

Sigma Xi Today

MAY/JUNE 2005 · VOLUME 14, NUMBER 3

Bjarne Stroustrup Talk to Highlight Sigma Xi Annual Meeting in Seattle

A talk by renowned Texas A&M University computer scientist Bjarne Stroustrup, inventor of C++ programming language, will be among the highlights of the 2005 Sigma Xi Annual Meeting and Student Research Conference in Seattle on November 3-6.

Stroustrup will receive the 2005 William Procter Prize for Scientific Achievement and give the annual Procter Prize Lecture at the meeting.

The meeting will offer Sigma Xi delegates an opportunity to interact with colleagues from throughout North America and around the world. A variety of lectures and special functions will be scheduled at the Westin Seattle Hotel, in which all Sigma Xi members are invited to participate.

Workshops will focus on such topics as research ethics, science and engineering education, scientific publishing, the public understanding of science, career development and more. There will also be workshops on Sigma Xi chapter management and programs.

Some members will serve as judges during the two-day Student Research Conference, which, in addition to a poster competition, will offer career development workshops, graduate school and industry exhibitors, mentoring and networking opportunities, panel discussions and other events.

"Sigma Xi's Annual Meeting and Student Research Conference attract leading science and engineering researchers of today and tomorrow," says Executive Director Patrick D. Sculley. "It's a very dynamic and stimulating gathering."

"Our members enjoy interacting with the students," he continues, "and the



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students say all of the activities—the poster competition, research lectures, career development workshops and networking opportunities—make this conference the best of its kind."

The National Institute of Environmental Health Sciences is once again providing major support for the student conference. Additional information on the 2005 Annual Meeting and Student Research Conference is available at www.sigmaxi.org.

Bjarne Stroustrup

Born in Aarhus, Denmark, in 1950, Bjarne Stroustrup received a degree in mathematics and computer science from the University of Aarhus and a Ph.D. in computer science from Cambridge University, England.

He initially developed C++ in the early 1980s while at AT&T Bell Labs' Computer Science Research Center in Murray Hill, New Jersey. The pro-

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Sigma Xi and NOVA scienceNOW Form Partnership

Through its Public Understanding of Science program, Sigma Xi is partnering with the PBS science show, NOVA scienceNOW, on a couple of fronts.

Each weekday NOVA scienceNOW posts on its Web site a feed of the Society's "Science in the News," the widely read (mostly via e-mail) service that rounds up significant and interesting science-related news articles from the mainstream media.

NOVA scienceNOW producer WGBH and Sigma Xi chapters are also establishing a series of public outreach events, called "science cafés." The goal is to get beyond the traditional lectureship model and open up a true dialogue between researchers and members of the public.

Each café utilizes a segment from scienceNOW's television magazine-styled format, plus an expert on the topic at hand, to enliven discussion in a venue that's accessible to the public.

To learn more about hosting a science café, or to find out about how to post "Science in the News" to your chapter Web site, contact Martin Baucom at mbaucom@sigmaxi.org.

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Sigma Xi Hosts TOYchallenge Showcase

More than 50 teams of middle school students are expected to compete on May 7 at the Sigma Xi Center in Research Triangle Park, North Carolina, for the East Coast Nationals of the 2005 Sally Ride TOYchallenge™. About 60 teams are expected for the West Coast Nationals on April 30 at the San Diego Aerospace Museum.

TOYchallenge was developed by Ride and Smith College's Picker Engineering Program as an outreach activity to engage middle school students, especially girls, in science and engineering and to inspire them to pursue careers in those fields.

Sigma Xi is pleased to be a sponsor once again for this innovative toy- and game-design competition that encourages middle school students, and especially young women, to excel in science and technology. Other sponsors include Smith College and Hasbro, Inc.

A key feature of TOYchallenge 2005 will be the production of a theatrical documentary film that will show engineering in a different light.

"The TOYchallenge competition is highly compatible with Sigma Xi's efforts to improve science and engineering education," according to Sigma Xi Executive Director Patrick D. Sculley. "Our network of more than 500 chapters also lends itself to participation by Sigma Xi members as coaches and judges."

He also notes, "Sigma Xi has had a longstanding interest in nurturing the next generation of scientists and engineers. We look forward to the day when many of these young TOYchallenge participants will take their place in the ranks of our membership."

Both boys and girls in grades five through eight may participate, but at least half of each team must be girls. All submissions will be judged on originality, creativity, engineering elegance, feasibility, design process description, team participation and clarity of communication.

"By giving students the opportunity to teach themselves and their peers that science can be fun, TOYchallenge is a great way to inspire kids, especially girls, to expand their educational horizons and help secure our future technical workforce," notes former astronaut Sally Ride, founder of Sally Ride Science and a member of Sigma Xi.

According to the Bureau of Labor Statistics, women comprise only 11 percent of the engineering workforce. However, studies show that, in elementary school, equal numbers of girls and boys are interested in—and good at—math, science and technology.

Unfortunately, beginning around the sixth grade, more girls than boys drift away from these subjects. While open to all U.S. and Canadian students in grades five through eight, TOYchallenge focuses on catching girls' attention in these subjects in order to keep them in the engineering "pipeline."

A documentary film of this year's competition, *TOYchallenge: A Story About Inspiration, Perspiration and Toys*, will follow several teams as they brainstorm, conceive and design their entries. The film will be launched at film festivals and distributed through limited theatrical release, cable and video/DVD.

Judges from Sigma Xi, the Society of Hispanic Professional Engineers, Smith College, the Society of Women in Engineering and Hasbro chose teams from the Preliminary Round to receive cash awards and advance to the two National Showcases. Preliminary Round judging was completed during National Engineering Week (February 20-26).

Two to three teams selected from the National Showcases will receive all-expense-paid trips to the TOYchallenge 2005 Final Judging and Awards Banquet on May 13 at Hasbro's world headquarters in Pawtucket, Rhode Island.

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programming language became a driving force for many technological and computing advances.

As a living language, C++ has continued to evolve to meet the changing needs of the software development community.

As a researcher and as a member of the ISO C++ Standards committee, Stroustrup guides that evolution and contributes new designs.

Much of today's computing, communications and commercial infrastructure relies on C++, including Google, Internet Explorer, Adobe Acrobat, PhotoShop and critical parts of telephone systems, to name only a few.

More than 3 million programmers currently use C++ to write software for everything from PCs to supercomputers and signal processors to auto-focus cameras.

In addition to five books, Stroustrup has published more than 100 papers and articles for academic journals and the popular press. His *The C++ Programming Language* is the most widely read book of its kind and has been translated into at least 18 languages.

A later book, *The Design and Evolution of C++*, broke new ground in the description of the way the programming language was shaped by ideas, ideals, problems and practical constraints.

Stroustrup is a member of the National Academy of Engineering, and his many other honors include the IEEE Computer Entrepreneur Award and being named an AT&T Bell Laboratories Fellow. The Association for Computing Machinery gave him its Grace Murray Hopper Award.

After a productive career in industry, he is now the College of Engineering Chair Professor of Computer Science at Texas A&M.

Honoring Others With Your Sigma Xi Gift

Making a gift to the Sigma Xi Center campaign is a thoughtful way of acknowledging the contributions of a colleague, mentor, family member or friend. You will also be linking your name and theirs with the proud traditions of Sigma Xi, The Scientific Research Society.

Founded in 1886, Sigma Xi is the international honor society of science and engineering, with a distinguished history of more than a century of service to science and society. The new Sigma Xi Center is a hub of activity in support of more than 500 chapters and 70,000 members in North America and abroad.

All contributions to the Sigma Xi Center campaign are acknowledged on the Society's online *Honor Roll of Donors*. Those donating \$100 or more in honor of someone have the option of writing a brief tribute of approximately 50 words. Tributes are linked online with the honoree's name on the Sigma Xi *Honor Roll of Donors* and are featured on an electronic display in the Center's lobby.

A donation or pledge of \$1,000 or more, made in honor of someone, receives the added recognition of a commemorative paving stone in the Sigma Xi Center entry plaza inscribed with the names of donor and honoree.



Phyllis M. Fuller paid tribute to fellow Sigma Xi member Richard F. Hamaker, shown here in the Center plaza, by making a gift in his honor to the Sigma Xi Center campaign. Photo by Phyllis M. Fuller.

Sigma Xi chapters making gifts of \$1,000 or more are recognized in a special section of the plaza with a paving stone inscribed with the chapter's name.

Visit www.sigmaxi.org for photos of individual paving stones, donor tributes and further details on this opportunity to honor others with a gift, including a secure online contribution form. All gifts are tax-deductible in the U.S. and Canada.

In Memoriam: Allan Bromley

Sigma Xi notes with sadness the passing in February at age 78 of D. Allan Bromley, Sterling Professor of the Sciences at Yale University.

Bromley was founder and director of the A. W. Wright Nuclear Structure Laboratory at Yale from 1963-1989 and served as dean of engineering from 1994-2000. He was a leading nuclear physicist and influential policy advisor.

Shortly after his arrival at Yale in 1960, Bromley was elected president of the Yale Sigma Xi Chapter and instituted a highly successful monthly lecture series featuring leaders in science and technology.

He was voted president-elect of the Society in 1987, but his term was interrupted when he was called by President George Bush to be his science advisor. He remained a loyal supporter and advisor to the Society.

Ethical Guidelines Available Online

Since its founding in 1886, Sigma Xi has stressed the importance of integrity to the scientific process.

In support of that principle, Sigma Xi developed a booklet of ethical guidelines, *Honor in Science* (1984), that has become required reading in many graduate programs, with more than 100,000 copies in circulation.

A companion booklet, *The Responsible Researcher: Paths and Pitfalls* (1999), is now available online free of charge on the Ethics Program pages at www.sigmaxi.org.

While *Honor in Science* was aimed primarily at graduate students, *The Responsible Researcher* is intended for a broader audience, including undergraduates, postdocs, junior and senior faculty, deans and department chairs, government and industry managers, as well as researchers in government, industry and non-governmental organizations.

Among the issues discussed are grant pressures on professors and their effects on the mentoring process, academic/industrial conflicts of interest and undergraduates' early exposure to research and associated ethical issues.

The booklet was funded by a generous bequest from the estate of Edward F. Obert (1910-1993), a longtime Sigma Xi member at the University of Wisconsin-Madison.

Obert was best known by his students and colleagues as a teacher of high standards and steadfast principles.

Although Sigma Xi members have many reasons for including the Society in their estate planning, the outcome is a legacy of giving that benefits future generations of scientists and engineers.

For more information about planned giving, visit the Society's Web site or contact the Office of Development and Communications at development@sigmaxi.org or 800-243-6534.

Share the Honor

Sigma Xi members are invited to share the honor of membership with those who demonstrate outstanding promise and achievement in research.

Induction into Sigma Xi has been a milestone in many distinguished research careers, including those of nearly 200 Nobel laureates.

Membership in this respected community of scientists and engineers is professionally rewarding and offers a chance to participate in ongoing programs and activities at the local and Society levels.

You are invited to nominate individuals who meet the following criteria for membership:

Associate Membership: Any individual who has, through initial research achievement in a field of pure or applied science, shown aptitude for research, which is expected to lead to the fulfillment of the requirements for full membership.

Full Membership: Any individual who has shown noteworthy achievement as an original investigator in a field of pure or applied science is eligible for election or promotion to full membership. The nominee must have demonstrated research as evidenced by two peer-reviewed publications, patents, a thesis or dissertation.

You will be notified of the membership status of your nominees once their qualifications are verified. For more information, including a nomination form, visit www.sigmaxi.org or contact membership@sigmaxi.org.

Sigma Xi understands that members lacking affiliation with active chapters face greater difficulty in nominating other qualified individuals. To facilitate this, Sigma Xi initially developed the Share the Honor campaign last year expressly for members-at-large and others with similar chapter challenges.

From that original pool, the following individuals are now recognized for extending their hand of companionship and helping to grow the Society's membership between August and December of 2004:

William Ball	Erlin Johansen
Virgil Carlson	Robert Juda
Beverly Cohen	Kenneth Lutz
James Collins	Xavier Maruyama
Jack Cooperman	Duncan McVean
John Cortinas	Donald Neufield
John Crooks	Douglas Norris
C. Kenneth Dodd	Xinming Qian
William Edmonston	David Randall
Leonard Feldt	Robert Ross
Robert Feuer	Michael I. Seigel
R. William Field	Randall Shirts
Steven Fleming	Roderick Slofield
Wayne Frair	Mark Stinski
William Funk	Guenther Stotzky
Michael Harris	Peter Torvik

New Directors Take Office July 1

At Sigma Xi's 2004 Annual Meeting the following were elected to the Society's board of directors to serve three years starting July 1, 2005.

Research & Doctoral Universities Constituency Group: Anthony M. Iacopino, Marquette University

Mid-Atlantic Geographic Region: Timothy J. Ng, University of Maryland

Northeast Geographic Region: Zachary J. Jacobson, Ottawa

Northwest Geographic Region: John J. Kelley, Alaska

Southeast Geographic Region: Ann H. Williams, University of North Carolina at Chapel Hill

The following were elected associate directors, to serve three years starting July 1, 2005.

Comprehensive Colleges & Universities Constituency Group: Richard W. LoPinto, Fairleigh Dickinson University

Area Groups, Industries, State & Federal Laboratories Constituency Group: Linda H. Mantel, Columbia Willamette

The following were elected members of the Sigma Xi Committee on Nominations, to serve three years starting November 14, 2004.

Baccalaureate Colleges Constituency Group: Gretchen Edwals-Gilbert, Claremont Colleges

Canadian/International Constituency Group: Patricia D. Ross, University of Toronto

North Central Geographic Region: Clifford C. Chancey, University of Northern Iowa

Southwest Geographic Region: Jacqueline H. Ericksen, University of New Mexico