

Sullivan Selected President-Elect



Kelly O. Sullivan was elected the 75th president of Sigma Xi at the Society's 2010 Annual Meeting in Raleigh, North Carolina. She will begin her service as president-elect on July 1, 2011.

Sullivan is director of institutional partnerships at Pacific Northwest National Laboratory (PNNL). Her research focused on the electronic structure and stability of small molecules and ions of atmospheric and mass spectrometric interest.

She received her B.S. from Christian Brothers College and was the first Clare Boothe Luce Graduate Fellow at the University of Notre Dame. She received her Ph.D. in physical chemistry at Texas Tech University in 1994.

Sullivan taught at Mankato State University and at Creighton University, where she also directed the Creighton Chemistry Players, a demonstration team that regularly played to standing-room only crowds.

In 2001, she left academia to serve as the first director of the Office of Fellowship Programs at PNNL. She transitioned into the role of director of institutional partnerships, identifying the best possible collaborators for PNNL's research efforts.

She contributed to shaping the National Innovation Initiative, which laid the groundwork for the widely-referenced "Rising Above the Gathering Storm" report. She has played an active role in the Government-University-Industry Research Roundtable at the National Academies, leading efforts in STEM education.

Sullivan served in several leadership roles for the Omaha Sigma Xi Chapter prior to moving to Washington state. She serves as president of the Tri-Cities Washington Chapter and in a number of capacities at the Society level.

"I want people to know what Sigma Xi is and what membership means," she said. "To achieve this we need to take a hard look at membership criteria and how we elect members. I want Sigma Xi to have the stature it deserves as one of the few multidisciplinary scientific societies."

She continued, "We need to create and leverage programs that help our members connect and learn from and with each other." •

From the President



Time for Realistic, Thoughtful Action

In recent years, the Society has made many efforts to become or evolve into a more vibrant and effective organization. Our leadership team seems to know what changes are necessary to move Sigma Xi forward. Unfortunately, many of the efforts toward implementation of needed change become stalled—viable, valuable ideas becoming lost at times in endless dialogue.

Some of our members claim to have the answers, while others want to point fingers. Still others think of the challenges as strictly an "Executive Committee or President's" issue or problem. Few take the time to note that while the President is only one individual, the Society's presidency and leadership involve all of us—every stakeholder and member of Sigma Xi.

The good news is that, as an organization, Sigma Xi has the potential, talents and capacity to reinvigorate, re-invent and right itself into a viable, competitive entity. The initial vision for Sigma Xi is still relevant today, and as we celebrate our 125th Anniversary it is time to take charge again. My position is that this is not an impossible goal, nor is it a novel one by any stretch of the imagination—as many organizations have found it necessary to re-invent themselves to remain viable and sustainable.

The decline in membership and its impact on financial resources have created a "sense of urgency" for many members—despite years of data and evidence predicting the current state of affairs was inevitable. Bottom line, we did not get to this place overnight, nor will such challenges be surmounted readily or easily (barring appearance of a significantly generous Sigma Xi benefactor). When and where do we begin; where do we go from here? There is a spark: the number of new initiates in FY2010 was greater than in recent years.

I viewed the recent symposium at the Annual Meeting as a successful attempt to address issues beyond the society's governance and business activities; to be a recognized and valued presence among our scientific colleagues; and to significantly limit the drain on revenue normally associated with such an undertaking.

The quality of the speakers was outstanding, and they provided a wonderful overview of the interface between science and policy in our ongoing fight to have a safe and secure food supply. With more than 600 registered attendees, it was a great improvement over recent years. Was this good enough? The answer is no; we always should seek ways to improve. We have actively begun planning the meeting for November 2011 with a theme of research ethics. It should be an exciting event that you will want to attend.

So what is our mandated new direction or model for Sigma Xi? For this to become clear, we all have a part to play—to recommit and actively contribute to the development of a new vision and direction. Now is the time to be constructive, to act, or to ask how you can help. The Committee on Strategic Planning has invited all members to submit suggestions for action steps to take (see the email address below). Having mandates and ideas are meaningless if we don't all get involved, contributing our individual and collective talents toward finding solutions to the problem.

At the Annual Meeting, a change in the bylaws was approved that will for the first time allow all Sigma Xi members to participate directly in the election of the Society's leadership by individual ballot. We hope this will give members a greater sense of ownership in your Society.

What are you willing to do to get Sigma Xi on a positive, sustainable path?

Send me your ideas at 125@sigmaxi.org!

Joseph A. Whittaker

Celebrating Sigma Xi's 125th Anniversary

This is the first in a series celebrating Sigma Xi's 125th anniversary.



Frank Van Vleck

In 1886 at Cornell University, a group of engineering students and junior faculty member Frank Van Vleck began organizing a new scholarly society. The group intended not only to establish an honor society like those already existing in other fields, but also to promote a new, more academically oriented type of engineering education.

From the beginning, the founders emphasized that this new scientific honor society would be broad in its outlook, devoted to all of science and engineering, much as Phi Beta Kappa covered the liberal arts.

The fledgling organization received its first support from an older member of the Cornell science faculty, geology professor Henry Shaler Williams. Having already tried to establish an honor society for science students, Williams was pleased to merge his interests with those of Sigma Xi's founders. He became the Society's chief mentor, serving as the first elected president of the Cornell Chapter and a leader of the growing organization until the turn of the century.

Sigma Xi was designed to reward excellence in scientific research and to encourage a sense of companionship and cooperation among scientists in all fields. In selecting a name and motto for the new honor society, the founders chose a combination of Greek letters—Sigma Xi—not being used by any other group. Later, a motto based on these initials was developed to confirm its purpose: Spoudon Xynones, or "Companions in Zealous Research."



By 1887, Sigma Xi was holding "regular meetings for the discussion of scientific subjects," and the following year, the group elected five women to full membership, which both promoted the interests of women and made their research more available to the scientific community.

Entomologist Anna Botsford Comstock was among the group of women inducted by the Cornell Chapter in 1888. Her 400-page *Handbook of Nature Study*, published in 1911, is still in print. Also inducted were Susanna Phelps Gage, Hariett Groteclass Marx, Julia Warner Snow and Mary Margaretta Wardall.

By that time, chapters had been established at Rensselaer Polytechnic Institute, Union College, Stevens Institute of Technology and Rutgers College,



Anna Botsford Comstock

as well as at Cornell. Through the 1890s the Society's membership grew, and by the turn of the century Sigma Xi claimed more than 1,000 members in eight chapters.

In the first decade of the new century, chapters were added at the rate of one to three a year. Many adopted programs that went beyond scientific debate. None, perhaps, matched the importance of those supported by the Stanford and Berkeley chapters after the 1906 San Francisco earthquake.

At Stanford, a three-member engineering commission of Sigma Xi members oversaw reconstruction of the campus. The Berkeley Chapter publicized its concerns about public health in the devastated city, where rapidly breeding rats gave rise to cases of bubonic plague. The Berkeley Chapter led an eradication campaign, prodded public officials to action and raised funds. Few chapters have done more for their communities.

At its quarter-century anniversary in 1911, Sigma Xi had about 2,000 members in 30 chapters.

American Scientist,
September-October 1986



Sigma Xi, The Scientific Research Society today is known as the international honor society for research scientists and engineers. There are more than 500 Sigma Xi chapters in North America and abroad, at colleges and universities, government laboratories and industrial research centers. Over the years, more than 200 members have received the Nobel Prize. In addition to publishing American Scientist, Sigma Xi awards hundreds of grants annually to promising student researchers and sponsors a variety of programs that support science and engineering.

Sigma Xi Chapters 1886-1911

Cornell University
Stevens Institute of Technology
Rutgers College
Rensselaer Polytechnic Institute
Union College

University of Kansas
Yale University
University of Minnesota
University of Nebraska
Ohio State University
University of Pennsylvania
Brown University
Iowa State University

Stanford University
University of California
Columbia University
University of Chicago
University of Michigan
University of Illinois
Case School of Applied Science
Indiana University

University of Missouri
University of Colorado
Northwestern University
Syracuse University
University of Wisconsin
University of Washington
Worcester Polytechnic Institute
Purdue University
Washington University

Canadian Broadcaster Becomes Honorary Member

Bob McDonald, one of Canada's best-known science journalists, was inducted as an Honorary Life Member of Sigma Xi at the Society's 2010 Annual Meeting. The host of CBC Radio's award-winning science program *Quirks and Quarks*, he has been communicating science internationally through television, radio, print and live presentations for more than 30 years.



wrote the introduction to *The Quirks & Quarks Question Book* and the *Guide to Space: 42 Questions (and Answers) About Life, the Universe and Everything*.

Beyond his work in media, Bob serves on several boards and is chairman of Geospace, a new environmental center and planetarium in Toronto.

McDonald has been honored for his outstanding contributions to the promotion of science in Canada as the recipient of the Michael Smith Award from the Natural Sciences and Engineering Research Council, the Sir Sanford Fleming Medal from the Royal Canadian Institute and the McNeil Medal from The Royal Society of Canada. He also received a 2008 Gemini Award for Best Host in a Pre-School, Children's or Youth Program or Series.

McDonald has received six honorary degrees, from the University of Guelph, Carleton University, Laurentian University, McMaster University, University of Calgary and University of Winnipeg. •

He is also a regular science commentator on the CBC News Network, science correspondent for CBC TV's *The National* and the award-winning host and writer of the children's series *Heads Up!*

McDonald has also hosted the television mini-series *The Greatest Canadian Invention* and the seven-part series *Water Under Fire*. As a print journalist, he has written three science books and contributed to numerous textbooks, newspapers and magazines, including *The Globe and Mail*, *Owl Magazine* and many others.

His latest book is *Measuring the Earth With a Stick*, a collection of essays reflecting on his many years as a science journalist. He

Walters Named Interim Treasurer

Bradford B. Walters was approved by the Board of Directors to be the Society's interim treasurer until the election to be held in November 2011.



He is vice president and chief medical officer of RTI International, an independent nonprofit research institution based in Research Triangle Park, North Carolina.

RTI scientists provide research and technical expertise to governments and businesses in more than 40 countries.

Walters' primary role is to help shepherd drug candidates developed in RTI's laboratories into clinical trials for their evaluation as potential human therapeutics.

He has been a Sigma Xi member since 1972 and was appointed to the Finance Committee in 2008. As an undergraduate at Harvard, he pursued a joint major in chemistry and physics, graduating summa cum laude in 1973, then traveling to London on a Marshall Scholarship. Walters earned his Ph.D. at University College in 1976, returning to the Harvard-MIT Program in Health Sciences and Technology and completing his M.D. cum laude in 1979.

This was followed by an internship in general surgery at Johns Hopkins and residency training in neurological surgery at Massachusetts General Hospital. In 1985, he joined the faculty in the Department of Surgery at the University of North Carolina at Chapel Hill School of Medicine.

He left the faculty to complete an M.B.A. at UNC's Kenan-Flagler Business School and in 2002 joined Academy Funds, a venture capital firm specializing in the commercialization of intellectual property based on university research. In 2005 Walters became an independent life sciences consultant until joining RTI in 2007.

He has served on the board of the North Carolina Healthcare Information and Communications Alliance, Inc., a nonprofit consortium dedicated to improving health in North Carolina by accelerating the adoption of information technology and enabling policies. While at Academy Funds, he was appointed a member of the Governor's Task Force on Nanotechnology and North Carolina's Economy. •

Four Members Win Nobel Prizes

Three Sigma Xi members shared the 2010 Nobel Prize in Chemistry and a fourth shared the Nobel Prize in Economics.

Richard F. Heck (SX 1953) at the University of Delaware, **Ei-ichi Negishi** (SX 1968) at Purdue University and **Akira Suzuki** (SX 1964) at Hokkaido University, Japan, were honored for their development of palladium-catalyzed cross couplings, a tool used worldwide in commercial production of pharmaceuticals and complex molecules used to make electronics.

Peter A. Diamond (SX 1960) at the Massachusetts Institute of Technology shared the economics prize for work that helps explain unemployment and job markets.

Over the years, more than 200 Sigma Xi members have received the Nobel Prize. •

Society Directors Elected

During the 2010 Sigma Xi Annual Meeting and International Research Conference in Raleigh, North Carolina, chapter delegates elected members to the Society's Board of Directors.

The following directors of geographic regions and constituency groups will serve three years beginning July 1, 2011.

Research and Doctoral: **Robert Zand**, University of Michigan

Mid-Atlantic: **Cristina Gouin-Paul**, District of Columbia

Northeast: **Pamela Kerrigan**, College of Mount Saint Vincent

The following associate directors will also serve three years beginning July 1, 2011.

Multi-Institutional: **Andrew Velkey**, Tidewater, Virginia

Comprehensive Colleges/Universities: **Ileana Carpen**, Tennessee Technological University

Northwest: **Prabal Ghosh**, Manitoba

Southeast (to fill term ending June 30, 2011): **Julio Turrens**, University of South Alabama

North Central (to fill term ending June 30, 2012): **Gus Buchtel**, University of Michigan

Southwest: **Bertis B. Little**, Tarleton State University •

Top Electing Chapters

The following Sigma Xi chapters were recognized at the 2010 Annual Meeting for initiating the most new members in 2009-2010: **Brown University, Claremont Colleges, Swarthmore College, Massachusetts Institute of Technology, Washington University, Smith College, Amherst College, Williams College, Carleton College, Texas A&M University, Mount Holyoke College, Wellesley College, University of Missouri, Lafayette College** and **Denison University**. •

Thirty-Eight Students Receive Medals at Sigma Xi Conference

Thirty-eight student researchers received awards for their poster presentations at the 2010 Sigma Xi Student Research Conference in Raleigh, North Carolina.

Nearly 300 students representing more than 100 academic institutions presented their research at this year's conference.

Each year, the Sigma Xi Student Research Conference, held in conjunction with the Society's Annual Meeting, showcases some of the premier student research in the world, and connects senior researchers with students.

In addition to the poster competition, the two-day conference featured a variety of networking opportunities. Participants also had a chance to hear talks by leading scientists and engineers, including Sigma Xi award winners.

A special award for a student presentation that focused on the theme of Sigma Xi Food Safety and Security symposium was presented to **Huiying J. Lu** of North Carolina State University. Other student award-winners were as follows:

Graduate and Doctoral Candidate Division

Behavioral Sciences

John Hernandez and **Katie Adams** - Texas A&M University - Corpus Christi

Biochemistry, Physiology and Immunology

Samantha Furr - University of North Carolina at Charlotte

Cellular & Molecular Biology

Matti Asuma - University of Wisconsin - Madison

Huiying Lu - North Carolina State University

Chemistry

Jessica Bongiovanni - University of North Carolina at Charlotte

Ecology & Evolutionary Biology

Luanna Prevost - University of Georgia

Engineering

Eric Forrest - Massachusetts Institute of Technology

Andrew Loebel - North Carolina State University

Environmental and Geo-Sciences

Kelly Smith - University of North Carolina at Charlotte

Interdisciplinary Research

Vikrant Dutta - North Carolina State University

Seth Ebersviller - University of North Carolina at Chapel Hill

Math, Computer Science, Physics and Astronomy

Farzad Sadjadi - University of Minnesota

Undergraduate Division

Behavioral Sciences

Dario Figueroa - University of California, Irvine

Seva Khambadkona - The Ohio State University

Biochemistry, Physiology and Immunology

Catherine Fick - Oakland University

Sarah Lieser - Viterbo University

Cellular and Molecular Biology

Nicole Anayannis - SUNY Purchase

Myurajan Rubaharan - George Mason University

Alvin Shi - Duke University

Jennifer Yonan - University of California, Irvine

Chemistry

Anthony Prosser - University of Kansas

Ecology & Evolutionary Biology

Kristina Bonaparte - University of California, Irvine

Engineering

An Truong - North Carolina State University

Environmental and Geo-Sciences

Lauren Marston - North Carolina State University

Interdisciplinary Research

Emma Babb - Duke University

Gino Graziano - Santa Barbara City College

Math and Computer Science

Christine Sawyer - Santa Barbara City College

Physics and Astronomy

Alex Garner - University of Florida

High School Division

Interdisciplinary Research including Behavioral Sciences

Givi Basishvili - Harlem Children Society

Biochemistry, Physiology & Immunology

Angela Zhang - North Carolina School of Science and Mathematics

Kimberly Clark - Josephine Dobbs Clement Early College High School

Cellular & Molecular Biology

William Su - North Carolina School of Science and Mathematics

Chemistry

Taylor Adair - William G. Enloe High School

Joseph Moo-Young and **Nick Liu** - North Carolina School of Science and Mathematics

Ecology & Evolutionary Biology and Environmental Science

Yun Tang - North Carolina School of Science and Mathematics

Math, Computer Science, Physics, Astronomy and Engineering

Melissa Chan - William G. Enloe High School