

New Member Welcome

Here at Sigma Xi Center, we would like to take this opportunity to recognize and welcome all of our new initiates and members.

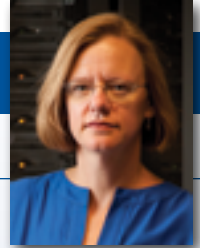
To borrow from our outgoing President, Michael Crosby, “Sigma Xi is an honor society of leading research scientists and engineers focused on improving the human condition. It has become clearer and clearer that that goal is rarely accomplished by the lone researcher.” You are now an important part of our mission to celebrate interdisciplinary research in all its forms. Please take the time to consider nominating other colleagues, students and friends for membership with us.

We also hope you’ll take a moment to explore the many opportunities, both in your local area and world-wide, to get more involved in all Sigma Xi has to offer. There are leadership opportunities available throughout the year, including both Board appointments and committee work. Also, if you are a new member, plan to pursue new studies and/or begin your career in a new location, please let us know your new contact information by e-mailing us at memberinfo@sigmaxi.org.

Again, thank you for your membership. You are the future of science and engineering, and we are so pleased to begin serving you, no matter where you may be in your career. •



From the President



Welcome to our next 125 years

I am thrilled to become President of Sigma Xi as we move into our next 125 years. Many of you have just become members, and I hope you appreciate the long and distinguished history of which you have become part. We hope that you will be active members of our Society, bringing us your ideas and being our zealous companions. We also hope you will share the honor of membership with your colleagues and students in the years to come.

Though we have a long and distinguished history, I am most interested in our future. The world, and thus the research we do and how we do it, has changed dramatically even just in the last decade. The advent of new communications tools and new technologies has enabled us to connect with and collaborate with more people than ever. It’s a very exciting time!

It is also a time during which we must adapt and change. As we move into our next 125 years, we will need to adapt our Society to keep it valuable and relevant to the most important people—you, our members. This has already been happening, with new election processes that include a voice for each and every member of the Society. I hope you are part of electing the leaders who will shape our future.

Other changes are also personal and evident to you—the very magazine you are reading is undergoing transitions. As new ways of interacting with information become commonplace, it’s natural and desirable to adapt *American Scientist* to take advantage of them. I look forward to when I receive the magazine on my tablet and can zoom in to images, rotate graphics, listen to authors speak in their own voice, and click through to get more information on a topic. All of these things are possible now and we are working to develop a robust interactive magazine to deliver to you. I am sure that many more changes will happen that I can’t even imagine right now—again, it’s a very exciting time!

We will take our time to get to the vision of a fully interactive magazine, making sure it reflects the quality and value that you, our members, deserve. I am sure some of our members don’t want to see the print edition change—which is why print subscriptions are still available. I am equally certain that our newest and youngest members are looking forward to a mobile *American Scientist* that they can interact with and personally adapt to the way they best get information.

Another change to take advantage of new technologies will happen this fall—our Annual Assembly of Delegates to handle the business necessary for the Society will be held by electronic means. In addition to a cost savings for the Society, this is also a more sustainable model than everyone traveling to a single location to meet. I will definitely miss seeing you all in person, but I am also excited to preside over our first electronic Assembly. This doesn’t mean we will never meet in person, but the ability to also meet electronically gives us new and unprecedented flexibility in our governance. It is my hope that we will continue to adopt changes that enable agility and the ability to use new technologies to full advantage as they become available.

Thank you all for your warm welcome of me as your new President. In turn I offer my heartfelt welcome to all of you who have recently been elected to membership—I hope you will find as much value in your membership in Sigma Xi as I have.

Kelly O. Sullivan

Sigma Xi at the USA Science Festival in Washington, D.C.

Sigma Xi joined more than 500 exhibitors at the 2012 USA Science and Engineering Festival www.usasciencefestival.org in Washington, D.C. on April 27-29. Aimed at encouraging children from kindergarten through high school to consider science and engineering as a career, the Festival attracted nearly 200,000 attendees.

Inspired by the engineer turned artist, Alexander Calder, the Sigma Xi



exhibit featured mobile sculptures as a means to show the Science in Art. Staff members Kevin Bowen (Grants and Awards Program Manager) and Katie Lord (Director of Development) represented Sigma Xi and remarked on the enthusiasm of an enormous number of attendees. More information on the Sigma Xi Exhibit can be found online at: www.sigmaxi.org/programs/education/usase2012.shtml. •

Sigma Xi Awards at Intel International Science and Engineering Fair

Sigma Xi presented special awards for the best demonstration of interdisciplinary research at the 2012 Intel International Science and Engineering Fair (ISEF) in Pittsburgh in May 2012.

The First Place Award of \$2,500 went to the team of **Caroline Jacqueline Shouraboura** and **Shanthy Shanmugam** of Bellevue, Washington, for their project "Optimal Allocation of Global Constrained Resources Using the Hyperbolic Voronoi Diagram." This team also received the first place award from Mu Alpha Theta, a national high school and two-year college mathematics honor society.

The Second Place Award of \$1,500 was presented to **Kevin Anh Nguyen** and **Punya Chittajallu** of Plano, Texas for their project "The Development of Novel Sutures

that Store and Deliver Nitric Oxide for Wound Healing." In addition, this team won the first place award from the American Chemical Society.

The recipients of our Third Place Award of \$1,000 were **Tzu-Hsuan Su** and **Kuang-Ming Shang** of Taipei City, Chinese Taipei. Their project was titled "Novel Bioactivities and Mechanistic Insights of the Medicinal Fungus *Antrodia cinnamomea* against Human Breast Cancer Cells." They also received an award from the American Association of Pharmaceutical Scientists.

Sigma Xi member and high school sophomore, **Samantha Marie Marquez**, Virginia, was also recognized for her outstanding achievements in science at the 2012 Intel ISEF. Marquez received first place for her project "A New Frontier in Biomedical Engineering: Ex-situ Bioengineering of Hepato- and Neuro-Celoidosomes™."

This year 1,549 young innovators, scientists, and entrepreneurs competed in the world's largest high school science research competition. The finalists were selected from 446 fairs in 68 countries, regions and territories. •



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Thanks to the University of Cincinnati

Sigma Xi would like to thank the administrators of the University of Cincinnati for their support of our Sigma Xi Chapter at their university. Jerry Baker, Executive Director of Sigma Xi, met recently with pharmacology professor Ron Millard, Sigma Xi Treasurer and immediate past president of the university chapter, and Santa Ono, Senior Vice President for Academic Affairs and Provost, to discuss STEM and other Sigma Xi education initiatives.

Sigma Xi encourages other chapters to become similarly connected with their campus administrators as they can lend a helping hand in spreading the news arising from discoveries and advances in science and engineering as the basis for increased funding for new STEM initiatives. •

NAS Elects 24 Sigma Xi Members

This spring twenty-four Sigma Xi members were among the 84 new members and 21 foreign associates elected to the National Academy of Sciences (NAS) in recognition of their distinguished achievements in original research. This was the largest class in the history of the academy. This year also marked an increase in women inductees, a growing trend in our industry.

The NAS is a non-profit society of scientists and engineers committed to the furtherance of science and technology and its use for the general welfare. NAS was established in 1863 by a congressional act of incorporation signed by President Lincoln that calls upon the Academy to act as an official liaison to the federal government, upon request, in any matter of science and technology.

Newly elected Sigma Xi members and their affiliations at the time of the election are:

John B. Bell (SX 1975), senior staff scientist and group leader, Center for Computational Sciences and Engineering, E.O. Lawrence Berkeley National Laboratory

Randolph Blake (SX 1969), Centennial Professor, department of psychology, Vanderbilt University

Nancy Bonini (SX 1986), investigator, Howard Hughes Medical Institute, and Lucille B. Williams Professor of Biology, department of biology, University of Pennsylvania

Susan L. Brantley (SX 1997), Distinguished Professor of Geosciences, Earth and Environmental Systems Institute, Pennsylvania State University

Pablo G. Debenedetti (SX 1981), Class of 1950 Professor in Engineering and Applied Science and professor of chemical and biological engineering, department of chemical and biological engineering, Princeton University

Joseph M. DeSimone (SX 1986), Chancellor's Eminent Professor of Chemistry, department of chemistry, University of North Carolina, Chapel Hill, and William R. Kenan Jr. Distinguished Professor of Chemical Engineering, North Carolina State University

François N. Diederich (SX 1990); professor of organic chemistry, Laboratory of Organic Chemistry, department of chemistry and applied biosciences, ETH Zurich, Zurich, Switzerland (Luxembourg)

Patricia Dove (SX 1986); C.P. Miles Professor of Science, department of geosciences, Virginia Polytechnic Institute and State University, Blacksburg

Carol S. Dweck (SX 1972), Lewis and Virginia Eaton Professor of Psychology, department of psychology, Stanford University

Paul T. Englund (SX 1961); professor of biological chemistry, Johns Hopkins University School of Medicine, Baltimore

Wendell H. Fleming (SX 1949), University Professor Emeritus, division of applied mathematics, Brown University

John B. Goodenough (SX 1953), Centennial Professor of Engineering, Texas Materials Institute, The University of Texas, Austin

John T. Groves (SX 1965), professor of the department of chemistry, Princeton University

John F. Hartwig (SX 1986), professor of chemistry and Henry Rapoport Chair in Organic Chemistry, department of chemistry, University of California, Berkeley

Tina Henkin (SX 1977), professor, department of microbiology, The Ohio State University

Hiroo Kanamori (SX 1969), John E. and Hazel S. Smits Professor of Geophysics Emeritus, division of geological and planetary sciences, California Institute of Technology, Pasadena (Japan)

Bruce R. Levin (SX 1967) Samuel Candler Dobbs Professor, department of biology, Emory University

Mary Power (SX 1971), professor, department of integrative biology, University of California, Berkeley

Marcia J. Rieke (SX 1972), Regents' Professor of Astronomy, department of astronomy, Steward Observatory, University of Arizona, Tucson

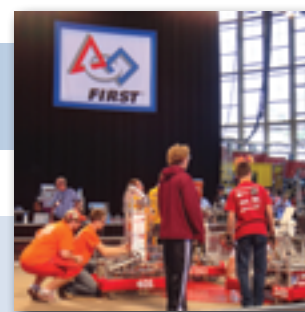
Andrea Rinaldo (SX 1982), professor of environmental engineering and director, Ecohydrology Laboratory, École Polytechnique Fédérale de Lausanne, Lausanne, Switzerland, and professor of civil engineering, University of Padova (Italy)

Pedro A. Sanchez (SX 1988), director, tropical agriculture and rural environment, The Earth Institute, Columbia University

Subra Suresh (SX 1985), director, National Science Foundation

Eckard A.F. Wimmer (SX 1986), Distinguished Professor, department of molecular genetics and microbiology, Stony Brook University

Melinda A. Zeder (SX 1975), senior research scientist and curator of old world archaeology, department of anthropology, National Museum of Natural History •



First Robotics

We are proud to announce that April 6-8, Sigma Xi Executive Director Jerry Baker participated as a judge at the North Carolina Regional competition for FIRST Robotics, also known as the “Rebound Rumble.” In this competition, students of varying ages were asked to design, build and program a robot. Sigma Xi was proud to sponsor 10 pits, or team bases, at this event in Raleigh, North Carolina.

According to competition founder, Dean Kamen, FIRST was created in 1989 to inspire young people's interest and participation in science and technology. On FIRST's website, Kamen states, “From fund-raising to imagery to the technical design, FIRST is about more than building a robot. It is about building the best students who will turn into the best workforce.”

In the last week of April, regional winners descended on Washington, D.C. to celebrate all things science, engineering, and basketball. More than \$14 million in scholarships were given out to teams in recognition of their hard work and dedication to science and engineering education. NBA All-Star Kareem Abdul-Jabbar was on hand to congratulate the winners from all divisions and award the prizes.

We hope you'll consider getting involved on a local level with these outstanding students—and potential future Sigma Xi members. Across the country, mentors, sponsors and assistants are needed to keep this incredible program going in tough economic times. Please take a moment and visit their website at www.usfirst.org to see if there is a team near you. •



Purdue University Calumet

We are pleased to announce that a new chapter of Sigma Xi has been approved and installed at Purdue University Calumet. The process of applying for this new chapter was spearheaded by Kathryn L. Rowberg, Ph.D., associate professor of Chemistry and Purdue University Calumet Chapter President and Michael C. Henson, Ph.D., a professor and Interim Dean of Engineering, Math and Science at the university. Purdue University Calumet is home to many highly successful scientists and engineers who have been recognized both nationally and internationally for their achievements over the years. This campus is also unique in that over the last 50 years, they have gone from a feeder institution granting only two-year degrees, to a full scale, comprehensive research university, with three dynamic Research Centers. Interdisciplinary research is a focus on this campus and a chapter of Sigma Xi is a natural fit.

As part of their application process, Purdue University Calumet presented several letters of recommendation and support from campus administrators. This is always exciting for us at Sigma Xi, as we find that chapters with high levels of administrative support are the most successful in retaining membership and remaining active over time. •

Northeast Regional Sigma Xi Research Conference at Queens College, CUNY

In April, the Northeast region of Sigma Xi held its annual regional research conference on the campus of Queens College, CUNY. Attendance included 90 outstanding undergraduate and graduate researchers from 18 institutions who shared their most recent and exciting research.

Dr. Nancy Elwess (SX 1999) was awarded the Evan Ferguson award for outstanding service to Sigma Xi and our mission. Since Dr. Elwess (SUNY Plattsburgh) joined Sigma Xi she has nominated and mentored 63 research students for membership. She strongly encourages her students to apply for grants early in their careers and several have received Sigma Xi Grants-in-Aid of Research. Pamela Kerrigan, Northeast Regional Director of Sigma Xi, presented Dr. Elwess with her award on Saturday, April 21.

Dr. Joanne Tillotson (SUNY Purchase), a fellow member of Sigma Xi, provided attendees with insightful information on how to successfully prepare Sigma Xi Grants-in-Aid of Research award applications.

Dr. Martin Chalfie, 2008 Chemistry Nobel Laureate, engaged the audience with an hour-long lecture filled with great stories. Dr. Chalfie urged the audience to question established norms and think outside the box in order to create their own path in science. Dr. Chalfie's lecture was followed by a riveting Q&A session.

Dedicated faculty judges and several Sigma Xi members highlighted several poster presentations for their outstanding merit. Sigma Xi judges included Ipsita Banerjee (SX 2005), Kestas Bendinskas (SX 1993), Richard Bodnar (SX 1980), Joshua Brumberg (SX 1992), Cathy Savage-Dunn (SX 1999), Pamela Kerrigan (SX 1995), David Lahti (SX 2011), Tom Philbrick (1980), Theodora

Pinou (SX 1992), Carolyn Pytte (SX 2011), Wilma Saffran (SX 1989), Thomas Streckas (SX 1979), Joanne Tillotson (SX 1999), and Arieta Tsiola (SX 2004). The results of the poster presentation are listed below.

Poster Presentation Awards

Graduate Student Awards

Dana Mosley – *UMass Amherst*
Vocal performance on male aggressive response in swamp sparrows

Phillip Chu – *The Graduate Center, CUNY*
The Effect of Perineuronal Net Digestion in Acute Neocortical Slices

Undergraduate Student Awards

Kevin Jhun – *Queens College, CUNY*
Using Bacteriophage $\Phi 6$ as a model of emerging viruses

Sneha Thomas – *Arcadia University*
Effects of Biopesticides on Invasive and Native Mosquito Oviposition

Ying Tang – *SUNY Stonybrook*
Nicotinic Acetylcholine Receptors Mediate Presynaptic Calcium Signaling and Neurotransmitter Release Along Ventral Hippocampal Axons

High School Awards

Shanawaj Khair – *Bowne High School*
Do You Have the "Guts" to Lose Weight? A Correlation between Mouse Body Mass Index and Bacteroidetes and Firmicutes Frequencies in the Gut

Sigma Xi administrative offices and the Northeast region of Sigma Xi would like to thank Joshua Brumberg, Thomas Stekas, George Axelrad and their colleagues and administration at Queens College, CUNY for hosting this spectacular event. •

