

# Physics Advisory Committee

## October 15-17, 2012

The focus of this meeting of the Physics Advisory Committee (PAC) will be on two proposals and one LOI received by Fermilab. One of these (P-1027) was presented to the PAC in June. The other proposal (P-1032) and the LOI (P-1033) are new.

Proposal: Polarized DY (P-1027: Lorenzon, Reimer)

Proposal: MiniBooNE Light WIMP Search (P-1032: Van de Water)

LOI: MiniBooNE longer term (P-1033: Tayloe)

Given the uncertainty of funding, we ask the PAC to comment and make its recommendations separately under assumptions of (1) no budgetary issues and (2) if the Fermilab budget is severely constrained over the next four years. For each of the proposals and the LOI, we ask the PAC to make recommendations and to comment specifically on the following issues:

1. Is the science in the proposal / LOI interesting and/or compelling?
2. Is the technique proposed appropriate for, and likely to be capable of reaching the physics goals of the experiment?
3. What is the competition for reaching the physics goals of the proposed experiment? Does the proposed experiment have particular advantages or disadvantages relative to the competition?
4. What is needed to make such an experiment successful?

In the case of P-1027, have the questions previously raised by the PAC been addressed: (a) Is there a well understood option to run with one Siberian Snake? (b) Have sufficient in-kind and M&O contributions from outside of Fermilab been identified? (c) Are the resource and infrastructure requirements for the experiment, and the budget model, well understood?

The laboratory has also received two EOI's:

EOI: NNbarX (Kamyshkov)

EOI: Proton EDM (Semertzidis)

These initiatives are seeking support for R&D that will enable them to eventually prepare a full proposal. We ask the PAC to comment, for each EOI, on whether the science goals are compelling, and on the scope and appropriateness of the proposed R&D.

In addition to proposals, LOI, and EOI's, there are a number of ongoing initiatives that are of great importance to Fermilab's future program.

The Long Baseline Neutrino Experiment (LBNE) deserves special attention. We ask the PAC to comment on the current situation and on the progress being made.

The Mu2e experiment is moving through the CD process, and is also continuing to refine its understanding of the physics reach of the experiment. We ask the PAC to comment on the current situation and on the progress being made, including the progress on understanding the risks associated with uncertainties in sensitivity and background projections.

The PX Stage 1 physics case continues to be refined. We ask the PAC to comment on the plans for understanding and articulating the physics case in preparation for the “Snowmass 2013” meeting.

The U.S. contributions to the CMS upgrade continue to be better defined and developed. We ask the PAC to comment on the proposed contributions, and what will be needed from the laboratory to make the upgrade successful.

The DES is transitioning from construction to operation. We ask the PAC to comment on the progress towards science verification and on data management plans.

The “DOE/HEP Dark Energy Science Program: Status and Opportunities” Committee has recently recommended a new wide-field spectroscopic survey be mounted following DES but before LSST. There are two candidate proposals (DESPEC and BigBOSS). We ask the PAC to give advice on the laboratory preparations for participation in one or both of these candidate initiatives.

Given the number of items on the agenda, we have limited the time for status reports on much of the current program to allow significant time for discussion of the former items. Nevertheless, we would welcome any comments the PAC may have on other topics presented.