Status of the NOvA Experiment

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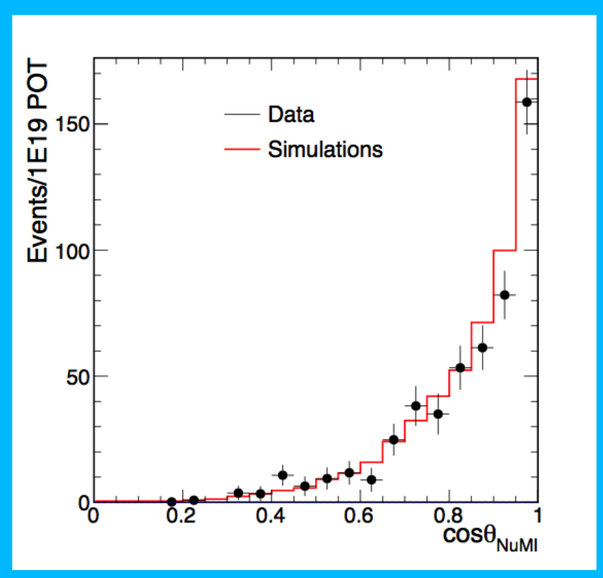
NOvA NDOS Run

The NOvA NDOS (**N**ear **D**etector **O**n the **S**urface) data run collected ~5000 neutrino interactions from the NuMI beam.

The NOvA NDOS is used as a prototype to test the detector technology and assembly procedures.

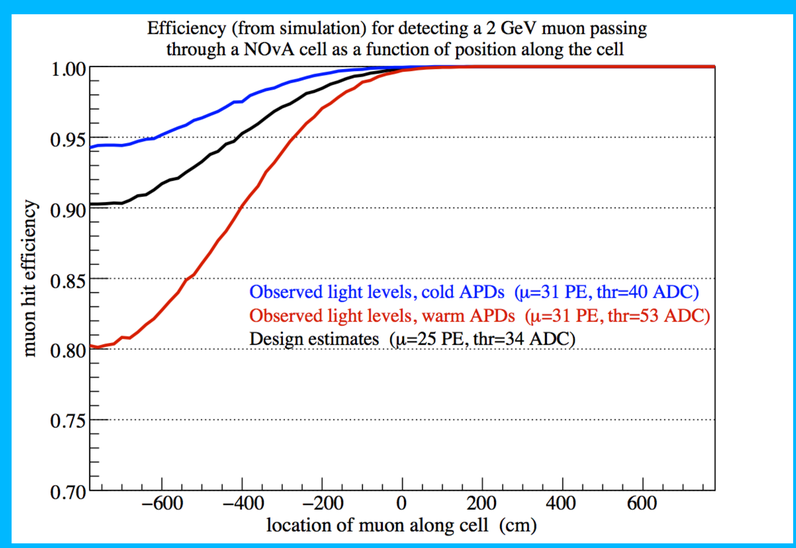
The NDOS is also used to investigate the expected cosmic ray background in the NOvA detector and to develop calibration techniques for the NOvA detectors.

NuMI Beam Data



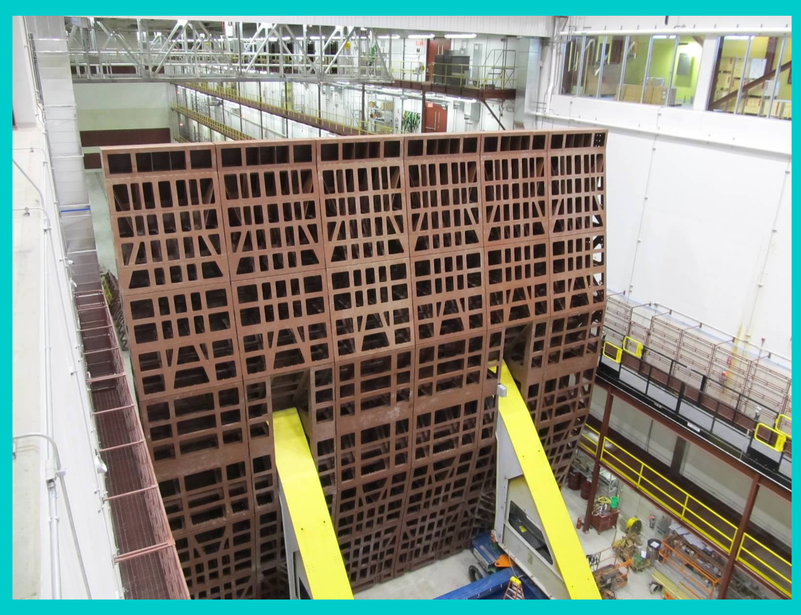
Comparison between NOvA NDOS cosmic subtracted data and MC. A selection has been applied to both the data and the MC to enhance beam neutrinos and reject the cosmic ray interactions. This plot shows good agreement between data in time with the NuMI (**N**eutrinos at the **M**ain **I**njector) beam and the NuMI beam MC.

Calibration Test Bed



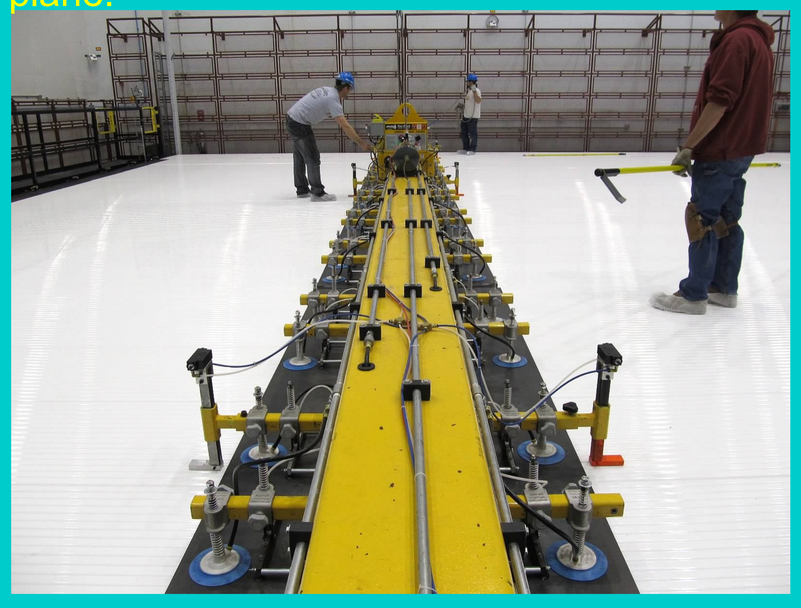
Simulated efficiencies for detecting muon hits in the NOvA FD, shown as a function of position along the cell with more positive positions being closer to the cell readout. The black curve shows the NOvA technical design report's expectation. The colored curves give the performance assuming observed noise rates in the NDOS and observed full-length module light levels obtained with the "vertical slice" test setup. The warm and cold curves differ only in their hit trigger threshold, as warm APDs require a higher threshold to maintain a tolerable noise rate.

NOvA Block Pivoter



Once a block has been finished, the block pivoter (shown above) is used to move the block into place within the detector building, then pivots 90^0 to set the block upright.

Work on the first block of the NOvA far detector. Each plane is composed of 12, 32 cell modules. The modules of adjacent planes are laid out at 90^0 relative to the previous plane, giving both an X and a Y view. This picture shows the vacuum lifter used to put the modules in place within a plane.



Building the First NOvA Block

Far Detector Construction Underway

Construction of the NOvA far detector has begun in Ash River MN.

The NOvA far detector consists of 960 (15.6 m square) planes. 32 planes make 1 block, while 5 blocks make 1 super block.

The final detector mass will be ~15k tons. With ~80% active detector material.

Schedule and Outlook

In May of this year the FNAL accelerator complex shut down for upgrades to the NuMI beam line along with regular maintenance to the facilities.

Construction has begun on the far detector. The first super block is scheduled to be completed by the end of the year. With additional super blocks being completed on a schedule that accelerates as the technicians gain experience with the detector assembly.

Schedule

The NuMI beam is schedule to return in April 2013. By then 2 Super blocks should be in place with a total detector mass of 5k tons. Construction will continue while the beam ramps up to 700kW in October 2013.

Outlook

NOvA will began taking data with a partially completed detector in spring of 2013. Data taking will continue as the detector is complete in spring of 2014.

NOvA expects to collect approximately 14 electron neutrino interactions in by 2014 with approximately 7 background interactions by Neutrino 2014. For more information on NOvA physics see Raphaël Schroeter's poster (#99-3)