where they live." He suspects the reason people came to the march "was the desire to stand up for the values that knowing is better than not knowing, evidence is better than making things up, and investing in the future must include science."

"I think most importantly, we need to point out to people how they are scientists, too," said Cooper. "Science isn't just something that belongs in an ivory tower; it's a way of learning and problem solving and finding inspiration in understanding how things work. Anyone can think scientifically. It doesn't take a job title; it just takes curiosity, an open mind, testing your ideas, and willingness to base your conclusions on the evidence."

Sigma Xi Today is  
edited by Lisa Mumma  
and designed by Justin Storms

## American Scientist Launches Website Redesign

*American Scientist* magazine announces the launch of its redesigned website. *American Scientist* and Sigma Xi staff partnered with Systems Solutions Incorporated and Advontemedia to design and build the new site to be mobile-friendly, so users may comfortably view it on smartphones and tablets as well as computer monitors. The design also improves the reader experience, and the digital versatility allows for image and video integration. The original URL, <http://www.americanscientist.org>, has not changed.

"A third of our users already were coming to the site on mobile devices, so we particularly focused on making the new site mobile-friendly," said Robert Frederick, digital managing editor of *American Scientist* Online, who served as project manager alongside Sigma Xi's IT Manager Michael Pavlot, who led technical efforts. "In the future, we anticipate even more people will be using mobile devices to access the Internet, so we wanted to serve up the research on [AmericanScientist.org](http://AmericanScientist.org) in the most mobile-friendly way."

This project has included converting all of the articles to take advantage of that new mobile-friendly format. "That's an

enormous task because it involves literally thousands of articles, each with multiple images, graphs, captions, pull quotes, and links between them," said Frederick. "So we decided to go live with just the past five years' worth of content—going back to January 2012."

The current year's content is formatted for the new site, showing off all the features of the innovative design. Frederick noted that in the coming months, more back issues will be reformatted and made available on the new website. Archives of *American Scientist* and its predecessor *Sigma Xi Quarterly*—including all issues published from 1913 through 2011—are available on JSTOR: <http://www.jstor.org/journal/amerscie>, so readers who may need an old magazine article or issue in the meantime can still retrieve the content.

Jamie Vernon, editor-in-chief of *American Scientist*, led the development of the website concept with input from the Sigma Xi team and the magazine's readers. He considers the new design to be a long overdue improvement for the magazine, one that strategically meets goals for its audiences and partners. He added the revamped site offers relative content based on visitor preferences, such as engineer-

ing versus ethics, cartoons versus articles, online exclusives versus issue-specific content.

Vernon noted that the redesigned site also capitalizes on organic content discovery via social media and shared links.

"Our online magazine's new look should especially appeal to more digitally savvy audiences," said Vernon. "Once readers arrive at the new site, often after following a link shared in social media, they can find similarly appealing content quickly, whether by type [videos, podcasts, features, blogs, book reviews, and the like] or by topic [astronomy, engineering, biology, and so on]. Additionally, they'll be able to share easily using tools embedded in the platform. It's eminently searchable and shareable."

The site redesign aligns technologically and visually through customization, which heightens the reader experience with content discovery and presentation at a minimum, said Frederick. "We've designed the site to host new formats, what we're calling 'digital features,' which will add new dimensions to the users' experience—audio, video, yes, but also interactivity—that just aren't possible in print or on the old website."

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APPLY BY

OCTOBER 1, 2017



GRANTS-IN-AID  
OF RESEARCH

S I G M A X I

Sigma Xi, The Scientific Research Honor Society's Grants-in-Aid of Research (GIAR) program provides funding to undergraduate and graduate students in science and engineering.

By encouraging close working relationships between students and mentors, the program promotes scientific excellence and achievement through hands-on learning. Undergraduate and graduate students currently enrolled in degree seeking programs may apply.

Online application: <https://www.sigmaxi.org/programs/grants-in-aid/apply>

