First YPP@SLAC Annual Report: 2002

Ben Brau, Martin Mueller, Chris Potter,[*] Abi Soffer, Derek Tournear,
Amanda Weinstein and Wolfgang Walkowiak[†]

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1 Introduction

Since the Snowmass conference in August 2001, when the Young Particle Physicists (YPP) established their presence and proceeded to globalize their activity, the SLAC chapter has grown enormously. We now count 98 students, postdocs and untenured staff and faculty as members. Our activities have been organized by a subset of the general membership with as many as seven active participants. We have enjoyed the respect and goodwill of the SLAC User's Organization (SLUO) as well as the SLAC directorate while maintaining our capacity and desire for independent action.

The mission of the YPP is to provide a forum in which young people can both contribute to the ongoing dialogue about the future of High Energy Physics (HEP) and draw attention to important concerns affecting their lives and research. Working toward that goal, our chapter has undertaken activities broadly categorized as governance, HEP funding, outreach, communications, lecture series and community-building. They will be described in detail in the sections following.

2 Organization and Resources

2.1 The Core Group

The activities of YPP@SLAC have been coordinated by a group of young particle physicists who are particularly interested in and devoted to the vitality of the local chapter. Between four and seven people have comprised the "Core Group", which does not meet on a fixed schedule but rather meets at the instigation of the YPP@SLAC Representative to the Global YPP. The Representative has not been formally charged with organizing the Core Group, but these responsibilities have *de facto* devolved to that person.

Core Group members have been recruited from the general membership in the local chapter, which we define by our e-mail list. This list currently contains 98 names, each of which is screened for the requirements of the YPP Charter for membership before being accepted. Attendance at our events has ranged from roughly 20 to 80 attendees.

Initiative. None of the organizational structures currently observed by the YPP@SLAC chapter Core Group and general membership have been formalized in bylaws. Doing so is currently under investigation.

[*]Current YPP@SLAC Representative to the Global YPP and corresponding author: `cpotter@slac.stanford.edu`.
[†]YPP@SLAC Representative to the Global YPP until October 2002, now at University of Siegen, Germany.

2.2 Elections

We have held two elections since our local chapter was first recognized at Snowmass. In each case, an Election Commitee appointed by the Core Group ran the election by e-mail according to the following procedure:

- Day 1: Nominations invited
- Day 7: Nominations closed by 6 pm and candidates confirmed
- Day 8: Candidates' statements sent to Election Committee
- Day 9: Election opened, e-votes sent to Election Committee
- Day 14: Election closed by 6 pm and winner declared to YPP@SLAC

Following his term as interim representative and after the Global YPP ratified its Charter and By-laws, Wolfgang Walkowiak (formerly a postdoc, University of California at Santa Cruz) was elected in April 2002 to be the first YPP@SLAC Representative to the Global YPP. After contributing substantially to the success of both the Global YPP and the local chapter, and upon accepting a position in Germany, Wolfgang relinquished his position and called for a new election in October 2002. Chris Potter (currently a student, University of Oregon) won that election, thereby becoming YPP@SLAC Representative to the Global YPP. The messages from the Election Committees to the general membership following the votes held in April and October, 2002, follow:

> The YPP@SLAC Elections Committee extends congratulations to Wolfgang Walkowiak, our duly elected representative to the Global YPP ... Quorum was obtained with a total of seventeen ballots cast. One ballot was nullified because it was sent to only one member of the election committee. No ballots were cast for write-in candidates. Sixteen of sixteen valid ballots were cast for Wolfgang Walkowiak.
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> We are pleased to announce that the winner in the election for SLAC's representative to the global YPP is Chris Potter ... Finally the numbers: 23 people cast their vote, which means we had about 26% voter turnout. All votes were valid. Here is their distribution on the different candidates: Chris Potter: 15 Abi Soffer: 5 Martin Mueller: 3.

2.3 Resources

YPP@SLAC has benefitted from the support of local structures. In particular, SLUO has generously helped the Core Group with organizational and procedural advice and assistance. They have also forwarded event announcements to their e-mail list when the Core Group has requested it, and provided beverages and snacks for those events.

The SLAC Office of Communications has also been helpful in providing an interface to the public for Outreach activities. Our chapter was featured in *The Interaction Point*[1], the SLAC newsletter authored and published by that office. Moreover, the SLAC directorate has been quite generous in providing lunch on one occasion and offering to provide beverages and a meal for a social event. The videoconferencing facilities at SLAC have also been made available to the local chapter, and we have made use of them for participating in meetings of the Global YPP Representative Body.

Communication between the Core Group and the general membership is facilitated by a local chapter webpage[2] authored on a SLAC server and an e-mail list hosted by Yahoo![3]. All important

[1] http://www.slac.stanford.edu/pubs/tip/pdf/02v1301.pdf
[2] http://www-project.slac.stanford.edu/ypp/
[3] http://groups.yahoo.com/group/yppslac/

events described in this report were announced and documented on the webpage, and all e-mail is archived by Yahoo!. We chose the Yahoo! services (rather than those of SLAC) because we wanted the list to be on a private server.

3 Projects

3.1 Governance

YPP@SLAC played a leading role in writing the complete, consistent and comprehensive Charter[4] and Bylaws[5] which were ultimately adopted by the Global YPP Representative Body and announced on 20 March 2002. One of us (Chris Potter) served on the Global YPP Bylaws Committee together with Michel Sorel and Bonnie Fleming (both of YPP@FNAL). Locally, the entire Core Group worked on writing and evaluating numerous drafts to ensure that all local chapters would share equal power and responsibility.

3.2 HEP Funding

In February 2002, SLAC Director Jonathan Dorfan presented a talk entitled "HEP Funding 101" at the request of YPP@SLAC. The talk centered on the budget process the laboratories (primarily SLAC and FNAL) undergo annually. Jonathan explained that the HEP Office of Science (OS) allocation constitutes about one third of the DOE budget. The negotiations for the following fiscal year budget begin in November. After consultations with the OS, the Office of Management and Budget (OMB) proposes a budget which is then appraised by the OS. By the end of September the OS budget is usually approved by the Office of the President. The OS budget is then submitted to Congress in the Energy and Water Bill, one of thirteen budget bills sent to the legislative branch. The OS budget is usually fixed with Congressional approval by April. It is during the period when the budget is under consideration in Congress when the public has the best chance to support increases in the OS budget. The strategy of the laboratories is determined by the lab directors together with the head of HEPAP.

Questions from the audience, which filled the lecture hall past capacity, were plentiful. Jonathan noted that a general argument for support of HEP includes the connection with the life sciences, the importance for technological advances both civil and military and the sheer excitement of discovering the unknown. In answer to questions about the linear collider, he noted that our field must get the support of other sciences and cooperate internationally if we are to have any hope of convincing the Federal government of the desirability and feasibility of a major new facility.

As a follow-up to the successful "HEP Funding 101" talk by SLAC director Jonathan Dorfan, we organized "HEP Funding 102 - the University Perspective". The speaker was Stew Smith from Princeton, former BaBar Collaboration spokesperson. In January 2003 Stew described the history of university HEP funding, how it got to where it is today, and what he saw as its advantages and disadvantages. He pointed out the funding challenges that university groups face, and mentioned some sources of alternative funding for young physicists. The event was attended by about 50 people.

Initiative. The Core Group sent a message to the general membership endorsing a letter writing campaign for increased HEP Funding support in November 2002. We would like to mount a more sustained effort and provide a webform for personalizing a template letter supporting efforts

[4] http://ypp.hep.net/charter_030602.ps
[5] http://ypp.hep.net/bylaws080602.ps

to boost the DOE Office of Science funding profile. Moreover, we are considering making the SLUO trip to Washington DC a very high profile issue in subsequent SLUO Executive Committee elections.

3.3 Communications

On April 19, 2002 Neil Calder, who had just started as the Director of the SLAC Office of Communications, presented on "How to Get the Press Your Physics Deserves". In his humorous talk, which was supported by a brief video clip about the largest database in the world (the BaBar database) and several clippings from newspapers and other media, he pointed out how important it is to connect to the recipients. In addressing the public and the media we need to be aware of the little knowledge most people have about our field. We should try to connect to the audience by using known analogies, an asset which is learned best by practicing the contact with the public. As for the press, we should remember that "journalists are our friends". About 20 young physicists attended the meeting.

3.4 Outreach

In March 2002, Helen Quinn presented a talk on "Outreach Opportunities" at SLAC. Helen has been deeply involved in outreach work at SLAC and outlined some of the programs available to interested people. She noted that now is a good time for outreach because the Office of Communications had recently seen a large increase in its budget and was enthusiastic about boosting the profile of outreach programs. SLAC outreach efforts have been twofold: i) improving scientific education in the public schools and ii) improving the scientific literacy of the general public. The former effort is addressed by programs like the Energy Research Undergraduate Laboratory Fellowship (ERULF), an eight week summer undergraduate mentoring program administered by the DOE, and Quarknet, a summer program administered by the DOE and NSF for bringing together high school students and teachers with particle physicists. One of us (Abi Soffer) was a Quarknet mentor in 2002. The latter effort is accomplished through tours and visits to the SLAC facility. Helen emphasized that opportunities are there because we create them: we need only demonstrate initiative to generate them.

Initiative. As part of an effort to expand our activities into outreach to the public and to schools in particular, the idea of the Three-Questions Project was surfaced some while ago: A group of us would team up with local high school science classes and invite them to ask us a weekly set of three questions each. We would work on the answers within the group and send these back to the teachers who would then share them with their classes. We had an information meeting for YPP members in October and are currently in the process of setting up contacts to teachers. While some of the details are still to be worked out, we believe that the Three-Questions Project is a good opportunity for us to implement a simple outreach activity that has the potential to grow with the YPP organization.

3.5 Lecture Series

At the request of our chapter, Michael Peskin, one of the many bright lights in the Theory Division at SLAC and a forceful proponent of the linear collider, presented a series of lectures on the physics available at a TeV scale linear collider. The lectures, originally given at Fermilab at the request of the Fermilab Graduate Student Association, covered four broad topics: "e^+e^- Annihilation to Fermions", "W and Top", "Higgs Bosons", and "Supersymmetric Particles". After reviewing the fundamentals of the Standard Model, Michael outlined the challenges facing the experimentalist in the linear collider environment (low event rates, initial state radiation and beamstrahlung) together with the ways in which the linear collider will complement the discovery potential of the Large Hadron Collider with precision measurements. He then discussed the potential for WW, $t\bar{t}$ and Zh production and study at the linear collider. Finally, he discussed the merits of Supersymmetry (it renders the Higgs mass calculable, predicts the correct unification relation, and gives a natural explananation for dark matter) and provided a case study for a linear collider analysis: sneutrino pair production. Up to seventy people attended Michael's lectures.

The YPP@SLAC chapter also hosted a four part lecture series on Astro-Particle Physics and the role of the Gamma Ray Large Array Space Telescope (GLAST). The main idea of the lecture series was to discuss the theories and observations behind the Dark Matter in the universe. Greg Madejski lectured first, his talk was titled "Evidence for Dark Matter"; Greg explained the observational evidence that leads us to believe that there exists some type of Dark Matter. Larry Wai gave the second lecture, "Candidates for Dark Matter" discussing the different theories for particles that could be Dark Matter candidates. Eduardo do Couto e Silva gave the third lecture, "GLAST's Role in Detecting Dark Matter." Eduardo's lecture tied the SLAC community, involved in GLAST construction, to the Dark Matter debate showing how GLAST might shed light on the Dark Matter search. Finally Gary Godfrey gave a lecture titled "Modified Newtonian Dynamics (MOND)." Gary explained a different theory on Dark Matter that does not require new particles, but does require new physics. Overall the lecture series was a great success with around 50 people attending each lecture.

Initiative. The Core Group is currently organizing a lecture series scheduled for March 2003 on Accelerator Physics. The expected lectures will include: "The Linear Collider", "Synchrotron and Linear Collider X-Ray Facilities" and "New Technologies".

3.6 Community

Beginning in November 2002, YPP@SLAC launched a Journal Club for students and postdocs at SLAC. The first presentation was given by Derek Tournear on "Evidence for Nuclear Emissions in Accoustic Cavitation," published in the 8 March 2002 issue of *Science*. The event was attended by approximately twelve interested members. We have also developed an e-mail list on Yahoo! servers specifically for the Journal Club. While it has been difficult to encourage people to volunteer to give presentations due to very tight time constraints from other activities, we hope that the Journal Club structure in place will attract a sustained and growing interest among new members.

Initiative. The social environment for young people at SLAC is less than desirable. We are currently planning a major social event for Spring 2003, possibly a barbecue, after the SLAC Director offered to provide food and beverages. Other such community building events are under consideration.

4 Outlook

The first year of YPP@SLAC has been a dramatic and unexpected success due to the extraordinary work of young people in the Core Group. Nevertheless, we do face challenges in the near future which are due primarly to the demanding research and service schedules faced by young people at SLAC. These challenges include:

- Recruiting new people to the Core Group after the initial excitement generated at Snowmass
- Cooperating with other chapters to revitalize the Working Groups
- Keeping the general membership aware of Global YPP and other local chapter activities

- Fully enabling our Outreach ideas when the field does not reward such activity
- Maintaining the webpage and e-mail list
- Gathering sufficient momentum for the Journal Club
- Advertising events sufficiently in advance and in multiple media

Still, the Core Group is optimistic that these challenges will be met with the same level of skill and enthusiasm which is hallmark of our local chapter.