

DPF Newsletter - March 2003

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The DPF newsletter is published roughly three times a year. Contributions are welcome. Send them to the Editor.

Editor:

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(DPF Secretary-Treasurer),
Physics Dept.,
The University of Maryland,

DPF and APS Election News

Bill Carithers was elected Vice-Chair of DPF in this year's election. The new Executive Committee members are Marcela Carena and John Womersley.

The members of the 2003 DPF Executive Committee and the final years of their terms are

Chair: Jonathan Bagger (2003)

Chair-Elect: Sally Dawson (2003)

Vice-Chair: Bill Carithers (2003)

Past Chair: Stan Wojcicki (2003)

Secretary-Treasurer: Nick Hadley (2003)

Division Councilor: Peter Meyers (2003)

Executive Committee Members:

Marty Breidenbach (2003), Young-Kee Kim (2003), Howard Haber (2004), Elizabeth Simmons (2004), Marcela Carena (2005) and John Womersley (2005)

We would like to take this opportunity to thank the DPF Executive Committee members whose terms expired in 2002: Chris Quigg (Past Chair), and Janet Conrad and Bill Carithers (Executive Committee members). We would also like to express our appreciation to all who agreed to run for DPF office this year. We were fortunate once again to have an excellent slate of candidates.

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Message from the Chair

I'd like to kick off my term as DPF Chair by telling you about some important recent developments and by soliciting your help in a long-term effort to increase support for our field.

For the past two years, the DPF Executive Committee has been discussing how to restructure itself to increase its effectiveness in support of our field. The result was the creation of two standing subcommittees, one centered on Education and Outreach, chaired by Liz Simmons, and the other focused on Government Affairs, chaired by Bill Carithers.

The subcommittees aim to mobilize the DPF membership to play a more active and sustained role in these efforts. The subcommittees are in the process of setting up web sites where you can learn more about their efforts. (The sites will be linked to the main DPF site, at <http://www.aps.org/units/dpf/>.) The subcommittees will also communicate with you by email. I ask that you read the emails, and help where you can. Particle physics is in a fight for its future. If we all work together, in a sustained and serious way, we can begin to make a difference.

A place to start is with the DPF itself. The 3200 members of the DPF are a valuable resource for education, outreach and political action. The DPF membership list is an important vehicle for communicating and coordinating strategy. I urge you to check with your colleagues to make sure that they are members of DPF. The broader our membership base, the more talent we can bring to the issues facing our field.

DPF Meetings

The 2003 DPF meeting will be held jointly with the 2003 American Physical Society (APS) April meeting in Philadelphia, Pennsylvania, from April 5-8, 2003. This will be the first joint DPF April APS meeting. The meeting will include participation by the Divisions of Astrophysics, Nuclear Physics, Particles and Fields, Physics of Beams, along with a number of APS forums and topical groups. You can find general information about the meeting at <http://www.aps.org/meet/APR03/> and at <http://www.dpf2003.org>.

There will be an excellent slate of plenary talks:

Mysteries of Extra Dimensions, Lisa Randall
The Growth of Understanding in Astrophysics, Martin Harwit

Chandra Observations of Supernova Remnants and Young Neutron Stars, Patrick Slane
Outlook for Underground Science, Thomas Bowles
Solar Neutrinos, Stuart Freedman
Through the Looking Glass: What's the Matter with Anti-Matter? David Kirkby
Quantum Chaos: From Atomic Nuclei to the Riemann Zeta Function, Oriol Bohigas
Pursuing the Secrets of Matter, Space and Time at the Energy Frontier, Paul Grannis
The Current Status of Gamma-ray Bursts, Ralph Wijers

There will be a special session Monday afternoon on The Status of Particle Physics at the University of Pennsylvania Museum of Archeology and Anthropology.

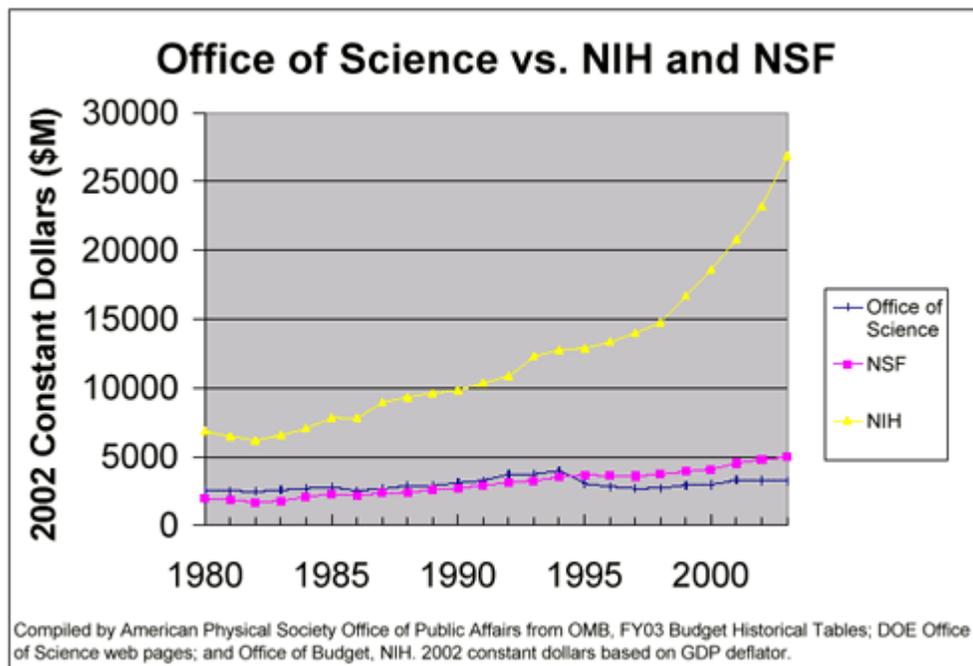
There will also be a Nobel Prize Session with talks by Dr. Riccardo Giacconi and Professor Masatoshi Koshiba.

In 2004, the APS April meeting will be in Denver, May 1-4; the DPF meeting will be held on the campus of the University of California at Riverside in September.

H.R. 34, the “Energy and Science Reinvestment Act”

Contributed by Jonathan Bagger

As DPF members surely know, support for our field has lost ground to inflation over the past ten years. More generally, funding for the Department of Energy's Office of Science, which supports approximately half the research in physical sciences in the United States, has been essentially flat for 20 years. During that same time period, support for the NIH has increased by more than a factor of four. (See figure.)



This situation has sparked many efforts to rebalance the country's scientific portfolio. A large coalition is forming, with one message: that the physical sciences are essential to our nation's health, prosperity and defense. We, in DPF, need to lend our voice to this message. Together, we stand united. Separately, we fall. The DPF Government Affairs Subcommittee has endorsed a three-tiered message: First, support the physical sciences. Second, support particle physics. And third, support our own project or experiment. (Typically, we start with point 3, and look where it has gotten us today.)

As a first step, we need to join an effort in Congress to increase funding for the entire Office of Science. (For more information, see <http://www.aip.org/enews/fyi/2003/005.html>.) RIGHT NOW co-sponsors are needed to endorse H.R. 34, the "Energy and Science Research Investment Act of 2003." A large number of co-sponsors is required for this bill to move forward.

I am asking you to contact your Representative TODAY and ask him or her to co-sponsor H.R. 34. A web site with contact information and an automatic letter-writing program is available at http://www.aps.org/public_affairs/issues/budget.cfm. You can use the web site or email/fax your own letter. (Do not use the U.S. mail.) In either case, please send a message to dpf@pha.jhu.edu telling us who you contacted and, if possible, what response you received.

In your communication with your Representative, be sure to identify yourself as a constituent. Also, check http://www.aps.org/public_affairs/issues/hr34/index.cfm to see if your Representative has already co-sponsored the bill. If so, please thank him or her! If not, check http://www.aps.org/public_affairs/issues/hr5270.cfm to see if he or she co-sponsored HR5270, a similar bill in the last Congress. (Remember, do not use government sponsored resources in preparing your communication.)

The new Congress is in the process of setting its priorities. Now is the time for science to get on the agenda. We need your help.

Visa and National Laboratory Access Problems

The country's increased focus on national security is having serious consequences for our field. Students and postdocs are having their visas denied or delayed, and increased security at the national laboratories is restricting the access of foreign scientists and threatening the international collaborations in which we work.

The DPF and the American Physical Society are very concerned about these developments. The DPF is working with the APS and others to bring about policies that reflect the essential role that foreign scientists play in advancing science and in ensuring the nation's quality of life.

The APS Office of International Affairs is available to APS members who are experiencing visa problems. The Office can give advice on practical strategies for avoiding trouble; it will intervene to help where it can. In addition, the APS would like to

know about visa problems you are having; it is collecting data to document the consequences of present policies. The APS will also provide support for members who wish to discuss the issue with their Congress representatives.

Please contact Irving Lerch or Michele Irwin, lerch@aps.org or mirwin@aps.org, for more information.

Education and Outreach Subcommittee

Contributed by Elizabeth Simmons

The DPF Education & Outreach Subcommittee would like to encourage DPF members to give dynamic colloquia and public lectures on the exciting prospects for high-energy physics in the next decade and beyond. It is compiling a library of previous talks from which members can get ideas and images for their own lectures. If you've given a presentation of this kind recently (or know someone who has), please contact Liz Simmons at simmons@bu.edu to arrange to donate a copy of the slides!

Report from the US Linear Collider Steering Group (USLCSG)

Contributed by Harvey Lynch (Executive Secretary of the USLCSG)

The USLCSG was formed by recommendation of HEPAP and is one of three parallel regional organizations in Asia, Europe, and the US. The ILCSC is an umbrella organization for these regional organizations; see <http://www.slac.stanford.edu/hll/USLCSG/General/ILCSCStructure.pdf> for this structure.

The USLCSG has numerous interactions with the other regional organizations. The USLCSG has a (temporary location) web site of general information: <http://www.slac.stanford.edu/hll/USLCSG/>. Presently this is in the web space of the Executive Secretary, but a more permanent home will be found.

Charter: http://www.slac.stanford.edu/hll/USLCSG/General/LCSG_Charter.pdf

The USLCSG charter contains the following points:

- To prepare, communicate, and begin to implement a road map for defining, internationalizing, funding, and carrying out a linear collider project;
- To work with potential high-energy physics international partners and with governmental agencies, including equivalent groups in other regions of the world and the International Linear Collider Steering Group, to define a linear collider project;
- To provide an evaluation of options for building the linear collider involving factors such as scientific requirements, technical feasibility, risk, cost, initial facility parameters, upgradability of alternate technologies, and the implications

of different sites;

To prepare the elements of a U.S. bid to host the linear collider;

To coordinate and propose U.S. accelerator research and development for a linear collider; and

To coordinate and propose U.S. research and development on physics and detectors for experiments to be carried out at a linear collider.

Membership:

http://www.slac.stanford.edu/hll/USLCSG/General/Members_USLCSG.xls.

The USLCSG, currently chaired by Jonathan Dorfan of SLAC, is comprised of three laboratory directors, three machine physicists, six experimenters, and three theorists. The group is an executive committee with three subcommittees, as shown at

<http://www.slac.stanford.edu/hll/USLCSG/General/USLCSGStructure.pdf>.

Meetings: <http://www.slac.stanford.edu/hll/USLCSG/General/MeetDates.txt>.

To date the USLCSG has held six meetings, either face to face or via teleconference.

The first major job of the steering group was to launch at the university-level R&D work towards linear collider physics, both for machines and for experiments. This work has a different emphasis than the detailed NLC-style R&D machine work being done at FNAL, SLAC, LBNL, BNL, and LLNL. The DOE and NSF provided guidance on the amount of financial support they could hope to make available (about \$1M each in FY03). A call for proposals was issued, and the proposals were reviewed by two committees, one for machine-related proposals and one for experiment-related proposals, chosen by the steering group. A list of the proposals is available at

http://www.hep.uiuc.edu/LCRD/html_files/proposal.html.

The review committees met at FNAL on September 9 and 10, 2002; their recommendations were passed to the funding agencies. A somewhat novel aspect of this process, at least for DOE, was to bring together the separate proposals under a single umbrella proposal for each funding agency; sub-proposals from individuals were grouped together where there was large overlap. The steering group is now working on defining the process for next year's R&D proposals, taking into account experience from the first round.

USLCSG outreach activities have been subsumed by merging the USLCSG subcommittee with a new organization under the leadership of Jim Siegrist. Two steering group members are members of this new group, which is still being formed.

Present USLCSG activities are concentrated on defining how it should recommend that the US prepare and present a bid to host the construction of a linear collider in this country. Among the major issues is defining how to deal with the two front-line linear collider accelerator technologies, warm x-band or cryogenic s-band, which exist in the world, and defining a fair process by which to make a choice. Another area of activity is

trying to define the desired parameters and configuration for the machine itself, from an experimental point of view. Other key areas are finding ways for participants around the world to have a valuable role in the project, defining an overall management structure, and methods of project cost and schedule oversight.

Report from P5

Contributed by Abe Seiden (P5 chair)

The recently formed Particle Physics Project Prioritization Panel (P5) had its first meeting in Alexandria, Virginia, on January 28 and 29. P5 is a subpanel of HEPAP and is charged to recommend priorities to the DOE and NSF for projects whose cost is in the \$50m to \$600m range. The work of the subpanel will include maintaining the twenty-year roadmap of projects for the field. These projects have been chosen to position the field at the forefront of scientific discovery as we explore the frontiers of matter, energy, space and time.

The first task of the subpanel will be to assist HEPAP in providing the DOE Office of Science with an updated list of facilities needed by the field over a twenty-year timeframe. The first meeting of the subpanel was dedicated to getting organized and to physics presentations for topics on the roadmap. A crucial function of the subpanel will be the recommendation of priorities for projects that are ready to be scheduled for construction. The initial set of projects to be prioritized are the BTeV and CKM experiments and the full construction of the Run IIb detector upgrades. P5 will be working with Fermilab and the project leaders to complete its work on prioritizing these projects before the end of June 2003.

The P5 report can be accessed at http://www.science.doe.gov/hep/hepap_reports.shtml.

Prizes

Winners of the 2003 APS prizes have been announced. The following prizes were awarded for outstanding achievement in particle physics:

W. K. H. Panofsky Prize: William Willis (Columbia University)

“For his leading role in the development and exploitation of innovative techniques now widely adopted in particle physics, including liquid argon calorimetry, electron identification by detection of transition radiation, and hyperon beams.”

J. J. Sakurai Prize: Alfred Mueller (Columbia University) and George Sterman (SUNY Stony Brook)

“For developing concepts and techniques in QCD, such as infrared safety and factorization in hard processes, which permitted precise quantitative predictions and experimental tests, and thereby helped to establish QCD as the theory of the strong

interactions.”

Robert R. Wilson Prize: Helen T. Edwards (FNAL)

“For her pivotal achievement and critical contribution as the leader in the design, construction, commissioning and operation of the Tevatron and for her continued contributions to the development of high gradient superconducting linear accelerators as well as bright and intense electron sources.”

Tanaka Dissertation Award: GERALYN P. ZELLER (Northwestern University)

“For her contributions to the precision measurement of the weak mixing angle in neutrino-nucleon interactions. This work provides the most accurate measurement to date of the weak mixing angle using this technique. The value lies three standard deviations away from global electroweak fits, suggesting the existence of physics contributions from beyond the standard model.” Dr. Zeller, who is currently at Columbia University, wrote her dissertation at Northwestern University, where her advisor was Heidi Schellman.

Lilienfield Prize: Frank Wilczek (MIT)

“For his role in the development of asymptotic freedom and other aspects of quantum chromodynamics, a cornerstone of the standard model; for his remarkable versatility in research in condensed matter and astrophysics as well as particle physics; and for his outstanding ability to lecture and write with clarity, profundity, and enthusiasm.”

Edward A. Bouchet Award: Homer Neal (The University of Michigan)

“For his significant contributions to experimental high energy physics, for his important role in formulating governmental science policy, for his service as a university administrator at several universities, and for his advocacy of diversity and educational opportunity at all levels.”

A full list of APS prize winners for 2003 may be found at <http://www.aps.org/praw/03winners.cfm>.

New APS Fellows

Congratulations to all those who were chosen Fellows of APS from the DPF in 2002:

Marcela Carena, Janet Marie Conrad, Ashok Kumar Das, Adam Frederick Falk, Richard S. Galik, Chang Kee Jung, Harris P. Kagan, Masatoshi Koshihara, Andreas S. Kronfeld, Peter Daniel Meyers, Harrison Bertrand Prosper, Blair Norman Ratcliff, Ian Peter Joseph Shipsey, Elizabeth H. Simmons, Pierre Sokolsky, Thomas Joseph Weiler, William John Womersley, Craig L. Woody

Please consider making a nomination for APS Fellowship for DPF members. See

<http://www.aps.org/fellowship/> for details on how to make a fellowship nomination. The application deadline is April 1, 2003.

DPF Committees

We thank the following members of our community who generously gave their time to serve on DPF committees this year:

Nominating Committee

M. Dine (chair), H. Weerts (vice-chair), A. Falk, G. Hanson, V. Luth, S. Willenbrock

W. K. H. Panofsky Prize Committee

J. Alexander (chair), W. Molzon (vice-chair), N. Roe, B. Winstein, P. Grannis

J. J. Sakurai Prize Committee

R. Peccei (chair), B. Kayser (vice-chair), E. Eichten, L. Orr, M. Voloshin

Robert R. Wilson Prize Committee

N. Holtkamp (chair), S. Ozaki (vice-chair), M. A. Harrison, S. Y. Lee, C. Pellegrini

Tanaka Dissertation Award Committee

D. Marlow (chair), P. Rankin (vice-chair), A. Bodek, R. Lanou, M. Strovink