

ANLHEP Neutrino Task Force

Jan 11, 2018

Introduction

IF Comparative Review

Assessment/Impact:

The neutrino efforts were poorly articulated in the proposal and felt like a laundry list of items. The NOvA and DUNE efforts seemed disjoint with no clear synergy. The future plans of the neutrino group were not well motivated. It was unclear why the group is choosing to ramp down the active ProtoDUNE effort.

Recommendation: Merit

The neutrino group should redirect its efforts and attempt to establish a coherent and central role in ProtoDUNE/DUNE that utilizes the unique expertise that the group possesses (e.g. engineering expertise, photon calibration effort, technical resources, ProtoDUNE analysis etc.).

Request from DOE via Salman

As you know, LBNF/DUNE (and the associated PIP-II project) is the cornerstone of the accelerator-based particle physics effort on US soil. **The HEP office has asked the Division to develop a well-rounded neutrino program (science/engineering/tech support) that can have a significant positive impact on this effort;** the associated time frame is relatively short.

Aside from members of the Intensity Frontier group, who have made strong contributions recently to protoDUNE, I would like to invite everyone else who might have interest, to take part in a neutrino task force that will be led by Jimmy Proudfoot. Jimmy is a member of the Long Baseline Neutrino Committee (LBNC) and has a very good view of DUNE science and engineering challenges. Please contact Jimmy if you would like to take part in the task force.

Keywords:

Science
Engineering
Tech support
(significant) impact

Interactions

DOE HEP:

is happy to stay in close contact with us regarding this process, so we can get feedback.

Example – what about ND?

DUNE Near Detector (ND) would be a possibility, but several factors to be aware of:

1. US DUNE scope is expected to include ND but the exact components are still TBD. Close coordination with DUNE/US DUNE management will be necessary.
2. Other HEP labs (SLAC, LBNL) are already actively engaged in this space. Will need to carve out unique roles for ANL which complement.
3. Many US universities are interested in this area as well and it is one of the few areas in LBNF/DUNE where smaller univ groups can have impact. We desire a plan that coordinates with and strongly supports university groups.
4. "local" (Chicago-area) support for international partners in fabrication/commissioning/operations will also be important. FNAL will have the lead here but there may be good roles for ANL.

DUNE:

Verified buy-in from the collaborations will be essential when presenting a plan to DOE that they will eventually support (aspirations != commitments)

Those who have expressed interest so far

Jimmy Proudfoot (facilitator)

Jinlong Zhang

Norm Rendon

Maury Goodman

Carlos Wagner

Peter van Gemmeren

Jeremy Love

Peter Winter

Jianjie Zhang

Vic Guarino

Zelimir Djurcic

Steve Magill

Rich Talaga

Karen Byrum

Salam Habib (ex officio)

Kawtar Hafidi (ex office)