

Annual Sigma Xi Student Conference Highlights Research

The 2008 Sigma Xi Student Research Conference, set for November 21-22 in Washington D.C., will bring together several hundred undergraduate and graduate students from North America and abroad for a celebration of research accomplishments.

Students will present research posters, attend Sigma Xi's Year of Water conference and participate in mentoring and networking activities, panel discussions and other events.

Visit www.sigmaxi.org for guidelines, conference registration, abstract submission and other details.

Sigma Xi members attending the Society's Annual Meeting serve as judges for the poster competition, which features cash awards for the top presentations.

"This is primarily an undergraduate conference," said organizer Kevin Bowen. "But as space allows, a limited number of submissions will be accepted from high school students who have a university faculty member as their primary research advisor and graduate students who are continuing research begun as undergraduates."

Conference participants will also have a chance to hear talks by leading scientists and engineers, including Sigma Xi award winners Charles Elachi, director of NASA's Jet Propulsion Laboratory; Robert Boily, founder and president of Inforex; General Motors research engineer Patrick Usoro; and University of Oxford mathematician Mason Porter.

Students say the conference is a valuable experience on several levels. This testimonial from a recent participant is typical: "I met researchers from a variety of fields in addition to my own and have been in contact with them since the conference. I was glad to have an opportunity to present my research to a wide audience and found the entire experience to be very beneficial to my development as a scientist."

Another said, "It was an amazing experience—personally and professionally. I learned a lot about networking, presenting research and got to explore a completely new city." •

From the President

The Sigma Xi Family



On May 13, I was privileged to participate, along with Sigma Xi Executive Director Jerry Baker and John Knesel, Southeast Regional Director, in the installation of a new chapter of the Society, the Greater New Orleans Chapter. I was truly moved to witness the enthusiasm for the Society expressed not only by the members and their hard-working and passionate officers, but also by the invited guests and, especially, by the students in attendance. You could see in their faces that they understood that this was an exceptional and singular evening.

One of the factors that led to the Greater New Orleans installation, combining four chapters, was Hurricane Katrina. These four original chapters and their members all suffered along with the city following the storm's devastation. The remaining officers realized that, in order for Sigma Xi to survive in New Orleans, it was necessary to find a new organizational structure. From each of the parents—Tulane University, the LSU Health Science Center, the New Orleans (USDA Southern Regional Research Center) and the University of New Orleans chapters—came scientists and students to form a new family, the Greater New Orleans Chapter of Sigma Xi. And, because of the great promise that this chapter holds as a model for other chapters of the Society, I was delighted to be a part of its birth.

During the 1990s, while a Sigma Xi staff member and staff liaison to the chapters, I visited the four original chapters on several occasions. Each time I was thoroughly impressed with the diversity and strength of each chapter and their unique contributions to the Society. I realized then, that as New Orleans is renowned for its diversity of cultures and peoples, each of the chapters was a testament to its own individuality. I feel that even more so now and have the greatest confidence that the nascent chapter also will be known for its celebration of this amazing diversity of membership and contributions.

Continuing in this vein, let me focus for a moment on the concept of the family of science and the relationships that Sigma Xi offers to each of us. I have suggested that the individual chapters are the *parents* of the new chapter. Just as each of us in science has a parental relationship with our advisors and students that provides guidance and encouragement, so should each member's role within the chapter be to foster, mentor and guide the chapter and its members. Sigma Xi's chapters form the families of our Society. We must celebrate, mentor and encourage our chapters, as well as our members, in their activities and lives as we do our own siblings, parents and cousins. As our families cherish and applaud each of us, so should our chapters be there to cheer, comfort when necessary and encourage always.

I charge each of you as a member of Sigma Xi to take an active role in applauding, supporting, encouraging and recognizing your colleagues and students in their pursuit of scientific knowledge and other aspects of their lives. Volunteer to assist, always participate and be sure to attend your chapter functions, remembering that it is through Sigma Xi chapter life that we are able to break out of the limited circles within our laboratories, departments and communities to collaborate and share our thinking and to truly be zealous companions in science and engineering.

Ann H. Williams

Nominations Due October 1

Prestigious Sigma Xi awards honor excellence in science and engineering research and communication. For details, visit www.sigmaxi.org.

William Procter Prize

The Procter Prize recognizes a scientist or engineer who has made important contributions to research and demonstrated an ability to communicate that research to scientists in other disciplines.

John P. McGovern Award

The McGovern Award honors those who have made outstanding contributions to science and society.

Walston Chubb Award

The Chubb Award honors and promotes creativity among scientists and engineers.

Evan Ferguson Award

This new award, in memory of Sigma Xi's longtime deputy director, honors service to the Society.

Young Investigator Award

This award recognizes researchers in the early stages of their careers whose contributions best exemplify the ideals of Sigma Xi.

Honorary Membership

Honorary membership is bestowed on those not otherwise eligible for membership in Sigma Xi, who have served science, or the Society, in a manner or to a degree that merits such recognition.

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awards

Engineer Patrick Usoro to Receive Walston Chubb Award

Patrick B. Usoro has invented a family of transmissions for General Motors. As a research engineer, he enjoys "having the freedom to come up with innovative ideas."

Usoro will receive Sigma Xi's 2008 Walston Chubb Award for Innovation and present the Chubb Award Lecture at the Society's Annual Meeting and Student Research Conference, set for November 20-23 in Washington, D.C.

Originally from Nigeria, he dreamed as a child of going to the Massachusetts Institute of Technology. "I heard it was the best engineering school in the world," he said. "And I knew at a young age that I wanted to be an engineer."

At MIT, he worked on dynamics and control systems and developed a concept called Set Theoretic Control, which was the focus of his dissertation.

"We generally do not know the dynamics of a system accurately—there are always some unknowns," Usoro explained. "So to do a good job in controlling such systems, the control system must be robust. The method I developed is one way to ensure that the system you are controlling will behave well."

In 1985, he joined the General Motors Research and Development Center in Warren, Michigan, where he is now a Technical Fellow. At GM, he has led innovations in power train dynamics and control, transmission mechanism synthesis, advanced hybrid systems, mechatronics and mechatronics—



a GM key strategic technology area that he initiated.

His focus is on innovative technologies to enhance the function, performance and efficiency of future vehicle systems, while lowering their cost.

Usoro holds more than 160 U.S. patents and has published more than 50 technical papers and reports. Many of his innovations have been implemented on GM products.

His work has earned him the GM R&D Master Inventor Platinum Award, Campbell Award for Outstanding Contributions to Science and McCuen Special Achievement Awards for Extraordinary Technical Accomplishments.

His other honors include the GM Chairman's Best-of-the-Best Honors award for development of an innovative magnetorheological fluid fan drive; and GM "Boss" Kettering top technical honor awards for an active driveline damping system.

He has also done pioneering work in mechanisms synthesis, which led to the generation of novel multi-speed transmissions, including GM's six-speed front-wheel-drive automatic transmission that offers significant cost and vehicle fuel economy benefits.

In 1996 Usoro was recognized as the U.S. Black Engineer of the Year. A Sigma Xi member, he is also a member of the American Society of Mechanical Engineers, the Institute of Electrical and Electronics Engineers and the Society of Automotive Engineers. •

Sigma Xi's Year of Water: Call for Papers

For Sigma Xi's Year of Water 2008, we're soliciting white papers on this critical issue. If you have a background in any aspect of water research, please share your expertise and thoughts by writing a white paper of 1,000 words or less.

Authors are not required to be a Sigma Xi member to submit a paper. The deadline for submissions is November 1, 2008.

For more visit www.sigmaxi.org.

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Science Policy Ethics

American Scientist Online Redesigned

Sigma Xi is pleased to announce the release of the new and improved *American Scientist Online*, our complement to *American Scientist* magazine.

We encourage you to visit www.americanscientist.org and take a few minutes to check out the new features and services:

- Move through the site quickly and easily with minimal load time.
- Receive RSS feeds of your favorite *American Scientist* columns, interviews, *Science in the News* and more.
- Create your own personal library of *American Scientist* articles at My AmSci.
- Receive e-mail alerts through My Watches whenever new content is posted.
- Comment on individual articles, columns and book reviews.
- Subscribe to our four free e-newsletters: *Science in the News Daily*, *Science in the News Weekly*, *Scientists' Bookshelf Monthly* and *American Scientist Update*.

To gain full access to these features, you must sign up—even if you were already registered on the former site. It only takes a minute. Visit the Welcome area to get started:

- Your username must be a valid e-mail address.
- Your password must contain at least eight characters, including one capital letter and one number.
- You will need to input your ID number in the sign-up procedure in order to get complete access.
- Also, when signing up, you must enter your last name exactly as it appears on your mailing label—without any suffixes.

Necessity dictated moving to a new online host, so we decided to make the most of it by upgrading our system and incorporating several new features to benefit our members and other visitors. With the new Web site, we can offer our one-million-plus visitors per year more features, more services and more *American Scientist Online* than ever before.

“By continually incorporating enhancements and improvements, we hope to provide an informative, interactive and enjoyable experience for everyone,” according to Greg Ross, managing editor of *American Scientist Online*. •

Magazine Wins Two National Awards

Just as the U.S. was going through yet another scare over contaminated produce, this time involving an outbreak of Salmonella, an article called “Safer Salads” from *American Scientist* magazine won a major award from the Society of National Association Publications (SNAP). The 28th annual SNAP EXCEL Awards were presented June 10 during a dinner in Washington, D.C.

The award-winning *American Scientist* article, from the November-December 2007 issue, addresses why produce contaminated by *E. coli* and other pathogens is more common than ever, and what consumers can do to protect themselves.

The authors, Jorge M. Fonseca and Sadhana Ravishankar, are specialists in the field of microbiological crop-safety research. Fonseca is a professor and vegetable/post-harvest specialist at the University of Arizona’s Yuma Agricultural Center, and Ravishankar is a research professor in veterinary science and microbiology at the University of Arizona in Tucson.

“Safer Salads’ points out that produce contamination, while in the news sporadically, is more common than many people realize,” said David Schoonmaker, acting editor of *American Scientist*. “We



should be exercising caution at all times. There are things we can do to reduce the risks.”

The article received a Bronze

EXCEL Award in the Feature Article category. The cover of the September-October 2007 issue of *American Scientist* also won a Silver EXCEL Award in the Cover Illustration category.



The cover was created by Martin Krzywinski of Canada’s Michael Smith Genome Sciences Centre in Vancouver, British Columbia, for an article called “Genetics and the Shape of Dogs” by Elaine A. Ostrander. Ostrander is chief of the Cancer Genetics Branch at the National Human Genome Research Institute of the National Institutes of Health.

The circular diagram depicts some of the overlapping patterns discovered in the dog and human genomes after the dog genome was fully sequenced in 2005. Selected human (top, blue outer band) and dog (bottom, orange outer band) chromosomes are arranged around the circle, with bands connecting regions of homology between the two species.

“The cover graphic is a dramatic visual representation of some of the chromosomal connections between the dog and human genomes,” Schoonmaker said. “It helps readers understand how physical differences between dogs and humans, and between one dog and another, can be so large, even though they share much genetically.”

American Scientist traces its origin back to 1913. Over the years, the magazine has been honored with many awards for editorial, design and illustration quality. •

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Sigma Xi Celebrates the National Year of Science 2009

How are you celebrating?" That's the question scientists are being asked around the country. And it's the slogan for the Year of Science 2009, a year-long celebration of science and its role in society.

Initiated by the American Institute of Biological Sciences and managed by its Coalition for the Public Understanding of Science (COPUS), the Year of Science 2009 is beginning to catch on.

Why 2009? The year coincides with a number of important science-related anniversaries including the 200th anniversary of the birth of Charles Darwin and Abraham Lincoln. Among his other claims to fame, Lincoln founded the National Academy of Sciences and signed the Morrill Act which created the land grant system of agricultural colleges.

Sigma Xi is one of more than 250 participating organizations that have signed on to COPUS, a grassroots organization that includes universities, museums, corporations and non-profits. Organizers have allocated a specific discipline to each month, to represent the full range of scientific endeavor.

Sheri Potter, COPUS Network project manager, invited Sigma Xi to join when the coalition was just starting out. "We are very excited that Sigma Xi is part of COPUS and the Year of Science 2009," said Potter. "It has been very important to us as we build this network to remember the critical role the research science community plays in supporting public understanding of science. We are thrilled that Sigma Xi, whose membership represents such a broad range

of scientists from so many corners of the country, continues to take an active role in shaping and leading the network."

Potter encourages Sigma Xi chapters and members' organizations to join COPUS and participate in the Year of Science 2009 via "hubs," loose aggregates of science-related organizations. The Sigma Xi chapter network is a thematic hub, while regional hubs cater to organizations with shared geography. Membership in COPUS is free and requires only that member organizations share its goals and vision.

For more information on how you can get involved in the coalition and the Year of Science 2009, visit the COPUS Web site at www.copusproject.org. Then you'll have an answer when someone asks, "How are you celebrating?" •

NAS Elects 17 Sigma Xi Members

Seventeen of the 72 new members elected this spring to the National Academy of Sciences are Sigma Xi members. They were elected in recognition of their distinguished and continuing achievements in original research.

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

Thomas D. Albright (SX 1982), professor and director, vision center laboratory, Salk Institute for Biological Studies, San Diego.

Richard B. Alley (SX 1983), Evan Pugh Professor of Geosciences, department of geosciences and Earth and Environmental Systems Institute, Pennsylvania State University, University Park.

Edward A. Boyle (SX 1976), professor of ocean geochemistry, department of earth, atmospheric, and planetary sciences, Massachusetts Institute of Technology, Cambridge.

Stephen L. Buchwald (SX 1977), Camille Dreyfus Professor of Chemistry, department of chemistry, Massachusetts Institute of Technology, Cambridge.

Emily A. Carter (SX 1984), Arthur W. Marks '19 Professor, department of

mechanical and aerospace engineering, Princeton University, Princeton, N.J.

Michael E. Greenberg (SX 1977), professor, departments of neurology and neurobiology, Harvard Medical School, and director, division of neuroscience, Children's Hospital, Boston.

David M. Hillis (SX 1987), director, center for computational biology and bioinformatics, and Roark Centennial Professor, University of Texas, Austin.

Evelyn L. Hu (SX 1976), professor, electrical and computer engineering department, University of California, Santa Barbara.

Frank T. Leighton (SX 1978), professor of applied mathematics, department of mathematics, Massachusetts Institute of Technology, Cambridge.

Thomas M. Liggett (SX 1965), professor, department of mathematics, University of California, Los Angeles.

Claire E. Max (SX 1972), professor, astronomer and director, center for adaptive optics, University of California, Santa Cruz.

Paul E. Olsen (SX 1978), Arthur D. Storke Memorial Professor, department

of earth and environmental sciences, Columbia University, Palisades, N.Y.

Johanna Schmitt (SX 1982), Stephen T. Olney Professor of Natural History, department of ecology and evolutionary biology, Brown University, Providence, R.I.

George Smoot (SX 1966), professor and research scientist, department of physics and Lawrence Berkeley National Laboratory, University of California, Berkeley.

Jack L. Wisdom (SX 1981), professor of planetary sciences, department of earth, atmospheric, and planetary sciences, Massachusetts Institute of Technology, Cambridge

Newly elected foreign associates, their affiliations at the time of election, and their country of citizenship included:

Rosemary B. Grant (SX 1998), research scholar, department of ecology and evolutionary biology, Princeton University, Princeton, N.J. (United Kingdom).

Luis R. Rodriguez (SX 1976), professor of astronomy, Universidad Nacional Autonoma de Mexico, Michoacan (Mexico). •