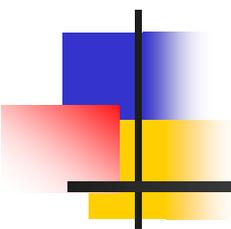


Whither from Here?

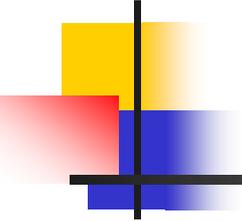


Stanley Wojcicki

Stanford University

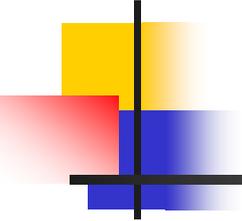
September 16, 2002

London, England



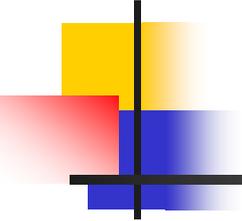
General Arguments

- The total cost of the NuMI project was about \$174M
- Only about \$50M of that amount went into Soudan excavation and Far Detector
- It makes sound financial sense to capitalize on the investment in the NuMI beam if physics warrants it
- Neutrino physics will be a frontier area in HEP for many years to come
- The focus of Fermilab activities in the medium range future will not be a collider program. Neutrino physics appears to be an ideal center piece of medium range (2006-2018) program there.



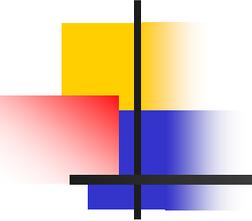
Recent Initiative

- A Letter of Intent has been submitted to Fermilab in June expressing interest in a new ν effort using off-axis detector in the NuMI beam
- This would most likely be a ~15 year long, 2 phase effort, culminating in a detailed study of CP violation
- The LOI was considered by the Fermilab PAC at its Aspen July, 2002, meeting



The Next Steps / Schedule

- R&D effort on light Z detectors is ongoing
- Workshop on detector technology issues planned for January, 2003
- Proposal to DOE/NSF in early 2003 for support of R&D and subsequent construction of a Near Detector in NuMI beam to be taking data by early 2005
- Proposal for construction of a 25 kt detector in late 2004
- Site selection, experiment approval, and start of construction in late 2005
- Start of data taking in the Far Detector in late 2007



Fermilab Official Reaction

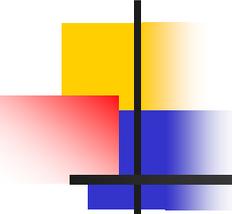
Given the exciting recent results, the eagerly anticipated results from the present and near future program, and the worldwide interest in future experiments, it is clear that the field of neutrino physics is rapidly evolving. Fermilab is already well positioned to contribute through its investment in MiniBooNE and NuMI/MINOS. Beyond this, the significant investment made by the Laboratory and NuMI could be further exploited to play an important role in the elucidation of θ_{13} and the exciting possibility of observing CP violation in the neutrino sector. The Committee encourages the Laboratory to continue to engage with the neutrino community through workshops and colloquia in an ongoing exploration of the experimental possibilities utilizing Fermilab's unique resources. The Committee anticipates that the Laboratory may want to issue a Call for Proposals in a year or two if a compelling role for Fermilab is identified.

(June 2002, PAC Recommendation)

We will encourage a series of workshops and discussions, designed to help convergence on strong proposals within the next few years. These should involve as broad a community as possible so that we can accurately gauge the interest and chart our course.

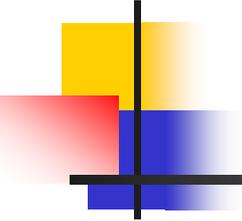
Understanding the demands on the accelerator complex and the need for possible modest improvements is also a goal. Potentially, an extension of the neutrino program could be a strong addition to the Fermilab program in the medium term. We hope to get started on this early in 2003.

Michael Witherell



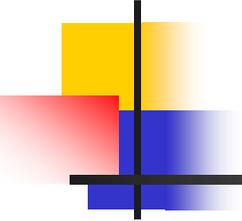
Comments re Funding

- The cost of a ~25kt detector is \$50-100M
- Assuming construction over ~3-4 yrs, the annual expenditure is substantial
- Fermilab is unlikely to have such funds available before 2008 at best (BTeV,CKM)
- NSF has a number of MRI projects waiting in line for funding
- DOE University Program is a possible source
- Participation of institutions from abroad with ability to contribute resources can have a great positive impact



Personal View

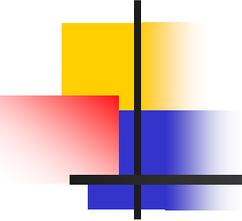
- The physics is exciting and we are optimally positioned to explore it
- Significant physics can be done with the NuMI facility without any major accelerator complex improvements
- We should get started ASAP and plan on adiabatic increases in both accelerator intensity and mass of the detector
- Significant physics can be done already with 5-10 kt detector and annual POT of $\sim 4 \times 10^{20}$
- Obtaining additional resources for accelerator and detector upgrades will be much easier once we have a viable ongoing program
- We definitely should not wait for any decision on the new proton driver before we get started
- The best argument for a new intense proton source will be an ongoing strong and promising neutrino program



Concluding Remarks

- Realization of a NuMI off-axis program is a non-trivial task
- The potential physics payoffs, however, warrant significant investment of effort
- It is unlikely that this effort can be successful unless the participation in it can be extended significantly beyond the present MINOS Collaboration
- There are many opportunities for new groups to make significant contributions in leadership, intellectual, financial, and technical areas.

Web site



- <http://www-off-axis.fnal.gov/>
- This site will contain a lot of relevant information regarding NuMI off-axis beam; it will also contain pointers to relevant papers, talks, letters, etc.