

Reflections from Stan Ovshinsky

Stanford R. Ovshinsky (SX 1990), co-founder of Energy Conversion Devices was interviewed by **Greg P. Smetstad** (SX 1982), Associate Editor for *Solar Energy Materials and Solar Cells*.

Q What have been your most fulfilling accomplishments, as both a person and as a scientist?

A I think that I need to preface my answer by explaining that I grew up in the Great Depression and saw a lot of things that were wrong in society—poverty, unemployment, just terrible things happening to human beings. And from a very early age social responsibility was one of my interests. Whatever I did, I wanted to not only be a scientist involved in new technologies, because that's what excites me, but I wanted to be a scientist who could use my work in science and technology to help make a better world. That means solving the science problems that can build new industries and that can serve the country and the social needs of the people. . . .

Having been a person who worked in my early career as a toolmaker and an inventive machine builder, it has been natural for me to look towards inventing new technologies that would permit new scientific mechanisms that solve the problem of energy and therefore very difficult social problems. For me, this is what is most exciting in science and technology. And to do that, you have to look upon technology very respectfully, as being an enhancing and necessary part of science. You have to do both new technology and new science to achieve your goals.

For the complete interview of Stan Ovshinsky as well as reflections from other Sigma Xi members, please visit <http://www.sigmaxi.org/about/125th/index.shtml> •

From the President



125th Celebration Focused on Ethics

The 2011 Sigma Xi Annual Meeting and Research Conference in November celebrated our 125th anniversary with a returned emphasis to our core mission and principles. Sigma Xi was founded with high ideals and an inspiring vision not only to enhance the health of the research enterprise and foster integrity in science and engineering, but also to promote the public's understanding of science for the purpose of improving the human condition. At the core of Sigma Xi's mission and vision is a dedication to mentoring and nurturing the next generation of scientists and engineers. This was indeed the focus of our 2011 proceedings with a positive energy for the future growth and prosperity of our Society's ideals.

The 2011 Sigma Xi International Research Conference on *The Responsible Researcher: Conscience and Collaboration* opened with an informative panel, *Ethics and Integrity in Conducting and Reporting Research*. Speakers underscored an ethos of honesty, integrity, fairness and benevolence remaining and growing as core ethical values of a global research enterprise, while acknowledging that putting these values into practice requires sensitivity to how the undergraduate student handles ethical challenges. The National Science Foundation now expects universities and other research institutions to institute training of all students, postdocs and faculty in responsible conduct of research practices. We were also reminded of the U.S. National Science Board call for the creation of common standards for research integrity among participants in international S&E partnerships, and the work of the Global Science Forum (OECD) in this regard.

The thought-provoking presentations in the panel entitled *Interrelationships of Science, Culture, Religion and Ethics* urged scientists and engineers to gain a greater understanding of how differences in human cultural and religious beliefs intersect with the conduct and interpretation of research. We learned of a major NSF research program that was attempting to weave cultural knowledge into understanding in deeper detail the biology and environment of Hawaiian ecosystems—with indigenous knowledge inspiring and shaping research. Insightful initial results of a joint study between Sigma Xi and our 2010 Chubb Award Winner, Howard Moskowitz, to explore peer review ethics using the science of mind genomics indicated a “tale of two mindsets” that appear to evolve as generations of scientists move through life.

Conference attendees were also inspired by John P. McGovern Science and Society Awardee Kathryn D. Sullivan's lecture *Looking at Earth*; enticed by William Procter Awardee Supriyo Datta to envision spin-based memory built on molecular-scale electronic devices; stimulated to imagine the opportunities of innovation ecosystems by Walston Chubb Awardee Casimer DeCusatis; stirred by Young Investigator Awardee Teenie Matlock to understand how seemingly insignificant aspects of language matter; energized by the passion of George Bugliarello Awardee David Wong for conducting research; motivated by the dedication of Evan Ferguson Awardee Millicent Goldschmidt; and encouraged by “a champion of science” and newly elected Sigma Xi Honorary Member Congressman David Price.

Sigma Xi has evolved significantly since its origins in 1886 when the “alpha” chapter was formed at Cornell University. Yet, our members today continue to have in common with our founders and all previous members of Sigma Xi that indefinable something which goes by a variety of names, which can be felt but not itself investigated, that something within themselves that the investigator satisfies by seeking out the truths of nature and then making them known to all, with a faith that some day these same truths will make the world better. Our celebration of the 125th anniversary of Sigma Xi honored the past and envisioned such a future fostered by integrity in science.

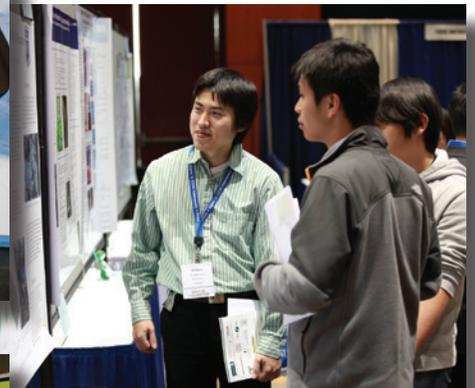
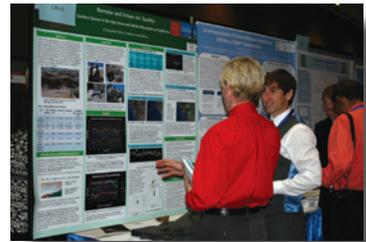
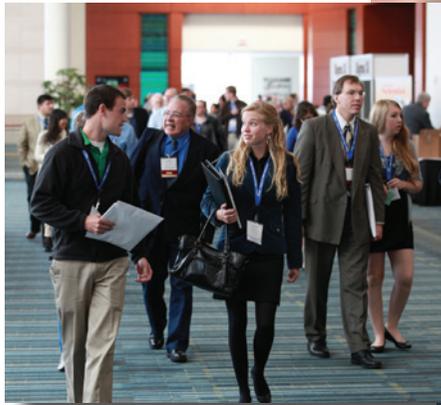
Michael Crosby



Brief Picture of 2011 Annual Meeting & International Research Conference

These two pages show just a few of the hundreds of photos that were taken at our 2011 Annual Meeting & International Research Conference held in November in Raleigh, North Carolina. From the Assembly of Delegates, to the sessions on Ethics, to the student poster presentations to the many networking activities, the event offered a full agenda of governance, discussions, lectures and best of all—inspiration. To see more photos of the event, please visit our website at www.sigmaxi.org.





Riess Shares Nobel Prize

Adam G. Riess (SX 1992) shared the 2011 Nobel Prize in physics. Riess is a professor of astronomy and physics at the Johns Hopkins University and a senior member of the science staff at the Space Telescope Science Institute, both in Baltimore, Maryland. His research involves measurements of the cosmological framework with supernovae and Cepheids (pulsating stars).

In 1998 Riess led a study for the High-z Team which provided the first direct and published evidence that the expansion of the universe was accelerating and filled with dark energy (Riess et al. 1998, AJ, 116, 1009), a result of which, together with the Supernova Cosmology Project's result, was called the Breakthrough Discovery of the Year by *Science* in 1998.

He followed this work with a number of studies to test the susceptibility of this measurement to contamination by unexpected types of dust or evolution. To this aim, Riess led the Hubble Higher-z Team beginning in 2002 to find 25 of the most distant supernovae known with the Hubble Space Telescope, all at redshift greater than 1.

This work culminated in the first highly significant detection of the preceding, decelerating epoch of the universe and helped to confirm the reality of acceleration by disfavoring alternative, astrophysically-motivated explanations for the faintness of supernovae (Riess et al. 2004, ApJ, 607, 655).

This work also began characterizing the time-dependent nature of dark energy. It has been identified by NASA as the #1 Achievement of the Hubble Space Telescope to date. •

Sigma Xi Chapters Win Awards

Chapter Program Awards were given to the following chapters for organizing and/or hosting a single outstanding program, especially one which 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.

- **University of Toledo** for posters at the capital.
- **New Mexico Highlands University** for student research fund.
- **Northwestern Pennsylvania** for 20th Annual Penn State Behrend/Sigma Xi Undergraduate Student Research and Creative Accomplishments Conference.
- **University of Cincinnati** for The UC Sigma Xi 2011 Future Symposium.
- **Woods Hole** for mentoring junior high school students for science fair.

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.

- **University of Cincinnati**
- **Natick**
- **Andrews-Whirlpool**
- **University of Colorado**
- **Gustavas Adolphus College**

Chapters that win Sigma Xi awards are not eligible to win again for three years. However, some continue their meritorious work in subsequent years. These include:

Chapter Program Honorable Mention

- **Columbia-Willamette** for science fair for non-members
- **Duke University** for nanotechnology mythbusters panel

Certificates of Excellence Honorable Mention

- **New Mexico Highlands University**
- **Duke University**
- **Charleston**
- **Columbia-Willamette**

Top 15 Electing Chapters

The following chapters are recognized for initiating the most new members in 2010-2011:

- **Brown University**
- **Claremont Colleges**
- **Princeton**
- **Carleton College**
- **Smith College**
- **Oberlin College**
- **Fordham College**
- **Union College**
- **Williams College**
- **Amherst College**
- **Mount Holyoke College**
- **Swarthmore College**
- **Denison University**
- **Loyola Marymount University**
- **Delta**

