DPF Newsletter - August 1999

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DPF Bylaws changes Approved - Electronic voting to begin

The proposed changes to the DPF bylaws were approved by DPF membership in an election that concluded in June, 1999. The primary reason for changing our bylaws was to allow electronic balloting in our annual elections. We will try this out for the upcoming DPF election described in this newsletter. The current plan is to distribute ballots by e-mail to those DPF members with e-mail addresses. Those without e-mail addresses will receive ballots by conventional mail. Other units of APS have experienced increased voter turn-out when electronic voting was instituted.

IMPORTANT: This is the only paper copy of the candidates' biographies and statements that you will

DPF Elections

It is time once again for a DPF election. This year we will elect a Vice-Chair, a Divisional Councillor, and two regular members of the Executive Committee. The Vice-Chair will enter our four-person Chair line (see below) and become Chair in 2002. The Divisional Councillor is one of two who represent DPF at meetings of the APS council and act as liaisons to the APS. The two Executive Committee members will join four Executive Committee members remaining on the committee. The current members of the DPF Executive Committee and the final years of their terms are

Chair: Howard Gordon (1999).
Chair-Elect: Eugene Beier (1999).
Vice-Chair: Chris Quigg (1999).
Past Chair: Howard Georgi (1999).
Secretary-Treasurer: Catherine Newman-Holmes (2000).
Division Councillor: Robert Cahn (1999), Sally Dawson (2003).
Executive Committee Members: Vernon Barger (2001), Pat Burchat (1999), Glennys Farrar (2001), Nicholas Hadley (2000), Kay Kinoshita (1999), Donna Naples (2000).

The nominees for Vice-Chair are Robert Cahn (LBNL) and Stanley Wojcicki (Stanford University). Peter Meyers (Princeton University) and Chiara Nappi (Institute for Advanced Study) are the candidates for Divisional Councillor. The nominees for regular members of the Executive Committee are William Carithers (LBNL), Janet Conrad (Columbia University), Joey Huston (Michigan State University) and John Huth (Harvard University). Statements from the candidates appear in this newsletter. Instructions for voting will be sent electronically or by conventional mail, as described in the item about the bylaws changes.

receive. In particular, you will not receive another copy of the candidate information even if you receive a paper ballot. If you do not have access to the World Wide Web, please retain this newsletter until you have voted.

DPF Meeting News

DPF 2000 will be held August 9-12, 2000 at Ohio State University (Columbus, Ohio). Further information will appear on the DPF Web page and in future newsletters.

The proceedings from DPF 99 held at UCLA in January, 1999 will be published electronically and made available on the Web through the UCLA library. There will be a link from the DPF home page when the proceedings are available.

News from DOE, HEPAP

Contributed by John Metzler, Executive Secretary HEPAP, Office of Science, U.S. Department of Energy

In June, 1999 Mike Witherell, in assuming his new responsibilities as Director of Fermilab, officially stepped down as chairman of HEPAP. HEPAP is now scheduled to meet on October 12-14, 1999 in the Washington, D.C. area with six new members, including the new chair.

The DOE/NSF LHC Joint Oversight Group met to review the progress in meeting DOE's and NSF's commitments to CERN for the LHC Project, and to help prepare for U.S. participation in the CERN Council, the Committee of Council, and the US-CERN Co-operation Committee meeting, June 17-18, 1999. In response to a CERN request, John O'Fallon briefed CERN's Committee of Council on U.S. efforts, and delivered the message that DOE and NSF management are actively involved in the U.S. LHC Project, that U.S. funds are being spent according to agreed-upon funding profiles, and that the LHC is an important part of the U.S. HEP program. The US-CERN Co-operation Committee focused on issues concerned with resources, computing needs, and schedule integrity.

In July 1999, the OECD (Organisation for Economic Co-operation and Development) Global Science Forum-the successor to the OECD Megascience Forum-met in Paris and agreed that a small workshop of government officials should be held in the early months of 2000 to determine if sufficient interests exists to consider the formation of a Working Party in High Energy Physics, and, if so, to formulate a proposal to the Global Science Forum which would include precise goals, objectives, and a draft work plan.

Glenn Crawford will officially start work in the DOE Division of High Energy Physics on August 30, 1999. Marvin Gettner and Gordon Charlton are retiring from the Division of High Energy Physics on August 13, 1999. Information on vacant positions in DOE's Division of High Energy Physics may be found at http://www.hep.net/doe-

hep/home.html, and candidates interested in working in the DOE Division of High Energy Physics may wish to contact John O'Fallon at (301) 903-3624.

DPF Congressional Reception

The Division of Particles and Fields together with the Division of Nuclear Physics hosted a reception for members of Congress and their staff, representatives of the Washington administrative agencies, and other interested persons on May 11, 1999. Legislators (and their staff members) were vastly outnumbered by physicists. The DPF Executive Committee would like to hear suggestions for making this event more useful. Please send them to DPF Chair Howard Gordon (gordon1@bnl.gov).

1999-2000 DPF Election Information

Candidates for Vice Chair (vote for one)

Robert Cahn, Lawrence Berkeley National Laboratory

Robert Cahn grew up in California. He graduated in Chemistry and Physics from Harvard in 1966 and received his Ph.D. in Physics at Berkeley in 1972 under J. D. Jackson. He held post-doctoral positions at SLAC and the University of Washington before joining the faculty at the University of Michigan in 1976. He was on the faculty at U. C. Davis for a year before returning to Lawrence Berkeley Laboratory in 1979, where he has remained since. From 1991 to 1996 he was the Director of the Physics Division at LBNL.

Cahn's research has covered many topics in particle physics including particle spectroscopy and electroweak symmetry breaking, with a focus on very high energy hadron colliders. With Sally Dawson, he proposed colliding virtual W's to produce the Higgs particle. After completing his term as Division Director at LBNL, he maintained his connection with the experimental program and is now a member of the BaBar Collaboration. He is also involved with the KamLAND underground neutrino oscillation experiment under construction in Japan.

He is the author of two books, "Semi-Simple Lie Algebras and Their Representations", and "Experimental Foundations of Particle Physics," the latter co-authored by Gerson Goldhaber.

He is a Fellow of the American Physical Society and has held an Alfred P. Sloan Research Fellowship. He has been a Divisional Associate Editor of Physical Review Letters and is co-editor of the Cambridge University Press series on Particle Physics. He served as Secretary-Treasurer of the DPF from 1992 to 1994 and is filling a one-year term as an APS Divisional Councillor. He is a member of the BaBar Executive Committee, the SLAC Policy Committee, and has served as the head of the NSF Special Emphasis Panels for Elementary Particle Physics for the past three years.

Statement: This is an exciting time for particle physicists especially in the U.S., where

several major programs are getting underway at accelerator laboratories. We are placing detectors deep underground and in outer space, as well, to look for phenomena that may challenge the Standard Model. Our commitments extend around the surface of the globe, with participation in programs in Europe, Asia, and Latin America. Despite all this, we know that the future of particle physics in the U.S. is uncertain.

The particle physics community has set out its blueprint for the future in the reports of the HEPAP subpanel headed by Fred Gilman and the National Research Council, chaired by Bruce Winstein. If we are to convince the American public and their governmental representatives that these plans deserve their support, we need to work as a unified community.

There are encouraging signs that some of the rivalries - between different labs, between labs and universities, between DOE and NSF - are subsiding. There is increasing recognition that only with joint action can we hope to maintain the vitality of particle physics in the U.S. What we need is a Grand Unification of a different sort, one that brings together factions that have contended for resources to try to secure the support the community needs. I believe that because the DPF represents all components of the high energy physics community it ought to play a leading role in its unification.

We need new accelerators, to be sure, but most of all we need new young physicists who will bring their talent and enthusiasm to our enterprise. By conveying the excitement of stalking nature's fundamental secrets, we can encourage students from all backgrounds to join us in this pursuit. To attract the most outstanding students, however, we must first build a long-term future for our field.

Stanley G. Wojcicki, Stanford University

Stanley Wojcicki received his AB in physics from Harvard University in 1957 and his PhD from UC Berkeley in 1962 for work on strange particle resonances in the group of Luis Alvarez. He stayed at Berkeley until 1966 (part of which time was spent in Paris and CERN on an NSF postdoctoral fellowship) at which time he moved to Stanford as Assistant Professor. He has stayed there ever since and in the early 80's served as the Department Chair for 3 years. On two different occasions Wojcicki spent a year long sabbatical at CERN. From 1984 to 1988 he served as the Deputy Director of the Superconducting Super Collider Central Design Group at LBL.

Wojcicki's research interests covered a number of different areas in particle physics. After his initial work on particle resonances his work turned to study of K^{O}_{L} decays at SLAC, specifically the CP violating charge asymmetry in Kmu3 decays and the measurement of the Kmu3 form factor. During his first sabbatical at CERN he worked on the g-2 experiment. Subsequently he initiated a program at Fermilab on direct production of muons in hadronic interactions as a way of studying charm production. In parallel he was involved in the DELCO experiments at SLAC, first at SPEAR and then at PEP. After his SSC CDG involvement, Wojcicki was one of the leaders of the rare K decay program at BNL, searching for lepton violating decays. Currently he is the spokesperson of the

MINOS long baseline neutrino oscillation experiment at Fermilab.

During the latter part of his scientific career Wojcicki was extensively involved in various government and laboratory advisory committees. He chaired the 1983 HEPAP Subpanel that recommended initiation of the Supercollider and later on chaired the HEPAP itself for 6 years. He also served as chair of the National Science Foundation Physics Advisory Committee and of both SLAC and Fermilab Program Advisory Committees. He has also been an Associate Editor of "Physical Review Letters" for experimental particle physics for two years.

Statement: To paraphrase Dickens, "this is the best of time and the worst of time for particle physics". On the positive side, we have some really exciting scientific questions before us and it is quite possible that we shall obtain answers to them in the next generation of experiments. We have made significant investments in the past decade in new accelerators and new detectors and we are now on the threshold of reaping the results from those investments. The recent symbiosis between particle physics and cosmology extends the intellectual span of our field.

But all is not bright. It is not clear what will be the future of particle physics in this country ten years from now. Many of the sociological aspects of particle physics - large collaborations, long time spans, working away from home - act as a deterrent to many potential new converts to our field. The long term funding situation, even in the presence of significant federal budget surpluses, is murky at best.

Division of Particles and Fields, as a representative body of scientists working in this field, has an obligation to work for the well being of both the field and of its members. It is a unique body in so far that it represents laboratory communities, university groups, scientists in the private sector and many members of our funding agencies. It clearly cannot solve all the problems but it can make a significant contribution in this direction. I believe it should provide a forum through workshops and meetings for discussions about what is the right major step in high energy physics in US. It should establish closer contacts with its sister societies abroad, especially Europe and Japan, to help shape coherent plans for the future. DPF should be proactive in conveying the intellectual excitement of particle physics to the population at large, and especially to our lawmakers, news media, and the young people. Finally, DPF should study how some of the intrinsic sociological negatives could be ameliorated and actively work to bring more women an minorities into the field.

Candidates for Divisional Councillor (vote for one)

Peter Meyers, Princeton University

Peter Meyers received his Ph.D. from the University of California at Berkeley in 1983, studying deep inelastic muon scattering at Fermilab. He became a post-doc at Princeton in 1984 and joined the Princeton faculty in 1985, becoming Professor of Physics in 1998. His research has focused on the weak interactions, studying flavor-changing neutral

currents in rare kaon decay at Brookhaven and, currently, neutrino oscillations in the MiniBooNE experiment at Fermilab.

Meyers was an NSF Presidential Young Investigator and won one of Princeton's first President's Awards for Distinguished Teaching. In 1997, he was a member of the HEPAP Subpanel on the Future of High Energy Physics. He has been on the Brookhaven AGS Users' Executive Committee and currently serves on the Fermilab Physics Advisory Committee.

Statement: High energy physics in the United States has just entered a vigorous new phase, with new facilities at Fermilab and SLAC turning on and the prospect of data containing exciting discoveries around the corner. The medium-term future is also promising, with major participation at the LHC. Unfortunately, it stops there. While our field as a whole, and the DPF in particular, tries to develop a consensus on a feasible machine with scientific merit to justify its cost, we must also look ahead to develop in our broader culture the level of interest required to support such a facility. Without success in this effort, we will neither get the opportunity to build our next collider, nor deserve it.

Fortunately, the current excitement in high energy physics is a good base on which to build public interest, which would benefit physics and science as a whole and could attract young students from a broader range of backgrounds to our field. This is exactly the mission of the APS, and the APS Council seems an ideal forum for furthering this effort.

Chiara R. Nappi, Institute for Advanced Study

Chiara R. Nappi received her Laurea (Master's) from University of Naples (Italy) in 1972 and her Diploma (PhD) in 1976, under the supervision of Prof. G. Jona-Lasinio of the University of Rome. From 1976 to 1980, she worked in mathematical physics at Harvard University, as a postdoctoral fellow, a lecturer and a recipient of a Bunting Fellowship from Radcliffe College. Since 1980 she has worked in particle physics and string theory in Princeton, NJ. She has been a research physicist at Princeton University, where she also taught as a visiting professor, and is currently a member with long-term appointment in the School of Natural Sciences at the Institute for Advanced Study. In the academic year 1999-2000 she will be a visiting professor at the University of Southern California in Los Angeles.

Her work in mathematical physics included studies of rigorous statistical mechanics and quantum field theory in De Sitter spacetime. Her work in particle physics has ranged from particle phenomenology to the skyrmion picture of nucleons, at the interface of particle and nuclear physics. In string theory, she has worked in string phenomenology, effective Lagrangians derived from strings, and in stringy black holes.

She has been interested in the educational system in the United States, particularly in the negative impact of lax curricula on the performance of women and minorities in the scientific field. She has authored articles on education published in the USA and abroad.

Statement: It is important to pursue high standards of achievement across the board, from research to education. With the upcoming LHC ushering recovery from the SSC cancellation and in spite of its ongoing funding concerns, the field is intellectually healthy and has the potential for great advances, from neutrino physics to supersymmetry and M-theory. To ensure its long-term vitality, it is necessary to be proactive in identifying future trends and needs, and sort out priorities and goals for guidance to the DPF community and to prospective particle physicists. It is also necessary to cooperate with other divisions in APS to formulate a coherent plan and work as a unified force for the entire field.

APS should continue to play an active role in advancing physics among the general public. A rigorous and systematic K-12 education in physics not only is essential in a modern technological society, but will also ensure public support for physics as well as a pool of potential young scientists. APS must work to secure funding for basic research and to increase academic opportunities, while also guiding into alternate careers the young physicists who have the talent to contribute to other fields, including education.

Candidates for Executive Committee Member (vote for two)

William Carithers, Lawrence Berkeley National Laboratory

Bill Carithers received his PhD from Yale University in 1969. He was a postdoc and assistant professor at Columbia University until 1973 while working on precise measurements of CP-violating parameters and rare decays of the K_L at Brookhaven. He was an assistant professor at the University of Rochester until 1975 when he moved to the Lawrence Berkeley National Lab where he has been on the staff ever since. Beginning in 1975, his research turned to colliders where he worked on the design, construction, and initial research program of the Mark II detector at SLAC's SPEAR electron-positron collider. He worked briefly on the TPC detector for PEP, contributing the invention of a novel calorimeter. In 1979, his attention turned to hadron colliders when he joined the CDF detector then being designed. He has remained with CDF for the ensuing twenty years, serving as co-spokesperson from 1992-1998. His research interests have included the W mass measurement, top quark physics, and jet physics.

Bill is a Fellow of the American Physical Society and has served on the PAC's of all three US accelerator labs. He has served on many DOE advisory committees and interminable review committees.

Statement: Many have noted that this is a crucial time for HEP, especially in the US. My lack of originality in repeating it does not diminish its truthfulness. In the US, we have an extremely strong program for the near term and will be full partners in the next step at the LHC. However, beyond the LHC we face an alarming lack of direction. The DPF must be a crucial voice in establishing the next step by helping to define the R&D necessary for an informed decision and articulating the case for funding. The DPF should be the principal forum for addressing the physics case since it is a body that represents the entire field. The laboratories and funding agencies are, of course, indispensable components in

addressing the future; but they have their own constraints and imperatives that are not necessarily aligned with the most compelling physics case.

I have focused on the future, but the DPF must continue to be vigilant in promoting the strength of the thrilling near term program. With the imminent operation of the B factories and the upgraded Tevatron collider, we enjoy the prospects of both precise measurements and exciting new discoveries. The close partnership between HEP and astrophysics/cosmology continues to blossom. To us, the value of such a program is self-evident. To the Congress and the tax-paying public, it may not be. I believe that neither the Congress nor the people it represents are opposed to funding good science. Rather their attitude is more like: "I want to believe that good science should be funded, so convince me." The DPF should help do exactly that.

Janet Conrad, Columbia University

Janet Conrad received her Ph.D. from Harvard University in 1992 for work on the E665 muon scattering experiment at Fermilab. She then joined the NuTeV neutrino experiment (E815) at Fermilab as a postdoc with Columbia University. She was promoted to assistant professor at Columbia in 1995. She is co-spokesperson of the MiniBooNE neutrino oscillation experiment (E898) at Fermilab. Her physics interest cover a broad range, including QCD, searches for neutral heavy leptons and measurements of neutrino oscillations. During spring, 1999, she was a member of the FNAL Beams Division. She has been a member of the Fermilab Users Executive in 1990-92 and 1994-96. She is a recipient of the Presidential Early Career Award for Scientists and Engineers in 1999. She has also received CAREER and CAA Awards from NSF and a DOE Outstanding Junior Investigator Award. She is currently a member of SAGENAP, the Scientific Assessment Group for Experiments in Non-Accelerator Physics.

Statement: The next decade will be an exciting time for high energy physics in the US, as we exploit the new accelerators which have come on line. The next challenge facing us is laying a foundation to maintain this rich program for the long term. DPF can play a major role in bringing the community together to make the decisions needed to direct the future of the field. It is important that physicists at all levels participate in the discussions of the future direction of high energy physics. In particular, younger physicists - junior faculty, postdocs and graduate students - have a responsibility and a strong desire to contribute to this process. Historically, DPF has been strongly supportive of educating young physicists. The integration of junior members into the development of long-term strategy fits well within DPF goals. For example, the Snowmass summer studies and DPF conferences have offered opportunities for input from students, postdocs, and untenured faculty. This role for DPF should be continued and strengthened. One possible area would be for DPF to organize panels with substantial representation by young physicists to provide input to HEPAP subpanels in the form of white papers.

To enable younger scientists to become effective participants in these conversations, it is important that they develop a broad overview of the field as it stands. To this end, DPF could encourage several constructive measures to help these physicists expand their

vision. They should be challenged to give summary talks at conferences on today's exciting physics results. More conference organizers should take the progressive step of asking postdocs and graduate students to give these talks. DPF can be a leader in this respect, providing such forums when possible. Another avenue is for DPF to setup electronic dialog systems for people to express their opinions and responses on topics of general interest to the community. Summaries of these opinions could then be provided to others as an indication of the community consensus.

Young people have much to offer to deliberations on the future of high energy physics. They bring new ideas, enthusiasm, and a certain savvy developed through creative survival in a time of diminishing resources. DPF should encourage this participation at the laboratories, at DOE, and at NSF, and it should lead by example. High energy physics is at an exciting crossroads. All of us, at all stages in our careers, are looking forward to exploring the possibilities for our future.

Joey Huston, Michigan State University

Joey Huston was born and grew up near Pittsburgh, Pennsylvania. He graduated from Carnegie-Mellon University with a B.S. in Physics in 1976 and received a Ph.D. at the University of Rochester in 1982, with Fred Lobkowicz as thesis advisor. Following two and a half years as a postdoctoral research associate at the University of Rochester, he joined the faculty at Michigan State University where he is currently a Professor of Physics. In 1989, he was the recipient of a Presidential Young Investigator Award from the National Science Foundation.

Huston's research interests have been primarily in the area of experimental tests of perturbative QCD. He participated in the Fermilab experiment E706, which measured direct photon production at high transverse momentum and more recently has been a collaborator in the CDF experiment and for the last two and a half years has been the CDF QCD group co-convener. He was a founding member of the CTEQ collaboration, a unique group of experimentalists and phenomenologists working in perturbative QCD, and is one of the authors of the CTEQ parton distributions. He has been the author of many publications on high energy phenomenology, in addition to the experimental papers with E706 and CDF. He is also a member of the ATLAS collaboration and is participating in the construction of the ATLAS hadron calorimeter. One of his primary interests is the use of Tevatron data to make predictions for new/old physics at the LHC.

He was a member of the Fermilab User's Executive Committee from 1994-95 and in 1995 organized the annual trip to Washington D.C. From 1996 to 1997, he was also a member of the ad hoc Fermilab Public Policy Advisory Committee, founded to advise the Fermilab spokesman on issues relating to Congress and the Administration. He initiated and completed a survey of all of the outreach activities undertaken by institutions conducting research at Fermilab, and received a grant from the NSF to expand this survey to all HEP institutions and to publish it as a brochure (as well as a website). He is a member of the ATLAS education committee and was chosen as one of the participants in the QUARKNET project, involving local high school science teachers participating in

high energy physics with the goal of them carrying their knowledge and interest back to their classrooms.

Statement: High energy physics is at a very critical point: we are poised to answer some of the most crucial questions in our field while at the same time we are struggling to maintain an adequate level of funding. Both universities and national laboratories are feeling the effects of a budget squeeze, but the squeeze particularly affects younger physicists and those funded by the NSF. Success in the near future will require a great deal of cooperation; between universities and labs, between both groups and the funding agencies and between high energy physicists in general and Congress and the Administration. The DPF has had and will continue to have a vital role in all of the above areas. Of particular importance are the educational efforts aimed at the Administration and Congress; it is important that we continue to be successful in demonstrating the importance of the work in our field.

John Huth, Harvard University

John Huth received his bachelor's degree in Physics from Princeton University in 1979, and a Ph.D. in Physics from the University of California at Berkeley in 1985. He then moved to Fermilab in 1985 to work, first as a postdoctoral scientist, then Wilson Fellow, then Staff Scientist, until 1993. He then joined the faculty at Harvard University as Professor of Physics.

From 1993 through 1997, he was a member of the Fermilab Physics Advisory Committee. In 1994, he served on the HEPAP subpanel on the Future of High Energy Physics ("Drell panel"). He is presently a member of the Brookhaven Scientific and Technology Steering Committee, and is an APS Fellow. He chaired the CDF Committee on Bylaws and authorship guidelines, and is outgoing Chair of the U.S. ATLAS Institutional Board.

His research interests have focused mainly on high energy hadron collisions. As co-leader of the CDF QCD group for four years, he led efforts to make measurements predicted by new higher-order QCD calculations. Along with the development of new tools to study jet physics in CDF, came techniques to detect and measure the top quark via jet spectroscopy. More recently, he has been extending these techniques to improvements in the understanding of missing energy in searches for supersymmetric particles (squarks and gluinos). In addition to jet physics, he has been pursuing B physics topics, such as potentially clean signatures for the CP violating parameter sin(2 gamma).

He was the co-manager of CDF operations and managed CDF upgrade construction and installation for run 1, including the muon upgrades and the silicon vertex detector. He has been contributing to the CDF silicon vertex detector DAQ system for Run 2, and has been developing low-cost CMOS custom IC's for use in the ATLAS muon system. He was recently appointed as the Associate Project Manager for Physics and Computing for the U.S. ATLAS Collaboration. In addition, he is collaborating with the Accelerator Research Department B at SLAC on 100 GHz accelerator structures.

Statement: I view the DPF's role as unique among the institutions in our field. It is the one organization that can act independently and exclusively on behalf of our collective interests. Given its constitution, it functions primarily in the social and political realms and thus should be an advocate for the well being and future health of particle physics in these arenas.

With many new facilities just turning on or under construction, one anticipates a busy period in the next several years for experimentalists. In the near-term, and beyond, many of the challenges we face are, indeed, social and political in nature. This is a natural consequence of the huge scale of the experimental collaborations and facilities. In order to ensure the continued vitality of the field, we must focus attention on how younger investigators can achieve an appropriate level of recognition for their efforts, particularly when "big science" is viewed with skepticism in some quarters. Beyond the near term, we must forge a defensible and coherent vision of the future of particle physics in the U.S. in the era when the LHC is running. Here, the DPF can function both as an agent for some discipline within the field and as an independent advocate for future endeavors. This is particularly important with the internationalization of large projects, and the emerging importance of work on the boundaries between astrophysics and particle physics.