NOvA Experiment Status

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All Experimenter’s Meeting, July 15, 2013
Far Detector Progress

The Intensity Frontier

NOvA Far Detector Assembly Progress

Status Date: 15JUL13

1,000,000 Gallons of Scintillator Installed July 2, 2013

14 kilotons = 28 NOvA Blocks
17 blocks of PVC modules are assembled and installed in place
10.96 blocks are filled with liquid scintillator
4.17 blocks are outfitted with electronics
Far Detector

01 July 2013

7 di-blocks in picture
(7 crossing water lines).

This is 1/2 of the detector,
50 ft wide and about 100 ft long.

It is 12 modules wide
and 448 layers deep.
Looking at FarDet Data

Some preliminary results of calibration to cosmic muon data so far

Data and Corrected MC (scaled to data by area)

Converting to MeV per cm (data)

From MC truth, 1 MEU = 1.58 MeV/cm
Mean of calibrated data = 1.80 MeV/cm
Far Detector Projections

NOvA Construction Progress (384 PVC modules per Block)

- PVC Extrusions Completed at Extrutech + 2
- Planned Extrusions + 2
- PVC Modules Completed at Minnesota
- Planned PVC Modules
- Modules Assembled at Ash River
- Planned Modules Assembled
- Modules filled with scintillator
- Planned Modules filled with scintillator
- Modules with APDs
- Planned Modules with APDs
- # blocks assembled

APD installation = all electronics in place
-> Studying APD noise issue affecting ~half of the installed channels
Near Detector Cavern Status

- The cavern is complete. Entryway wall & a “crawl-on” MAP are done. Roll-up door to come.
  - Rails in place for installation of detector muon catcher and detector blocks in the cavern
    - Continuous stainless pipe delivered for scintillator distribution down the shaft and down the tunnel to the NOvA Cavern.
Near Detector Assembly

- The Minneapolis factory has completed the PVC modules for the 1st ½ of the Near Detector.
  - Assembly of additional modules is a filler task when no Far modules can be built
- At Fermilab, assembly is starting
  - Conversion of the NDOS muon catcher to the new Near Detector muon catcher is proceeding at Meson Assembly Building
    - after extraction of the NDOS steel plates by the Particle Physics Division (no Project $)
  - Prototype Adhesive Machine moved from ANL and commissioned.
  - Dry stack of a 3 module by 3 module block is ongoing at CDF. “Dry” = no glue.
Summary

- 2 kilotons of the Far Detector working with full electronics
- Dry stacking of Near Detector modules complete – ready for gluing of modules -> blocks
- Hope to have full detectors operating in beam by next April/May