

# SEVEN ROLES OF THE SPS IN THE PHYSICS COMMUNITY

*For too many years, in too many physics departments, the role of the SPS has been perceived as little more than the purveyor of an annual pizza party. While pizza parties and other social fellowships are an important function of any society, I wish to challenge the physics community to see SPS as the professional society that engages the student physicists and other student friends of physics. This professional respect must be earned. Herein we identify, in random order, seven roles whereby the SPS and Sigma Pi Sigma may earn this respect.*

— Dr. Dwight E. Neuenschwander, former SPS Director

## **(1) UNDERGRADUATE RESEARCH AS A TEACHING TOOL.**

Undergraduate research teaches lessons and taps skills that course work cannot reach. The mission of undergraduate research is not the research itself; it is the growth in self-confidence and experience for the undergraduate. The product of undergraduate research is not necessarily a publication; it is the transformation of the student from being merely a taker of courses into a contributing member of the professional community.

Through SPS Zone meetings, *The Journal of Undergraduate Research in Physics*, and its various support programs and publications, the SPS creates an entree into the profession through undergraduate research experience opportunities.

## **(2) PHYSICS OUTREACH TO LOCAL K-12 GRADES AND THE GENERAL PUBLIC.**

Until every physicist is taking lenses or magnets to a local grade school at least once a year, working as colleagues with the teachers there in promoting science literacy, the physics community is not doing everything it knows to do to promote the public's appreciation of science. There are over 650 SPS chapters in the United States. Each one of them is near several elementary and secondary schools. The SPS can take the lead in physics outreach, and show the rest of the physics community how it's done.

## **(3) A SIGNPOST TO THE MULTIPLE CAREER OPTIONS THAT ARE OPEN TO THE PERSON WHO HAS A DEGREE IN PHYSICS.**

There is no major that guarantees the student a job. Therefore, the student is well-advised to pursue a course of study that maximizes his or her options. We have both anecdotal and statistical evidence that persons with the BS degree in physics do well in a huge spectrum of careers, and not only in the traditional track that proceeds through physics graduate school. Physics alumni are engineers, computer scientists, insurance actuaries, teachers, managers, patent lawyers, financial analysts, musicians, mathematicians, statisticians, etc. They have made careers in business, chemistry, meteorology, geology, biophysics, medicine, and many other fields. Study physics to maximize your options!

## **(4) A RECRUITMENT AND RETENTION TOOL FOR THE PHYSICS DEPARTMENT.**

A student may come to a particular physics department for a pre-engineering program. But once engaged in the active SPS chapter by participating in undergraduate research, attending professional meetings, being involved in physics outreach to the local schools, and forming a network of like-minded colleagues, the student may stay with the department to major or minor in physics. This is especially true in light of the many career options that are open to one with the BS degree in physics. In an environment where all academic departments are under pressure to maintain high enrollments, the active SPS chapter provides a definite advantage to the physics department.

## **(5) SPS AND SIGMA PI SIGMA MEMBERS ARE THE "FRIENDS OF PHYSICS" THROUGHOUT SOCIETY.**

Physics is not so large or independent that it needs no friends in the larger society. The SPS is the only institutionalized structure that the physics community has for engaging not only the student physicist, but the student friend of physics that may major in another field. Sigma Pi Sigma is the only institutionalized structure that the physics community has for engaging those many persons who have excelled in physics and then go forth into all walks of life, and pursue careers that include but are not limited to those of traditional physics.

Given the present lack of science appreciation in society, and the uncertain future of public support for basic research and science education, one wonders how different these stories might have been now, had the physics community maintained close communication with “friends of physics” for the past 50 years.

**(6) SPS AS AN INTRODUCTION TO THE OTHER PROFESSIONAL PHYSICS SOCIETIES.**

SPS members who will pursue the traditional physics careers should be aware of the various AIP Member Societies (see page C-16). It is the responsibility of the SPS to make the student member aware of these societies that may be of interest to them subsequently in one’s career.

**(7) TRAINING FOR LEADERSHIP.**

Twenty or thirty years from now, persons who are now members of SPS and who are planning careers in traditional physics will be the leaders of the physics institutions and the culture of physics. Those persons who are now members of SPS but who go into other fields will similarly be leading the way in their circles of influence. The physics establishment, and the establishments of potential friends of physics, will be theirs to shape, for better or worse.

Through SPS activities, the student’s professional development, communication skills, leadership qualities, and professional networking is enhanced in ways that cannot be realized in course work alone. The SPS and Sigma Pi Sigma have unique and important roles to fulfill in the culture of physics and its related disciplines.