

## SPS Council Committees and charges 2007-08

### **Committees 2007-08**

**A. ComPADRE, The Nucleus, and the physics student digital library**

**B. Under-represented groups in physics**

**C. Planning for the Sigma Pi Sigma Congress 2008**

**D. Ethics Recommendations---Status and further action**

**E. Undergraduate Research Project**

**F. Sigma Pi Sigma---Reviving and Initiating chapters**

**G. Physics Bachelor's degree production**

**A. ComPADRE, The Nucleus, and the Scholarship Clearinghouse**---SPS is part of an NSF-funded effort (NSDL, the National Science Digital Library), led by AAPT and involving APS and AAS, to continue development of ComPADRE, the physics digital library. The student component of ComPADRE is called The Nucleus ([www.compadre.org/student](http://www.compadre.org/student)) and it features an Undergraduate Research Clearinghouse, Scholarship/Fellowship Clearinghouse, Chapter of the Month features, Virtual Lounge, book and text reviews, discussion threads, surveys and polls, etc.

*Committee A is charged with*

- 1) *reviewing the content of The Nucleus,*
- 2) *reviewing proposed moderator program and suggesting improvements,*
- 3) *reviewing how clubs are represented on Nucleus vs how chapters are represented on SPS, and in particular that committee members own zones and chapters are up to snuff,*
- 4) *make recommendations for connecting the Nucleus to Facebook, Myspace and You-tube,*
- 5) *make recommendations about how to best implement blogs for The Nucleus,*
- 6) *suggesting new ways to bring physics students to the site and getting them to contribute and participate.*

**The committee will prepare a document summarizing the committee's accomplishments, recommendations and decisions to date to share with the rest of the Council. The document should include a timeline for accomplishing the committee's goals for the rest of the academic year.** Those Council members that are familiar with The Nucleus, [www.the-nucleus.org](http://www.the-nucleus.org), and the SPS website [www.spsnational.org](http://www.spsnational.org), are especially invited to serve on this committee, but even those who have not examined these sites can bring important insights to the group and are welcome as well.

**B. Under-represented groups in physics**---The SPS Council has voted to adopt "Future Faces of Physics" as the SPS theme for 2007-08, envisioning a "Year of Dialogue on Student Diversity in Physics" represented through its publications, zone meetings and other vehicles. Typically, over a dozen SPS zone meetings are held throughout the year, and one suggestion is to include within these meetings a diversity component or workshop, facilitated by an SPS Diversity Workshop Kit, as possible. These regional meetings, several of which traditionally are held jointly with sectional meetings of AAPT and APS, will lead up to the Sigma Pi Sigma Quadrennial Congress to be held in November 7-8, 2008, at FermiLab, where a culminating diversity event will be held.

This action is in part driven by a recent report from the National Academies stressing the need for professional scientific societies to take a leading role in addressing issues of diversity (see NAS publication, *Beyond Bias and Barriers*).

Included among the goals of this initiative are:

- (a) to provide a forum for students and physics community leaders to discuss and act on a wide variety of student diversity issues such as making physics more welcoming to all, hindering the effects of bias, financial aid issues, child care/family leave issues, non-traditional physics career trajectories, the importance of competent and diverse mentoring;
- (b) to provide participants (both actual and virtual) with authoritative documentation of the current climate for under-represented groups in physics;
- (c) to facilitate inter-organizational cooperation in addressing diversity issues in physics
- (d) to produce a statement in support of diversity in physics, preferably brief and potent.

*Committee B is charged with*

- 1) *developing suggestions for a set of resources to be used in the SPS Zone Meeting Diversity Workshop Kit and contribute to the kit's development as feasible*
- 2) *making recommendations about parallel diversity meetings at APS and NSBP/NSHP meetings*
- 3) *planning for diversity culmination event at Congress 2008*
- 4) *considering position statement survey for zone meetings*
- 5) *recommending action/responding to document from "doubling initiative" entitled, "Improving Diversity at APS meetings". (See committee G below for more on the "doubling initiative".)*

***The committee will prepare a document summarizing the committee's accomplishments, recommendations and decisions to date to share with the rest of the Council. The document should include a timeline for accomplishing the committee's goals for the rest of the academic year.*** All members of the Council are invited to consider serving on Committee B.

As some further background on this topic, note that the AIP Advisory Committee on Physics Education has urged SPS and Sigma Pi Sigma to continue their work on reaching out to under-represented populations in physics. Efforts to fund a stand alone student diversity conference in fall 2007 failed, but SPS and its Council and Under-represented committee have been actively engaged in this issue for several years. Some activities and efforts along these lines are listed below:

- a) a formal partnership between AIP/SPS/  $\Sigma\Pi\Sigma$  and MentorNet, the award-winning nonprofit e-mentoring network that addresses the retention and success of those in engineering, science and mathematics, particularly but not exclusively women and other underrepresented groups, established in summer 2006, in response to a recommendation by Committee B in 2005. In summer of 2007, SPS stepped to Affiliated Partner Plus with MentorNet, allowing all SPS student members to participate in one-on-one e-mentoring regardless of the school they attend.
- b) chapter recruitment effort for over 40 campuses graduating significant numbers of students from under-represented groups (females, Hispanic, and African American), also at > 20 exceptionally active two-year college campuses.
- c) a collaboration with MUSpIN (Minority University Space Interdisciplinary Network) and NASA to engage undergraduate physics students from under-represented groups in space research, initiated in 2005, with the first students participating in summer 2007. A proposal for \$100,000 was funded to support student research in space science and Jesus Cantu from NMSU was the first intern to participate in the program.
- d) participation in AGU's Diversity Plan including the IDEaSS Conference (Increasing Diversity in the Earth and Space Sciences), hosted at ACP in June 2003, in which several SPS interns played visible roles and resulted in a position statement document (see [http://www.agu.org/sci\\_soc/education/jsc/](http://www.agu.org/sci_soc/education/jsc/) for more details).
- e) participation in national meetings of the National Society of Black Physicists (NSBP), National Society of Hispanic Physicists (NSHP), and the National Conference of Black

- Physics Students (NCBPS), including sponsoring SPS reporters who have filed several stories over the past three years and SPS Director presenting an invited talk in 2004.
- f) Collaboration with Society for Advancement of Chicanos and Native Americans in Science (SACNAS) and NSHP to partially support the best physics student presenter at the SACNAS national conference as a featured speaker at APS March meetings.
  - g) recruitment of under-represented groups to be candidates for elective offices and to apply for awards,
  - h) feature articles in SPS/Sigma Pi Sigma publications and featured sessions and speakers at SPS/Sigma Pi Sigma meetings,

**C. Sigma Pi Sigma Quadrennial Congress 2008**---Every four years the honor society hosts a Congress, the next one being scheduled at FermiLab for November 7-8, 2008, with possible ancillary events on the 6<sup>th</sup> and the 9<sup>th</sup>. The theme of the 2008 Congress is Scientific Citizenship: Connecting Physics and Society. The 2008 Sigma Pi Sigma Congress hopes to explore the greater role of the physicist in our society through round-table discussions, distinguished speakers, and historical perspectives. Continuing the momentum of the 2004 Congress, which focused on the topics of professional ethics and responsibility in scientific work, we progress through the scientific, social, and political aftermath of the Manhattan Project. The construction of the first atomic bomb prompted many scientists to engage in government and public organizations like never before, sharing their knowledge of the world to help shape public opinion of science, assist with government policy decisions, or to otherwise connect their work with the broader community. This legacy continues today, as physicists work to address current political and social issues such as science funding and policy, international research and collaboration, underrepresented groups in scientific fields, and science outreach and literacy. While the Congress is the official meeting of the honor society, traditionally it has served as an important meeting for the Society of Physics Students as well. See <http://www.sigmapisigma.org/congress.htm> for details of the 2004 Congress in Albuquerque. To generate as much participation from chapters as possible, we plan to continue the 1&1 campaign that worked well for the 2004 Congress, where each chapter is encouraged to send at least one student and one alumnus to the 2008 Congress.

*Committee C is charged with*

- 1) Rewriting the progress on Congress planning and schedule to date,
- 2) Planning for each chapter to send one student and one alumnus (the 1&1 campaign)
- 3) Continuing the planning for the schedule of events and speakers for the Congress

***The committee will prepare a document summarizing the committee's accomplishments, recommendations and decisions to date to share with the rest of the Council. The document should include a timeline for accomplishing the committee's goals for the rest of the academic year.*** Those Council Members planning to attend the 2008 Congress are especially invited to serve on Committee C.

**D. Ethics Recommendations---Status and further action---**Discussions among the SPS 2004 Congress Ethics Recommendations Committee and the SPS Executive Committee resulted in three emerging (# 2, 4 and 7 below) as highest priority. Subsequent committees of the SPS Council have implemented some of these recommendations which are:

- a. Sigma Pi Sigma/SPS should issue a resolution stating that ethics education be integrated into the physics program. (70 yes, 15 no)
- b. Sigma Pi Sigma/SPS should create/disseminate a set of ethics resources including curricula, case studies, speaker lists. (77 yes, 7 no)
- c. Sigma Pi Sigma/SPS should expand its efforts to involve alumni and industry in its initiatives to promote career diversity. (47yes, 34 no)
- d. Sigma Pi Sigma/SPS should assign a committee to investigate existing professional society and publisher statements and guidelines regarding ethics, with an eye to endorsing these or modifying them for our use. (68 yes, 14 no)
- e. Sigma Pi Sigma/SPS publications should have ethics-based guidelines, including those that recognize students' roles in publications. (72 yes, 7 no)
- f. As an honor society, Sigma Pi Sigma/SPS should have a disciplinary procedure for those who violate the standards of the society. (60 yes, 20 no)
- g. Sigma Pi Sigma/SPS should issue a statement on the importance of achieving diversity in physics. (67 yes, 11 no)
- h. Sigma Pi Sigma/SPS should expand its general portfolio of programs and resources to include those targeted at groups under-represented in physics. (73 yes, 8 no)
- i. Sigma Pi Sigma/SPS should issue a statement recommending that the tenure and post-tenure review process consider more strongly the tenure candidate's impact on student development. (50 yes, 25 no)
- j. Sigma Pi Sigma/SPS should issue a request to chapters that chapters educate and inform students about the tenure process that physics faculty undergo. (57 yes, 22 no)

*Committee D is charged with*

- 1) reviewing the progress wrt the recommendations, and
- 2) identifying any other actions wrt the Recommendations that should be pushed forward.
- 3) develop a plan to implement the highest priority items.
- 4) Plan for a way to represent the progress on the recommendations at the 2008 Congress.

***The committee will prepare a document summarizing the committee's accomplishments, recommendations and decisions to date to share with the rest of the Council. The document should include a timeline for accomplishing the committee's goals for the rest of the academic year.*** All members of the Council are invited to consider serving on Committee D.

**E. Undergraduate Research Project---**Millions of dollars each year are spent on undergraduate research experiences, but there seems to be a need to better document the value and impact of these experiences. SPS has long involvement in this issue---awarding undergraduate research grants annually, initiating and sustaining the Undergraduate Research Clearinghouse on The Nucleus, supporting the Journal of Undergraduate Research, supporting travel awards for students to present their research at national and international meeting. In response to last year's committee efforts the following actions have resulted:

- a. SPS hosted, in summer 2006, a workshop held in conjunction with the Council on Undergraduate Research meeting entitled, “SPS/CUR WORKSHOP on METRICS and RESOURCES for UNDERGRADUATE RESEARCH(ERS)”, see the wiki at <http://spscurworkshop.pbwiki.com/> for more details about the workshop
- b. Several Council members attended the National Conference for Undergraduate Research (NCUR) in spring 2007, resulting in initial agreement to publish selected NCUR Proceedings physics articles in JURP
- c. Completed a qualitative assessment of the SPS intern journals by Ethnography & Evaluation Research of University of Colorado by Anne-Barrie Hunter
- d. Sent letter of intent to request funding for a study of Undergraduate Research to Teagle Foundation; were not invited to submit full proposal

*Committee E is charged with*

- 1) *Reviewing the Hunter study (see c. above) on the SPS intern journals*
- 2) *Reviewing the progress of the SPS effort, and recommending a further course of action for the Council. How do we proceed to develop tools for students and REU administrators?*
- 3) *Review progress of JURP and proposed agreement with NCUR*
- 4) *Should we return to the CUR meeting?*
- 5) *Should we pursue a collaboration with CUR, a proposal?*

***The committee will prepare a document summarizing the committee’s accomplishments, recommendations and decisions to date to share with the rest of the Council. The document should include a timeline for accomplishing the committee’s goals for the rest of the academic year.*** Those Council Members with experience in REU programs either as a student researcher or a mentor are especially encouraged to serve on Committee E.

**F. Sigma Pi Sigma---Reviving and Initiating Chapters---**Recently, there has been an upsurge of interest in the physics honor society, especially in expanding beyond the traditional induction ceremony. Both the number of inductions and the dollar amount of donations to Sigma Pi Sigma in support of SPS programs are on the upswing. The new Sigma Pi Sigma project awards, initiated by the Development Committee of the honor society and approved by this Council last year, had four winners last year and we expect interest to grow in these awards. The Development Committee has initiated a new effort to increase the number of chapters inducting new members each year, and is urging the Council to assist in this campaign to revive dormant Sigma Pi Sigma chapters and initiate new chapter where possible.

*Committee F is charged with*

- 1) reviewing the efforts thus far to revive chapters and install new chapters
- 2) develop a plan of action for extending these efforts based on zone leadership and alumni who have volunteered
- 3) promoting the Sigma Pi Sigma project Awards and making recommendations about how to increase the number of applicants for the Sigma Pi Sigma project awards

***The committee will prepare a document summarizing the committee’s accomplishments, recommendations and decisions to date to share with the rest of the Council. The document should include a timeline for accomplishing the committee’s goals for the rest of the academic year.*** Those Council members who are members of Sigma Pi Sigma are especially encouraged to serve on Committee F.

**G. Physics Bachelor's degree production---** SPS has been asked to officially join efforts by APS and AAPT to improve physics education, specifically through what is being called the “doubling initiative”, with a full mission statement as follows:

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**We advocate doubling the number of bachelor degrees in physics to address critical national needs including K-12 education, economic competitiveness, energy, security, and an informed electorate**

- An essential area of increase is in the number of highly-qualified high school physics teachers
- An essential area of increase is in the fraction of both women and under-represented minorities who major in physics

Further, there are critical areas and concerns associated with such an initiative:

- We do not necessarily seek to increase the number of PhDs in physics; however, we do advocate for an increase in the quality and diversity of the U.S. pool of physics Ph.D. candidates
  - Physics majors successfully pursue and are qualified for a wide range of careers and we support a much broader recognition of this by faculty and employers
  - We advocate that physics bachelor programs
    - a. Evolve to meet needs of emerging areas such as biophysics and nanoscience
    - b. Address documented shortages of physics-educated professionals in specific areas (e.g., secondary school teaching, medical physics, nuclear physics, etc.
- 

Associated with the “doubling initiative” are 10 specific “sub-initiatives”, and in particular, SPS has been asked to help lead two of the “sub-initiatives”: #10, “physics career website” and #8, “improving diversity at APS meetings”.

*Committee G is charged with*





- 1) review the SPS physics career website and make recommendations about other employment and careers resources that would be useful on the SPS website(see <http://www.spsnational.org/cup/> )*
- 2) review the doubling initiative mission statement and make a recommendation regarding its adoption*
- 3) review the physics career web portal “sub-initiative” and make recommendations*

***The committee will prepare a document summarizing the committee’s accomplishments, recommendations and decisions to date to share with the rest of the Council. The document should include a timeline for accomplishing the committee’s goals for the rest of the academic year.*** All members of the Council are invited to consider serving on Committee G.

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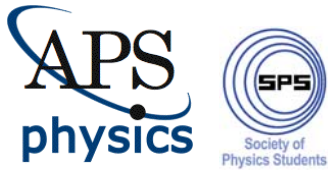
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## IMPROVING DIVERSITY OF APS MEETINGS

### APS/SPS EDUCATION INITIATIVE

#### BACKGROUND

Current diversity efforts include sponsoring diversity-related sessions and events at meetings. Currently, APS meetings include SPS-sponsored sessions where undergraduates present their research talks and posters, with SPS providing \$200 travel stipends for presenters to attend the meeting. APS and SPS usually host a reception for these students at the March and April meetings and attendance is typically 40-60 people, with undergraduates making up about half of the group. These sessions are encouraging for undergraduates, but they can also seem somewhat disconnected from the rest of the meeting.

#### PROPOSAL

The broad goal of this proposal is to improve the diversity of APS meetings on a single day by bringing in a substantial number of local students (high school through undergraduate) to help them see both the excitement of studying physics as well as to see *themselves* as a physicists (i.e., not feel like there is no one else like them at the meeting).

- 1) Begin an Outreach Day at March and April APS meetings. Bring in local high school classes, community- and four-year-college students on a single day and include events like:
  - a) Work with units represented at the meeting to develop integrated sessions with content aimed at a high school level given by presenters known to speak well to these groups and produce a guide for the students of these talks
  - b) Lunch with physicists for all invited students with a brief discussion of career opportunities, suggestions for academic preparation, and salary information for BS physics graduates
  - c) Physics-in-the-real-world career panel (invite and support SPS hidden physicists)
  - d) Expand reception for undergraduate students (like at AAS)
- 2) Possibly partner/host a joint meeting with NSBP/NSHP
- 3) Invite and support students and faculty from minority-serving institutions to meetings for special events, sessions, and panels

#### ASSESSMENT OF IMPACT

Track demographics of both meeting participants and guests during outreach day. Surveys of attendees could provide separate measures of changes in meeting culture.

#### RESOURCE IMPLICATIONS

These efforts will require additional staff with significant physics knowledge along with staff support, travel funds and a small budget

#### TIMEFRAME

This is dependent on meeting timeframes. For a March or April meeting, efforts need to begin in the spring of the preceding year to work with executive committees of the various units to develop programs aligned with these goals. Staff would work with the local community about 6 months prior to identify schools and classes that can be brought in, and resources needed to accomplish this.



## 12th National Conference

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### Frontiers and Challenges in Undergraduate Research

The Council on Undergraduate Research will hold its next national conference "Frontiers and Challenges in Undergraduate Research" at the College of Saint Benedict on June 21-24, 2008. This conference will bring together faculty, administrators, policy makers, representatives of funding agencies and other stakeholders with an interest in doing and promoting undergraduate research. With over 100 workshops, presentations by representatives of funding agencies and social interactions, this promises to be an outstanding conference.

### 12th National Conference Program Co-Chairs:

Lydia Fox, University of the Pacific

Silvia Ronco, Research Corporation

### Registration and Submission Pages

- [Workshop and Poster Submissions](#)

### Meeting Information

- [Conference Sub-Themes](#)

### Local Information, Transportation and Housing

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The **College of Saint Benedict** is a private, nationally recognized liberal arts, Catholic, Benedictine college for women. Founded by Benedictine Sisters in 1913, it was one of the first undergraduate colleges for women established in the upper Midwest and the 13<sup>th</sup> in the nation.

Saint Benedict's has a unique educational partnership with nearby Saint John's University for men. The colleges have a common undergraduate curriculum, identical degree requirements and a single academic calendar, while maintaining separate campuses with their own residence halls, athletic programs and traditions.

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**PHYSICS CAREER WEB PORTAL**  
APS/AAPT/SPS EDUCATION INITIATIVE

**BACKGROUND**

Physics students and their mentors want to know more about physics careers; for example, the most popular page on the SPS website by far is the “Careers Using Physics” website (CUP), <http://www.spsnational.org/cup/>, based on materials developed for the Sloan Career Cornerstone series. PhysicsCentral also features profiles, but predominantly of Ph.D. level physicists. There are other profiles in various places, but no comprehensive site that includes salary information, profiles, statistics, and career advice. APS committees consistently mention more comprehensive advice on careers as a priority in helping to serve the academic community.

**PROPOSAL**

The three Societies will work with AIP Statistics, AIP Career Network, CCPD, FIAP, and APS Outreach to generate a new, more comprehensive site that would sit between all three organizations (much like ComPADRE and PhysTEC) and provide a centralized repository of information specifically designed for undergraduates. The emphasis will be on bachelor degree recipients, but graduate school information will also be provided. Once constructed, staff will work to get physics department pages to link to this site to provide career guidance information to their students.

**ASSESSMENT OF IMPACT**

Web statistics, tracked over time, will provide a good measure of the utility of the site, as will user testing involving the SPS Council, FGSA, and other student and faculty groups.

**RESOURCE IMPLICATIONS**

Staff time to design and pull together various components, followed by web-design work.

**TIMEFRAME**

The site should be ready by Spring 2008.