



2004 SIGMA PI SIGMA CONGRESS REPORTS

SOMETHING HAPPENED IN ALBUQUERQUE

The 2004 Quadrennial Congress of Sigma Pi Sigma

The Society of Physics Students (SPS) is really two societies: SPS with its chapters and zone meetings; and Sigma Pi Sigma, the physics honor society, with its inductions and Mission Statement, “Honor, Encouragement, Service, Fellowship”. Every four years, Sigma Pi Sigma hosts a convention called the “Sigma Pi Sigma Congress.” Its attendees are probably the most diverse representation of physicists on the planet, from students to senior researchers; from “explicit physicists” working in national labs or academia or industry, to “hidden physicists” working in insurance or engineering or medicine, or any other profession that can be imagined. Collectively these physics alumni are friends of physics throughout the larger society, and they demonstrate that with a physics degree, one is well equipped to do anything!

The 2004 Congress was held October 13-19, 2004, at the University of New Mexico in Albuquerque. This was also a Joint Meeting with the Four Corners Section of APS, the Southwest and Arizona Sections of AAPT, and Zone 16 of SPS. One theme of the Congress was “Heritage and Promise.” The meeting helped kick off, with several other physics societies around the world, the “World Year of Physics 2005,” celebrating the centennial of Einstein’s monumental papers of 1905 that have steered the agenda of physics ever since. We looked back at Einstein’s life and accomplishments, and ahead to the twenty-first century.

Another theme of the meeting was “Scientific Ethics.” Ethical principles should steer science. A breakdown of ethics in the practice of science itself recently emerged in data falsifying incidents by a researcher at a prestigious lab. More typically, large ethical issues with no clear black and white answers, but which reach deep into society, are a common dilemma in science. Such a dilemma faced the physicists who were charged with building and testing the first atomic bombs, which occurred within two hours’ drive of our 2004 meeting site. With the 2004 Congress’ proximity in time or space to these events, as the physics honor society it was felt that ethical issues were an important focus of discussion at this time.

The 2004 Sigma Pi Sigma Congress was “covered” by several SPS members, who served as “embedded reporters.” Some of their reports appear in this issue of the *SPS Observer*; others will follow in subsequent issues. These are some of the

events:

- ★ Trinity Test Site Tour;
- ★ Jocelyn Bell-Burnell (Discoverer of Pulsars), “Pulsars and Extreme Physics”;
- ★ John S. Rigden (Author, Professor, Historian of Physics, and VP of AIP), “Einstein, 1905, 1999: Legacy and Hope”;
- ★ John H. Marburger III (Science Advisor to the President of the United States), who spoke on scientific ethics;
- ★ Carl E. Wieman (Nobel Prize Winner in Physics, 2001, for Bose-Einstein Condensation in Cold Atoms), “Bose-Einstein Condensation: Quantum Weirdness at the Lowest Temperature in the Universe”;
- ★ L. Worth Seagondollar (former Sigma Pi Sigma President, Physics Professor Emeritus from the University of North Carolina, and participant in the 1945 Trinity Test): “The First Man-Made Nuclear Explosion”;
- ★ Kenneth W. Ford (former CEO, American Institute of Physics, and researcher on the first hydrogen bombs with John Wheeler): “Career Choices and Weapons Research”;
- ★ Lydia Sohn (Professor of Physics at the University of California-Berkeley, who caught the fraudulent parties in the widely publicized ethics violation incidents mentioned above), “Professional Integrity in Research and Authorship”;
- ★ James H. Stith (Vice President, Physics Resources, American Institute of Physics, and former Physics Professor at West Point and Ohio State), “Our Collective Role in Achieving Diversity”;
- ★ Gary White (Director, Sigma Pi Sigma and SPS), “The Architects of Modern Physics and Sigma Pi Sigma Heritage”;
- ★ Diandra Leslie-Pelecky (Professor of Physics, University of Nebraska), “Tenure and Academic Freedom”;
- ★ Dwight E. Neuenschwander (Professor of Physics, Southern Nazarene University), “Taking Einstein’s Ethics Into the Twenty-First Century”;
- ★ Ethics discussions; and
- ★ SPS Poster Sessions, banquets, and enjoying the New Mexico sunshine.

We hope you enjoy reading about the 2004 Sigma Pi Sigma Congress. Plan now to attend the 2008 Congress, which will be held in the fall of that year, at Fermilab in Chicago. ◆