

Life Member News is a biannual newsletter for Sigma Xi's honored Life Members, intended to keep you up-to-date on news about Sigma Xi and its members.

The Mission of Sigma Xi:
To enhance the health of the research enterprise, foster integrity in science and engineering, and promote the public's understanding of science for the purpose of improving the human condition.

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Welcome from Sigma Xi's Executive Director



Welcome to the inaugural issue of *Sigma Xi Life Member News*. We look forward to keeping you updated and will endeavor to remind you of our Society's unique attributes. Sigma Xi has a distinguished history of more than a century of service to science and society. It continues to make a difference by helping to create a collegial, supportive environment in which science and engineering research can thrive. Our interdisciplinary outlook has never been more valuable as different fields of investigation

become interdependent. Progress grows ever more reliant on personal interactions. Thus, our members and chapters give renewed meaning to our motto, "Companions in Zealous Research." Life Members have demonstrated a special level of commitment. You have shown your support for the Society's mission, while ensuring a lifetime of benefits. We thank you for that. I am proud to say that I recently became a Life Member. It is my hope that this newsletter will stimulate your thinking on what our Society should do and be in the 21st century. Please share your thoughts and ideas.

Philip B. Carter, Ph.D.
Executive Director, Sigma Xi

Scientists Present Roadmap for Reducing Climate Change Risks

The United Nations Foundation and Sigma Xi released on February 27, *Confronting Climate Change: Avoiding the Unmanageable and Managing the Unavoidable*, the final report of the Scientific Expert Group on Climate Change and Sustainable Development. The report, prepared as input for the upcoming meeting of the UN's Commission on Sustainable Development (CSD), outlines a roadmap for preventing unmanageable climate changes and adapting to the degree of change that can no longer be avoided.

Two years in the making, *Confronting Climate Change* was written by an international panel of scientists co-chaired by Sigma Xi past-president Peter Raven, director of the Missouri Botanical Garden, and Rosina Bierbaum, dean of the University of Michigan's School of Natural Resources and the Environment. John Holdren, director of Woods Hole Research Center, was among the co-authors. Sigma Xi was invited by the UN's Department of Economic and Social Affairs, Secretariat to the CSD, to put together an expert team, to make recommendations on key mitigation and adaptation needs. This year's 15th Session of the CSD is reviewing national and international efforts on energy and climate change.

Visit www.confrontingclimatechange.org to download the full report. An executive summary of *Confronting Climate Change* will appear in the May-June issue of *American Scientist* magazine.

Nobel Prize Winner Visit

We were thrilled to receive an out-of-the-blue visit to the Sigma Xi Center from 2004 Nobel Prize winner in Chemistry and Sigma Xi Life Member **Irwin Rose**. Rose, inducted into the Society in 1951, lives in Laguna Woods, California, and had been attending a conference in Research Triangle Park. He was accompanied by his son (and Sigma Xi member), **Robert Rose**, who is an assistant professor in North Carolina State University's Department of Molecular and Structural Biochemistry. At the young age of 80, Rose (senior) is still working in his lab at UC Irvine.



Generating Income From Your Gift

Have you ever considered making a gift to Sigma Xi, but also wanted to make income from it, and control its structure? A Charitable Remainder Trust (CRT) can do just that – it's a separate trust agreement between you as the donor and a trustee chosen by you. You reserve the right to receive payments from the CRT, or make a payment to others.

When you choose a CRT as a means of supporting the mission of Sigma Xi, Sigma Xi will receive the *corpus* or principal of the trust after you have passed away or after a designated term of years, whatever the trust stipulates.

How it Works

The donor transfers appreciated assets into the trust. The trustee will generally sell the appreciated asset to form the "trust fund." The trustee will then invest the trust funds and pay out income from the trust to the beneficiaries of the trust. The income is paid at a fixed rate during the lives of the beneficiaries or for a fixed term of years, as determined by the donor's plan when the trust is established. Typically, the income beneficiaries are the donor and, in many cases, the donor's spouse. When the income beneficiaries have passed away, the trust comes to an end. The remainder, which includes the original trust principal and any accumulated earnings, passes to Sigma Xi as a gift.

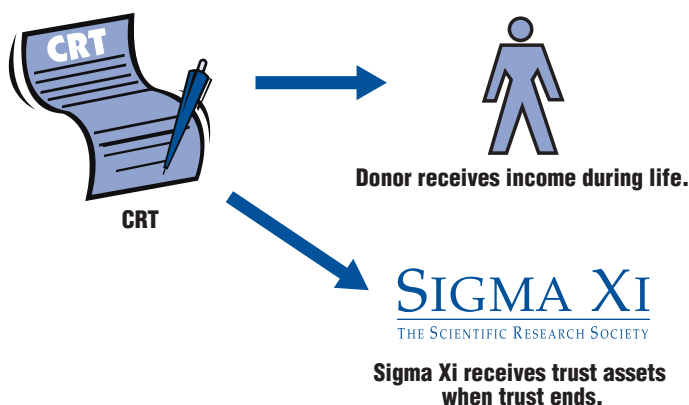
How you can benefit from a CRT

Avoidance of Capital Gains Tax: Because the assets that you transfer to the trust are destined for Sigma Xi (a qualified 501(c)(3) charitable organization) the trust does not pay any capital gains tax on the appreciated assets. Consequently, the full value of your donated assets can ultimately be put to use for the benefit of Sigma Xi while allowing you to maintain a fixed income as a beneficiary of the trust during your life, or during a fixed term of years determined by you when the trust is established.

Charitable Deduction: In addition to favorable capital gains treatment, because the funds eventually benefit a charitable

organization, the donor qualifies for a charitable deduction. The amount of this deduction varies depending on individual circumstances and the type of appreciated property that is placed in trust. As you move to create a CRT, you should consult with a tax professional.

Income Stream: Throughout the term of the trust the income beneficiaries receive an income stream generated by the trustee's earnings on the trust principal. The income is paid at a fixed rate, which is determined when the trust is created.



How your CRT can benefit Sigma Xi

When the trust comes to an end and the remainder of the trust passes to Sigma Xi, your generous gift will allow Sigma Xi to continue to support scientific and engineering disciplines through *American Scientist*, educational programs, early career support and national and international science and engineering networks.

Sigma Xi's Development Office can provide further information about the benefits of a Charitable Remainder Trust as a gifting tool. If you need further information about CRTs please contact Kristen Greenaway in Sigma Xi's Development Office: 800-243-6534 ext 210, or via e-mail at kgreenaway@sigmaxi.org. Please consult your financial advisor for further information pertinent to your own specific circumstances.

Counting the Generations

Is Sigma Xi membership a tradition in your family? If so, we would like to hear from you. We are compiling stories of members who are carrying on the Sigma Xi tradition, to add to the richness of the Society's history. Our first story is from Hugh G. Gauch, Jr. At Cornell University, Hugh is a fourth-generation Sigma Xi member, which included his great-grandfather, his grandmother, his father and, of course, himself. You can read Hugh's story at <http://www.sigmaxi.org/about/news/SXT06JA.pdf>

Please send your stories via e-mail to the editor at kgreenaway@sigmaxi.org, or send them to her at Sigma Xi in RTP, NC. Photos are welcomed!

Four generations of Sigma Xi members are shown at left, clockwise starting top left: Charles Wesley Rolfe, Susan Farley Rolfe (later, Mrs. Horace Graham Butler), Hugh Gilbert Gauch and Hugh G. Gauch, Jr. *Charles Rolfe photo courtesy of the University of Illinois Archives.*



Sigma Xi Life Members in the News

Scientific American.com recently named its list of 50 leaders in science and technology, and two Sigma Xi members made the list. We congratulate them!

Nader Engheta (inducted 1988) from the Dept of Electrical & Systems Engineering at the University of Pennsylvania, and **Susan L. Lindquist** (inducted 2007), head of MIT's Whitehead Institute for Biomedical Research, and also the winner of Sigma Xi's 2006 Procter Prize for Scientific Achievement.

National Science Foundation has chosen Sigma Xi Life Member **Jeannette Wing** (inducted 1979), president's professor and head of the Computer Science Department in Carnegie Mellon University's School of Computer Science, as assistant director for Computer & Information Science and Engineering at NSF.



Sigma Xi Members in the News

Sharon K. Hahs (inducted 1997) has been named the next president of Northeastern Illinois University, effective February 1, 2007.

Mike E. Brown (inducted 1987) at Caltech's Division of Geological & Planetary Sciences was named by *Time* magazine as one of its 100 men and women whose talent and "big ideas" are transforming our world. MIT's **Kerry A. Emanuel** (inducted 1976) was also listed in the top 100. Emanuel is a professor of atmospheric science in MIT's Department of Earth, Atmospheric and Planetary Sciences.

Ellen J. Yoffa (inducted 1983), at IBM Research in Hawthorne, New York, has received the Marie R. Pistilli Women in Electronic Design Automation Achievement Award.

Mary J. Sansalone (inducted 1991) is the new dean of the School of Engineering and Applied Science at Washington University in St. Louis.

Stuart L. Pimm (inducted 1972), at Duke University's Nicholas School of the Environment was awarded the 2006 Heineken Prize for Environmental Sciences from The Royal Netherlands Academy of Arts and Sciences. He will also receive Sigma Xi's 2007 William Procter Prize for Scientific Achievement.

Mary-Claire King (inducted 1988), in the University of Washington's Department of Genetics, was awarded the 2006 Heineken Prize for Medicine from The Royal Netherlands Academy of Arts and Sciences.

Donna C. Boyd (inducted 1985), professor of anthropology at Radford University, has been named a recipient of the 25th annual U.S. Professors of the Year Award. **Alexei V. Filippenko** (inducted 1991) in the Department of Astronomy at the University of California was also named a recipient of the award.

Deborah German (inducted 1990), has been named the first dean of the University of Central Florida's new College of Medicine.

Leroy E. Hood (inducted 1964) is a 2007 inductee into the National Inventors Hall of Fame for his automated DNA sequencing technique.

Career Focus: Arthur L. Thomas (1954)



At the DuPont Company, I worked in a chemical engineering research group that studied concentrating photographic emulsions prior to coating them on the film base. This led to a joint publication in *Industrial and Engineering Chemistry* relating to the climbing film evaporator. At DuPont, I was the research supervisor for a chemical engineering group that developed the first drafting film emulsion that could be and was coated successfully on Cronar (or Mylar) base. This type of drafting film continues to be advertised, now on the Internet, over 40 years later.

At the Standard Ultramarine & Color Company (SUCo) I was a chemical engineer in research & development of pigments with an emphasis on copper phthalocyanine pigment and to an extent ultramarine blue pigment. I researched the kinetics of copper phthalocyanine formation leading to two publications in the *Journal of Organic Chemistry*. We showed that urea carbon does not enter into the formation of copper phthalocyanine and that phthalic anhydride carbons remain intact in the reaction. I developed the pressure process in the laboratory to produce copper phthalocyanine as an alternative to the pan melt oven and solvent reflux processes. I made economic studies relating to copper phthalocyanine manufacture in its various aspects. I suggested to the research director that we write a monograph on the field of the phthalocyanines which we did. It was the first of its kind and was published as Monograph No. 157 of the American Chemical Society. We also published in the *Journal of Chemical Education*. SUCo was an unusual company in that it was family owned and managed.

I also worked briefly in a plasma chemical reactor pilot plant group that reacted small molecules in the plasma arc in residence times of milliseconds. One system feed was silicon tetrachloride and air or oxygen and the desired product was silica of unusual physical properties.

In short, I received a classical chemistry chemical engineering education and applied my skills to classical chemistry and chemical engineering in industry. Interestingly, photographic and drafting film emulsions, pigments, and arc chemistry had never entered my mind in university studies. My colleagues wherever I worked were a great group mostly of dedicated young men. My work took me from New Jersey (DuPont) to West Virginia (SUCo) to Plasma Chem (California). In 1965, almost nine years after I left graduate school, I took the Graduate Record Examination for the first time and received a 74% in English, 98% in quantitative, and 86% in engineering, evidence, in a sense, that I had chosen a good career path. The GRE examination results were a prerequisite in applying for the Scientist Astronaut program.

A Life Member, Arthur Thomas was inducted into Sigma Xi in 1954. He now resides in Greenwich, CT.

We would like to know more about the careers of our Life members.

Please write to us about what you believe to be your most critical contribution to research science or engineering. We plan to publish a story in each issue of this newsletter as well as publishing your responses on the Society's Web site. Send your submission to kgreenaway@sigmaxi.org.

Listen, Learn, Pass it On

Editor: I have recently been in e-mail correspondence with a young Sigma Xi member, Melissa Steinman, who is currently in the Pacific Ocean, near Easter Island, on a research vessel doing an ODP drill survey. In her e-mail she wrote "Much of my being on this research cruise is the result of things I learned from Sigma Xi." I asked her just what she meant by that...



Growing up, everyone asks you what you want to be when you grow up, but no one seems to tell you how to get there. They just say "go to college." So I went to college. In 2005, as an oceanography major, I was drawn to my first Sigma Xi Student Research Conference in Seattle because Dr. Sylvia Earle would be speaking. My

research partner and fellow Sigma Xi member, Rebecca Medvecky, joined me. Upon registration we saw that every event was aimed toward networking. Believing that we had little to offer "real scientists," we attended each event with the intention of learning as much from these people as possible. To our surprise, Sigma Xi's members were interested in us. As we asked questions about their experience, they would ask about us to ensure that their advice was tailored to our goals. Everyone took time to advise us. The conference's exhibitors opened our eyes to volunteer and job opportunities we didn't know existed, while the members made the goal of graduate school come into focus.

That weekend, the light bulb flicked on... "We have something to offer." The members of Sigma Xi had chosen to take time to mentor us, and it was now our responsibility to take what we had learned and mentor kids under us. Rebecca and I were planning for an educational cooperative at the Naval Station at Guantanamo Bay, Cuba (GTMO) when we attended Sigma Xi's conference. I was to be stationed at the base during a tour of duty with the US Coast Guard. Upon completion of the educational cooperative in GTMO, we launched A-B-Sea Foundation (www.abseas.org), a non-profit dedicated to providing science education to children who are geographically or culturally isolated. So the cycle continues... listen, learn, pass it on!

-Melissa Steinman

In Remembrance

L. Steven Medgyesy, of Chicago, Illinois (1933-2006). A member since 1954 with the Northwestern University Chapter, Medgyesy graduated from Harris School in 1950, received his B.S. from Northwestern in 1954, and his M.D. from Baylor College of Medicine in 1958. He met Erma, née Sedgwick, in Ohio, while working as a pathology fellow at the Cleveland Clinic. They were married on June 29, 1963. He was drafted into the U.S. Navy and served as a physician at Marine Corps Base, Quantico, from 1963-1965. After returning to Chicago, he spent his career as a pathologist working at several area hospitals, most notably Forkosh Hospital. In his many years as a Sigma Xi member, Medgyesy was a long-time donor in support of the Society and most notably Grants-in-Aid of Research, giving nearly \$100,000 over the last 20 years. Sigma Xi will be honoring Dr. Medgyesy's commitment to the Society by commissioning a commemorative paver in his memory, to be placed in the Sigma Xi Center's plaza.

Richard D. Stutzke, of Huntsville, Alabama. A member since 1969 with the Society's Pikes Peak Chapter, Stutzke had more than 40 years of experience with software development and project management in the military and industry, including scientific, embedded real time and commercial systems. He published more than 50 papers and articles on software estimation and management. In 1989, he established Science Applications International Corporation's Corporate Software Process Group and led it for two years. After that, he focused on defining integrated processes for developing software-intensive systems and managing their development and operation. Stutzke received the 2006 Parametrician of the Year award from the International Society of Parametric Analysts. We honor Stutzke and thank him for remembering Sigma Xi in his will with an unrestricted gift of \$10,000. The Society has commissioned a commemorative paver in his memory.

What's your news?

If you would like to include any news of your own in the next issue of *Sigma Xi Life Member News*, please e-mail Kristen Greenaway, editor, at kgreenaway@sigmaxi.org.

The deadline for any material for the next issue is August 27, 2007.

SIGMA XI

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