

Marye Anne Fox Reception



On November 5th at Sigma Xi Headquarters in Research Triangle Park, North Carolina, President of Sigma Xi **Dr. Kelly O. Sullivan** (left) presented world-renowned chemist, and former Sigma Xi President, **Dr. Marye Anne Fox** with the 2012 John P. McGovern Science and Society Award.

With more than fifty attendees at the celebratory reception from around the Triangle area and North Carolina State Chapter of Sigma Xi, Fox received the award and gave a poignant talk on the necessity of government funding for science programs of the future.

At the time of her selection for this award, Fox served as the seventh chancellor of the University of California—San Diego and a distinguished professor of chemistry. Prior to her tenure at UC San Diego, Fox's ties to the North Carolina area ran deep—she served as North Carolina State University's 12th chancellor and as Distinguished University Professor of Chemistry from 1998 to 2004.

In October 2010, President Barack Obama named Fox as a recipient of the National Medal of Science, the highest honor bestowed by the United States government on scientists, engineers and inventors.

Congratulations and best wishes to Marye Anne Fox on her achievements and many thanks for her years of dedication and service to Sigma Xi! •

From the President



Virtually Meeting

As I write this, because publication deadlines are what they are, I have only recently chaired our Society's first ever **Virtual Assembly of Delegates** held on November 3rd, 2012. We had over 160 registered, with over 100 voting delegates, and an unknown total in attendance because many took our suggestion and arranged to have a group participating in a location together. It was great to hear from the New Mexico Highlands chapter during a Q&A session with a question from the students in attendance! If you participated, I thank you very much.

This was, of course, an experiment. It's the first time we've conducted an **eSsembly of Delegates** (as I've recently decided to call it, a name which may or may not stick). The staff worked hard to find the right platform that would allow for appropriate governance rules to be followed while engaging participants both over audio and via text. No doubt there is room to improve and if you participated we definitely want to hear from you about your experience.

We had three outstanding speakers—two on Science and Diplomacy (Glenn Schweitzer of the National Academies and Bill Colglazier, Science and Technology Advisor to the Secretary of State) and one on having a successful career in industry (Susan Butts, recently retired as Director of External Technology for The Dow Chemical Company). The whole meeting was recorded, so if you missed it you can still hear those talks. I encourage you to consider using them as part of a chapter meeting in the future.

In addition to the usual reports from the President, Board, Treasurer, and Executive Director, we also carried out two "listening sessions"—where participants could ask questions, raise concerns, or provide ideas. It became clear during these sessions that the chapter workshops, which had not been a large part of the in-person Assembly of Delegates recently, should be brought back in some way. In the meantime, staff are working hard to revise and simplify the Chapter Toolkit with ideas on types of meetings and events that chapters can host, and how to do them. They are always excited to talk to our members and help make Sigma Xi as valuable as it can be to those whom we serve. Please reach out! You can also connect through social media via Twitter (@SigmaXiSociety), on Facebook, on LinkedIn, and ResearchGate.

I'm sure those of you who had recently participated in the face-to-face Assemblies missed those interactions. I did as well. Rest assured we have not abandoned those forever; we fully intend to have a blend of eSsemblies (honestly—I really do like the term, but it's not up to me so if you all hate it then it's gone after this!) and Assemblies of Delegates based on the needs of our chapters and the Society. Your suggestions for how we interact in the future are invaluable and I would appreciate you taking the time to provide them.

One item you may not have considered that happened as a result of the eSsembly this year is that the awards presentations have changed. I had the pleasure of presenting the Young Investigator Award to Dr. Sivaguru Jayaraman as part of the Sigma Xi Northwest Region's presence at the AAAS Pacific Division meeting in Boise in June 2012. Two days after the eSsembly I had the privilege of presenting the McGovern Award to Dr. Marye Anne Fox at a reception held at the Sigma Xi Center. So, if you're attending other meetings around the country—keep an eye out for special events; it's possible a Sigma Xi Award is being presented and we'd love to have you attend!

Thanks for reading,
Kelly O. Sullivan

Chapter Program Award Winners

We would like to take a moment to recognize our outstanding Chapters for 2012!

Chapter Program Awards were given to the following chapters for organizing and/or hosting a single outstanding program, especially one that other chapters can emulate. Nominees were chosen by the Regional Directors based on chapter annual reports, and winners were selected by the Committee on Qualifications and Membership.

Chapter Program Award Winners

University of Arkansas-Fayetteville for their Science Café Series.

Ohio State University for their Meet a Scientist Program for High School Students.

State University of New York at Oswego for their Science Today Lecture on Women in STEM programs.

Thomas Jefferson University for their 2012 William Potter Lecture and Sigma Xi Student Research Day.

Wichita State University for their workshop on the Ethics of Scientific Publishing.

Chapter Program of Excellence Honorable Mentions

Rice University-Texas Medical Center for their Crocodile Encounter at Brazos Bend State Park.

Northern Arizona for their Flagstaff City of Science panel and discussion.

Certificates of Excellence were awarded to the following chapters for exceptional chapter activity, innovative programming and true community leadership during the past year. Nominees were chosen by the Constituency Directors based on Annual Reports, and winners were selected by the Committee on Qualifications and Membership.

Certificates of Excellence Award Winners

Rice University-Texas Medical Center
Vermont **Queens College**
John Deere **Villanova University**

Certificates of Excellence Honorable Mentions

American University
University of Nebraska at Kearney

Do you have questions about these chapter programs and how to implement new initiatives in your area? If so, please contact us today at chapters@sigmaxi.org.

Top 25 Nominators Spotlight

We would like to take a moment to recognize this year's Top 25 Nominators. Each of these individuals has shown both their personal dedication to Sigma Xi and their belief in the honor of membership, through the gift of their nomination of new initiate members. We thank you for your service to your Society!

• Barrett Hazeltine	Brown University	159 Nominees
• Eunsuk Kim	Brown University	155 Nominees
• Cristina Gouin-Paul	District of Columbia	142 Nominees
• Robert Kaita	Princeton	106 Nominees
• Linn Hobbs	Massachusetts Institute of Technology	105 Nominees
• Igor Paul	Massachusetts Institute of Technology	105 Nominees
• David Parris	Princeton	101 Nominees
• Sue Ann Miller	Hamilton College	91 Nominees
• Jennifer Wolff	Carleton College	80 Nominees
• Daniela Kohen	Carleton College	79 Nominees
• Arthur Hand	University of Connecticut Health Center	74 Nominees
• Odell Henson	University of North Carolina-Chapel Hill	71 Nominees
• John Przybylinski	Research Triangle Park	70 Nominees
• Jerome Baker	Research Triangle Park	67 Nominees
• Mary Harrington	Smith College	67 Nominees
• Nicholas Horton	Smith College	67 Nominees
• Steven Vogel	Duke University	63 Nominees
• Michael Hagerman	Union College	55 Nominees
• Joanne Kehlbeck	Union College	55 Nominees
• Martin Sanzari	Fordham University	55 Nominees
• Donna Heald	Fordham University	55 Nominees
• Jay Pasachoff	Williams College	53 Nominees
• Lois Banta	Williams College	53 Nominees
• Mark Marshall	Amherst College	52 Nominees
• Helen Leung	Amherst College	52 Nominees

Top 15 Nominating Chapters Spotlight

We are excited to recognize the following chapters for their excellent work nominating new members to the honor of Sigma Xi!

• Brown University	192 Nominee
• Princeton University	165 Nominees
• Massachusetts Institute of Technology	132 Nominees
• Swarthmore College	102 Nominees
• Carleton College	94 Nominees
• Smith College	83 Nominees
• Oberlin College	81 Nominees
• Fordham University	71 Nominees
• Union College	69 Nominees
• Williams College	66 Nominees
• Amherst College	62 Nominees
• Mount Holyoke College	60 Nominees
• University of Cincinnati	60 Nominees
• Denison University	53 Nominees
• Loyola Marymount University	52 Nominees

Annual Meeting Recap

The 118th Annual Assembly of Delegates, held on November 3rd, proved to be an unparalleled success for our Board of Directors, Chapter Delegates and participating members!

Thanks to an innovative system provided by CommPartners online learning company, representatives and members of more than 100 Sigma Xi Chapters across the world gathered together online to conduct Society business. Many Chapters hosted viewing parties—where members joined Delegates to celebrate the pioneering spirit of Sigma Xi.

The general business of the meeting was punctuated with informative keynotes by Dr. Glenn Schweitzer, Director for Central Europe and Eurasia at the National Research Council on “Bilateral Science Diplomacy: Then and Now”; Dr. Susan B. Butts, Retired Former Senior Director of the External Science and Technology Programs at Dow Chemical Company on “Reflections On a Career In Industry”; and Dr. E. William Colglazier, Science and Technology Adviser to Secretary of State Hillary Clinton on “Science and Diplomacy.”

The Assembly also included two town hall sessions where members and Chapter

Delegates were able to express their thoughts on the future of the Society and ask questions directly of the Board of Directors, Executive Director Dr. Jerry Baker and the staff of Sigma Xi.

Additionally, Delegates passed an amendment to the Constitution allowing Associate Members to participate on Sigma Xi Committees.

Many thanks to all that helped create a collegial and educational online experience—especially to Sigma Xi President Dr. Kelly O. Sullivan, for her determination to see this innovative project come to fruition! •



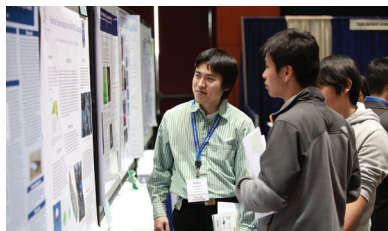
Student Research Showcase 2013

Researchers in the new millennium must be prepared to communicate their work to a diverse audience and through varied media. Coming in 2013, Sigma Xi will offer two opportunities for outstanding high school, undergraduate and graduate students to share their research with professional scientists and engineers.

Student Research Showcase March 18–23, 2013: An innovative virtual hosting of student presentations evaluated online by leading career scientists in a great blog format.

Student Research Conference November 8–9, 2013: Students will present research posters and attend lectures, workshops and networking events at a traditional face to face meeting held in Research Triangle Park, North Carolina.

More information can be found online at: www.sigmaxi.org/meetings/src/src.shtml.



Mercer Visit

On September 22, 2012, Sigma Xi Executive Director **Dr. Jerry Baker** and Manager of Chapter and Member Services, **Hallie Sessoms**, traveled to Mercer University in Macon, Georgia, for their chapter's induction ceremony.

Dr. Philip McCreanor, President of Sigma Xi at Mercer and Associate Professor of Environmental Engineering, oversaw the induction of 62 new members. Mercer is an institution well-known for its pioneering programs in undergraduate research and Sigma Xi Headquarters' membership team is incredibly excited for this chapter's future.

Also of note is that Mercer University is one of more than 40 chapters in the United States that is currently undergoing the reactivation process.

Do you have questions about reactivating a chapter? Be sure to contact us at chapters@sigmaxi.org.

Congratulations to Sigma Xi's Mercer Chapter and welcome to our new initiates!

North Central Regional Meeting

This past October 13–14th, Sigma Xi President Dr. Kelly O. Sullivan and Executive Director Dr. Jerry Baker traveled to Columbus, Ohio to visit with the former North Central Regional Director Lynn Elfner and an enthusiastic group of dedicated Sigma Xi members.

Among the points of discussion at the meeting were Chapter Best Practices and building a bright future for Sigma Xi.

Many thanks to The Ohio State University for hosting this great event!



meet your fellow companion

Meet Your Fellow Companion: Nicholas Money



The honor of membership into Sigma Xi spans disciplines and courses of research study. Each month in Sigma Xi Today, we will be highlighting a different “Fellow Companion”—asking them about their work and what the honor of induction into Sigma Xi has meant to their career.

A native of the United Kingdom, botanist Dr. Nicholas Money received his BSc at Bristol University before beginning his doctoral work in mycology under Dr. John Webster at Exeter in the 1980s. After post-doctoral work at Yale University and 18 years at Miami University (Ohio), Money has become one of the primary researchers in fungal biology, with particular interest in the mechanics of spore discharge. He is the author of more than 70 peer-reviewed papers on fungal biology and has authored four books, including *Mushroom* (2012), described by *Nature* magazine as a “brilliant scientific and cultural exploration.” It is important to note also that in 2012, he was named the Annual Researcher of the Year for the Sigma Xi Chapter at Miami University (Ohio).



1) Do you have a particular teacher or professor who inspired your love of science? Why?

Mike Madelin was my favorite professor at Bristol. He was an inspiring teacher whose enthusiasm about fungal biology seemed boundless. I worked in his lab as an undergraduate and this experience shifted my perception of biology as a study of big organisms, like us, toward a more sensible view of life as an almost entirely microbial enterprise.

Long before university, my Lincolnshire grandmother introduced me to animals fossilized in Jurassic sandstone and animals croaking in the fens, and taught me the names of British plants.

2) What is the focus of your current research?

My recent lab research has concerned the mechanisms that launch fungal spores into the air. In particular, we are looking at fungi that cause asthma. Despite more than a century of experiments on spore discharge in fungi, very little is known about how the commonest types of spores in the air get airborne. This is a fascinating problem in aerobiology and we are trying to solve it.

3) Tell us about something we might see in our daily lives that directly correlates to your work.

The prevalence of asthma has increased greatly in recent years and hundreds of millions of people are allergic to the proteins carried on

the surface of fungal spores. Experiments show that the rate of fungal decomposition of plant materials is stimulated by an increase in carbon dioxide concentration and that the fungi produce more spores under these conditions. This raises the possibility that more and more of us will wheeze as the planet gets warmer. By understanding how the most allergenic spores get into the air, we will be able to forecast weather conditions most likely to exacerbate asthma. Public health is tied to the biological activities of the fungi in ways unimagined just a few years ago.

4) What are your thoughts on the future of STEM education?

Few but the least thoughtful critics would deny the importance of STEM education in the United States. The challenges facing *Homo sapiens* in the twenty-first century may be greater than any in our evolutionary history. Population growth and climate change are probable game-changers, but the ignorance of the electorate and politicians has limited meaningful discussion in the public forum. Future options for responding to climate change, and other pressing challenges, narrow with the passage of every year that society devalues scientific discourse. STEM education, as part of a broader commitment to teaching the value of critical thinking, offers the only conceivable path to salvation.

Engagement in scientific inquiry is among the most liberating experiences available to humanity. And the prospect of a life without enjoying some appreciation of science seems almost worthless to me.

5) Describe the patent/publishing experience—were there any bumps along the way for you?

To do justice to this question would require many pages of reflection. In short, however, publishing of peer-reviewed work requires negotiation of a very bumpy path, but I am a big believer in peer review and have little to complain about from personal experience.

6) What has the honor of induction into Sigma Xi meant to you?

I love the sense of community of Sigma Xi and am proud to be associated with an organization that celebrates the pursuit of knowledge.

7) Has Sigma Xi helped further your career? If so, how? If you haven't started your career yet, how do you believe Sigma Xi will serve you in the future?

Sigma Xi has helped further my career in a very local way, by increasing my awareness of the research interests of students and professors outside my home department.

8) What is your favorite motto?

What larks [Pip, from Dickens' "Great Expectations"]

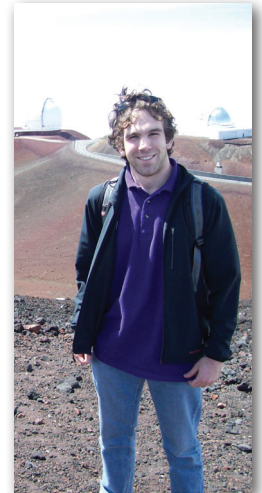
9) What advice would you give a young researcher just starting out in your field?

Be skeptical about everything, but avoid cynicism for as long as possible.

Please note that the text above is just a small excerpt of all Money had to say in response to our questions. To read his interview in full, please visit Sigma Xi's website at www.sigmaxi.org.

meet your fellow companion

Meet Your Fellow Companion: Matthew Hosek



The honor of membership into Sigma Xi spans disciplines and courses of research study. Each month in Sigma Xi Today, we will be highlighting a different “Fellow Companion”—asking them about their work and what the honor of induction into Sigma Xi has meant to their career.

This month, we are excited to feature **Matthew Hosek**, a first-year graduate student pursuing a PhD in astronomy at the Institute of Astronomy at the University of Hawaii, Manoa. Originally from Ballston Spa, New York, Hosek graduated last year with a BSc degree in astrophysics from Williams College in Williamstown, Massachusetts, and has worked previously as a researcher at NASA’s Marshall Space Flight Center in Huntsville, Alabama and at the Keck Northeast Astronomy Consortium at Wellesley College in Wellesley, Massachusetts. We are excited to introduce Matthew Hosek as an excellent example of a young member with a passion for science and a deep appreciation for the honor of membership in Sigma Xi.

1) What is the focus of your current research?

I haven’t yet started research at the graduate level, and am still undecided as to what field of astronomy I will specialize in. However, as an undergrad, I had the opportunity to conduct research in a few different areas, most recently examining the dust production of comets. Comets are commonly referred to as the “dirty snowballs” in our solar system, because they are composed of a mixture of rock and ice. As the environment at the surface of the comet warms, (perhaps as it gets closer to the sun, for example), the ice begins to sublimate, taking dust particles along with it and this how a comet forms its tail. Outside of this basic picture, however, we don’t have a good understanding of the mechanisms driving this

process, and many comets appear to behave strangely in regard to their dust production.

2) Tell us about something we might see in our daily lives that directly correlates to your work.

Meteor showers are produced when the earth moves through a path of cometary dust. If we better understood comet dust production, we could more accurately forecast how intense future meteor showers will be. This allows for better assessment of the risk the shower will pose to satellites, space vehicles or whatever else happens to be in the way. This is important, as we depend on satellites for communication and many other daily functions.

3) What are your thoughts on the future of STEM education?

STEM education is going to be critical to human development as we move forward into the future. New technology and innovative science are needed to overcome the challenges we face as a population 7 billion strong and rising. Solutions will be found by nations with strong STEM education programs, and those nations will be the leaders of tomorrow.

4) What has the honor of induction into Sigma Xi meant to you?

To me, the honor of being inducted into Sigma Xi sets a high expectation for my future research as I begin my graduate studies, as my work must be worthy of my peers in Sigma Xi. It represents a step forward in my personal development, as I will be expected to contribute to the field as active researcher, rather than solely absorbing knowledge as a student.

5) Even though you haven’t started your career yet, how do you believe Sigma Xi will serve you in the future?

The members of Sigma Xi provide role models for me as I begin my own career. The organization will introduce me to scientists across the world from all different fields, giving me the opportunity to learn from them and communicate my own work.

6) What is your favorite motto?

“It is difficult to say what is impossible, because the dreams of yesterday are the hopes of today and the realities of tomorrow”

—Robert Goddard



Please note that the text above is just a small excerpt of all Hosek had to say in response to our questions. To read his interview in full, please visit Sigma Xi’s website at www.sigmaxi.org.