

## Student Science Film Competition To Focus on Energy

In conjunction with Sigma Xi's Year of Energy 2009, the Society is sponsoring its second annual student short film competition focusing on scientific aspects of energy.

Entries must be no more than three minutes, and must relate to the science of energy production, consumption and/or distribution.

Prizes of \$1,000, \$500 and \$250 will be awarded for the top three films. The competition is open to undergraduate and graduate students, either individually or in teams. There is no entry fee. The deadline for submissions is September 18, 2009.

"Despite growing demand for energy and increasing public awareness of climate change, the world remains firmly situated in the era of fossil fuels," said Sigma Xi Executive Director Jerome F. Baker. "We hope this film competition will enable students to exercise their creativity in exploring the many facets of the energy crisis."

The winning films will be screened at the 2009 Sigma Xi Annual Meeting and Student Research Conference next November 12-15 in Houston, Texas.

Entries may be scripted or candid, fictionalizations, live video or animation or any combination of these, but must communicate scientific ideas in a manner that the general public can understand. All submissions must be in a DVD format.

Entries will be evaluated for the quality of their production and for the accuracy and depth of the scientific ideas they present.

Visit [www.energy.sigmaxi.org](http://www.energy.sigmaxi.org) for the complete competition guidelines. •



## From the President

### An Exhilarating Year



This year has been exhilarating, tumultuous, challenging, filled with learning, and wonderfully fulfilling as I have had the privilege of serving as president during a time of changes ranging from global and environmental to personal and economical. We as members of Sigma Xi not only have been affected by them but also are provided opportunities by them. Looking forward, I see a stronger, more vibrant and fruitful future for the Society and each member. To be sure, some of the opportunities and challenges might seem daunting, but I firmly believe that the efforts of each and every member will keep us on the path to an even brighter future.

As part of these opportunities, we the members must assist our leaders in defining the Society's future. Shall we move in new directions? How do we become exemplary? How do we grow? The American Society for Association Executives has outlined seven emerging trends which can serve to guide our conversation:

- **Meaning Matters**—Is Sigma Xi providing a meaningful purpose, meaningful relationships and meaningful contributions to enhance its value to members?
- **Global + Local = Glocal**—Associations will find new challenges and creative roles in the global scientific community. Is Sigma Xi well positioned to become "glocal"?
- **Inclusivity**—Associations increase their creativity, decision-making and programming by including all cultural backgrounds. Has Sigma Xi truly creatively embraced the fullness of our potential scientific membership?
- **Generational Synergy**—Each generation provides its unique contributions, and it is incumbent on us to interact effectively and synergistically. Is Sigma Xi doing all it can to provide meaningful interactions for all segments of our Society?
- **Learning Culture**—Associations need to focus more energy on learning and less on teaching in order to thrive in this rapidly changing environment. How can Sigma Xi best learn from its past and present to approach our future?
- **Transparency**—All associations are experiencing demands for greater openness and accountability. These demands must be balanced by our Constitution and governance structure. Has Sigma Xi achieved the correct balance?
- **Living Organizations**—Association leaders should view their organizations as "living systems able to self-organize to adapt to change." To promote self-organization, leaders need to clarify their purpose and values, minimize bureaucracy and understand the critical importance of knowledge sharing and trust. Has Sigma Xi's leadership moved in this direction?

In this past year, our Society's leadership has discussed, reviewed and made progress toward aligning with many of these trends. Much work is still to be done. Perhaps the most difficult for some, and yet the most important for us all, is the recognition that we are a living organization, full of conversations and interactions. I see our Society becoming more valuable and growing in significance and substance through adaptations to new technology and norms, a society of companionship, knowledge, ethics and service that contributes, not only to each individual member's wishes and desires, but to the ever increasing needs of the global scientific community.

I challenge you to be an active participant in the future of our Society. Rather than simply noting Sigma Xi on your curriculum vitae, seize the opportunity to renew and revitalize your chapter, colleagues and students, with the determination and zeal that is required of all of us in spreading the word about Sigma Xi. And then volunteer to serve as a local chapter officer or committee member, attend the Society's annual meeting as a delegate and provide feedback for your regional and constituency directors and Society officers. Become a part of the life of Sigma Xi, The Scientific Research Society. If we envision the Society as a living ship on the global ocean of science, as the commanding officer cries when commissioning a new naval vessel, calling for the crew to come aboard, "Bring the ship alive!" May our conversations and companionship ever continue!

Ann H. Williams

## Procter Prize Physicist Helped Create New Field

Physicist **Deborah S. Jin** at the National Institute of Standards and Technology (NIST) helped establish a new field of physics. She will receive Sigma Xi's 2009 William Procter Prize for Scientific Achievement, the Society's highest honor.



In 1999, Jin and graduate student Brian DeMarco created a new quantum gas that was named one of the top 10 scientific advances of the year by the journal *Science*.

They cooled a vapor of fermions—one of the two basic types of quantum particles, along with bosons—to a temperature less than a millionth of a degree above absolute zero using lasers and magnetic traps. The result was a quantum state in which atoms

behave like waves.

Fermions are important throughout physics because the basic building blocks of matter—electrons, protons and neutrons—all are fermions. Jin and DeMarco's research is a step toward a better understanding of these building blocks.

Her research has been described as the crucial first step in developing superconductors that work at room temperature. The development of such superconductors could lead to faster computers, smaller cell phones and lower electric bills.

Jin is a professor of physics at the University of Colorado at Boulder (CU-Boulder) and a fellow of JILA, a joint institute of NIST and CU-Boulder. She is one of only a few women physicists to have been elected to the National

Academy of Sciences and the youngest to have received the honor.

Born in 1968, she earned a Ph.D. in 1995 from the University of Chicago and an A.B. in 1990 from Princeton. From 1995 to 1997, she was a National Research Council research associate with NIST, working at JILA. After her postdoc assignment, Jin was hired as a NIST physicist and assistant professor adjunct at CU-Boulder in 1997.

In 2003, she received the prestigious John D. and Catherine T. MacArthur Fellowship. Her other honors include the Presidential Early Career Award for Scientists and Engineers, the American Physical Society's Maria Goeppert Mayer Award, the Samuel Wesley Stratton Award from NIST, the Service to America Medal and the Benjamin Franklin Medal in Physics. She is also a member of the American Academy of Arts and Sciences. •

## David Michaels to Receive McGovern Award

Epidemiologist **David Michaels**' work has focused on the use of science in public policy.

He directs The Project on Scientific Knowledge and Public Policy at George Washington University, bringing together an interdisciplinary group of scientists to examine the use and misuse of science in two forums in which public policy is shaped: the courts and the regulatory arena.

Michaels will receive Sigma Xi's 2009 John P. McGovern Science and Society Award, which has been presented annually since 1984.

Michaels is research professor and interim chairman in the Department of Environmental and Occupational Health at the George Washington University School of Public Health and Health Services, where he directs the department's doctoral program. In

addition to his current work on science policy, he has conducted epidemiologic studies on typographers, commercial pressmen, construction workers, bus drivers and paper workers.

Michaels is the author of *Doubt is Their Product: How Industry's Assault on Science Threatens Your Health*, as well as articles in many scientific publications.

From 1998-2001, he served as the U.S. Department of Energy's assistant secretary for environment, safety and health. In this position, he had primary responsibility for protecting the health and safety of workers, the neighboring communities and the environment surrounding the nation's nuclear weapons facilities.

He was the chief architect of the historic initiative to compensate workers in the nuclear weapons complex who developed cancer or lung disease as a result of exposure to radiation, beryllium and other hazards.

Michaels founded and directed (1986-1990) the Epidemiology Unit of the Montefiore-Rikers Island Health Service, the first such unit in a jail in the U.S., conducting studies on tuberculosis, sexually-transmitted disease, drug abuse, mental health, homelessness and HIV. He developed a widely-used mathematical model for estimating the number of children whose mothers have died of HIV/AIDS.

In 2006, he received the American Association for the Advancement of Science's Scientific Freedom and Responsibility Award for his work on behalf of nuclear weapons workers and for his advocacy for scientific integrity. Michaels is also the recipient of the American Public Health Association's David P. Rall Award for Advocacy in Public Health and the U.S. Department of Energy's Meritorious Service Award. •



## Expanded Member Assets and Advantages

**H**ow should we measure return on investment for membership in a scientific society?

Professional societies serve many purposes, and the benefits to their members are numerous. However, the returns are not just to the members, but also to society as a whole.

Members of Sigma Xi are committed to improving the human condition through their positions as scientists and engineers. And Sigma Xi is working to assist you in adding value to your life and to the lives of those impacted by engineering and science.

Here are some of Sigma Xi's new member assets and advantages:

### Sigma Xi Institute Seminars

Sigma Xi will hold its first regional seminar series for members May 14-16, 2009, at the Sigma Xi Center in Research Triangle Park, North Carolina. The series will feature professional seminars, colloquia based on member interests and speakers designed to challenge members at all life and professional stages. Our goal is to host two additional series during 2009, most likely in Southern California and Boston. For details and registration visit [www.sigmaxi.org](http://www.sigmaxi.org).

### Experience.com

Experience.com has teamed up with major employers to bring you industry specific jobs, internships and content. More than 900 of the

Fortune 1,000 companies search Experience's database each week. So do tens of thousands of medium and small businesses. Connect with these potential employers, recruiters and entrepreneurs through many regional, discipline and work focus online groups.

Sigma Xi members may register at no cost at [sigmaxi.experience.com](http://sigmaxi.experience.com) and have the following resources at their disposal: an online portfolio that goes beyond a printed resume or CV (accessible to 50,000 potential employers), articles and advice on the latest career paths, and a global employment community.

A Sigma Xi staff member monitors opportunities that may be of interest and then acts as an online counselor when needed so you can take full advantage of your Society membership in seeking a new position or exploring a new career path.

Simply register online and start taking advantage of this unique service for Sigma Xi members.

### Online Leadership Center

We estimate that more than 15 percent of Sigma Xi members regularly volunteer in their local communities with nonprofits, schools, civic and professional organizations.

Your scientific acumen and commitment to the highest standards of ethical conduct are desperately needed as volunteer mentors, teachers, trainers and advocates for sound public policy.

The Society is building partnerships with a variety of educational and youth development organizations to provide additional volunteer opportunities for our members.

At our online Leadership Center, members can register their availability and interests and access volunteer opportunities with organizations around the world. This online resource is now in the BETA stage, with plans to become fully operational by May 2009.

We encourage members to go to [www.sigmaxileadership.org](http://www.sigmaxileadership.org) and indicate your interest by completing the confidential online registration form.

For more information, please contact Phillip Cates, director of Organizational Advancement, at [pcates@sigmaxi.org](mailto:pcates@sigmaxi.org).

### Discount on WiZiQ

WiZiQ is an easy-to-use tool that enables you to teach, learn or hold meetings virtually.

Some notable features include: audio and video conferencing, real time whiteboard sharing, real time document and video sharing, automatic recording of all sessions, up to 500 members in each session, completely Web based (no telephone needed).

Sigma Xi uses WiZiQ for virtual meetings and Conversations with the Executive Director.

Sigma Xi members receive a 30 percent discount off the annual premium membership through 2009. For details visit [www.sigmaxi.org](http://www.sigmaxi.org).

## In Memoriam: William F. Little 1929-2009

Sigma Xi lost a loyal member, advisor and benefactor with the unexpected death in February of William F. "Bill" Little (SX 1952) at his home in Chapel Hill.

He was among those who helped bring Sigma Xi to Research Triangle Park, North Carolina, in 1990.

While on the chemistry faculty at the University of North Carolina at Chapel Hill in the 1950s, Bill was a "traveling salesman" for the new research park, working with others to persuade companies to locate their research facilities here.

He retired as University Distinguished Professor in 1996, having served as chairman of the chemistry department and senior vice president and vice president for academic affairs of the 16-campus university system.

His board service included the Research Triangle Institute (now known as RTI International) and the Research Triangle Foundation. He served terms as chair of their executive committees.

"Bill was instrumental in securing major support for the Sigma Xi Center

from the Research Triangle Foundation and the Triangle Universities Center for Advanced Studies, Inc.," Sigma Xi Executive Director Jerome F. Baker said.

The auditorium in the building was named for these two closely allied organizations. "We will always be indebted to Bill for his efforts on our behalf," Baker said.

Little served for many years on Sigma Xi's Development and Long-Range Planning committees and was a member of the Companions Club, which recognizes the Society's special benefactors.

## National Academy of Engineering Elects 31 Sigma Xi Members

The National Academy of Engineering (NAE) has elected 31 Sigma Xi members among 65 new members and nine foreign associates.

### New Members

**Paul M. Anderson** (SX 1962), consultant, Power Math Associates, San Diego. For advancing the analysis and control of electric power systems worldwide.

**Diran Apelian** (SX 1972), Howmet Professor of Mechanical Engineering and director, Metal Processing Institute, Worcester Polytechnic Institute. For contributions to solidification processing and leadership in education and university-industry collaboration.

**David C. Auth** (SX 1969), consultant, Kirkland, Washington. For the invention of devices to treat gastrointestinal bleeding and coronary artery obstructions.

**Jay P. Boris** (SX 1967), chief scientist and director, Laboratory for Computational Physics and Fluid Dynamics, U.S. Naval Research Laboratory. For core computational fluid dynamics algorithms and their application to national problems.

**Frank "Skip" L. Bowman** (SX 1973), former chief of naval personnel and former director, Nuclear Propulsion Program, U.S. Department of the Navy. For leadership in the design of nuclear-reactor propulsion plants to support combat systems.

**Moustafa T. Chahine** (SX 1960), senior research associate, Jet Propulsion Laboratory. For leadership in determining the structure and composition of the Earth's atmosphere from space observations.

**Jean-Lou A. Chameau** (SX 1982), president, California Institute of Technology. For national and international leadership in education, geotechnical engineering and public policy.

**Yet-Ming Chiang** (SX 1980), Kyocera Professor, department of materials science and engineering, Massachusetts Institute of Technology. For elucidation of new energy storage materials and their commercialization.

**Jack B. Dennis** (SX 1954), professor emeritus, Computer Science and Artificial Intelligence Laboratory, Massachusetts Institute of Technology. For contributions to sharing and protection in computer systems and parallel architectures based on data flow principles.

**S. M. Farouq-Ali** (SX 1965), president, Petroleum Engineering Research Laboratories Canada Ltd. For pioneering techniques for enhanced oil and gas recovery.

**Gerard J. Foschini** (SX 1965), distinguished inventor, Alcatel-Lucent, Bell Labs. For contributions to wireless communications with multiple antennas for transmission and receiving.

**Donald P. Gaver** (SX 1992), Distinguished Professor of Operations Research, Naval Postgraduate School. For reliability, maintainability and queuing concepts, with applications to telecommunications and military systems.

**Ahsan Kareem** (SX 1976), Robert M. Moran Professor, department of civil engineering and geological sciences, University of Notre Dame. For analyses and designs to account for wind effects on tall buildings, long-span bridges and other structures.

**Christopher B. Lofgren** (SX 1987), president and chief executive officer, Schneider National Inc. For development of supply-chain engineering concepts, software and technology for truck transportation and third-party logistics.

**Mark S. Lundstrom** (SX 1982), Don and Carol Scifres Distinguished Professor of Electrical and Computer Engineering, Purdue University. For leadership in microelectronics and nanoelectronics through research, education and applications of cyberinfrastructure.

**Michael J. McGuire** (SX 1978), Michael J. McGuire Inc., Los Angeles. For improving the safety and aesthetics of drinking water.

**Matthew O'Donnell** (SX 1975), Frank & Julie Jungers Dean of Engineering and professor of bioengineering, University of Washington, Seattle. For contributions to biomedical ultrasonics and real-time ultrasound imaging.

**George A. Olah** (SX 1966), Donald P. and Katherine B. Loker Chair in Organic Chemistry and director, Loker Hydrocarbon Research Institute, University of Southern California. For development of chemical technologies for environmentally favored and carbon-neutral energy conversion.

**Stavros S. Papadopoulos** (SX 1963), founder and senior principal, S.S. Papadopoulos & Associates Inc., Bethesda, Maryland. For statistical methods for estimating groundwater flow and contaminant transport.

**Claire L. Parkinson** (SX 1970), senior scientist and Aqua Project Scientist, NASA Goddard Space Flight Center. For leadership in understanding sea-ice changes and for leading NASA's Earth Observing System Aqua mission.

**Percy A. Pierre** (SX 1978), vice president and professor emeritus, department of electrical and computer engineering, Michigan State University. For service

as assistant secretary of the Army, contributions to education and leadership in creating the national minority engineering effort.

**Doraiswami Ramkrishna** (SX 2008), Harry Creighton Peffer Distinguished Professor of Chemical Engineering, Purdue University. For improving the engineering of biological and particulate processes.

**Robert A. Scholtz** (SX 1958), Fred H. Cole Professor of Engineering, department of electrical engineering, University of Southern California. For contributions to the fields of ultra-wideband and spread-spectrum communications.

**Richard M. Swanson** (SX 1969), president, Swanson Analysis Services Inc., The Villages, Florida. For development of general-purpose finite-element software used in engineering design worldwide.

**Stephen David Umans** (SX 1970), consultant, Belmont, Massachusetts. For outstanding teaching and the development of electric machinery.

**Mark W. Verbrugge** (SX 2002), director, Materials and Processes Laboratory, General Motors Research & Development and Strategic Planning. For electroanalytical methods for advanced batteries, supercapacitors and fuel cells for hybrid and electric vehicles.

**Alan R. Washburn** (SX 1974), Distinguished Professor Emeritus of Operations Research, Naval Postgraduate School. For analytical contributions to search theory and military operations research and their application to antisubmarine, mine and information warfare.

**William L. "Red" Whittaker** (SX 1973), Fredkin Professor of Robotics, The Robotics Institute, Carnegie Mellon University. For pioneering contributions to fielded, mobile, autonomous robots.

### New Foreign Associates

**Sébastien Candel** (SX 1969), professor and head, Ecole Centrale Paris and Institut Universitaire de France. For solving multidisciplinary problems in the fields of combustion, fluid mechanics, aeroacoustics and propulsion.

**Prakash C. Kapur** (SX 1966), professor emeritus, Indian Institute of Technology. For the elucidation, quantification and synthesis of complex mineral-processing systems.

**Peter T. Kirstein** (SX 1956), professor, department of computer science, University College London. For contributions to computer networking and leadership in bringing the Internet to Europe. •