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WG1 Initial Performance from the NOvA Surface Prototype Detector

NOνA , the NuMI Off-Axis νe Appearance experiment will study ν_μ → ν_e oscillations, characterized by the mixing angle Θ_13. Provided Θ_13 is large enough, NOνA will ultimately determine the ordering of the neutrino masses and measure CP violation in neutrino oscillations. A complementary pair of detectors will be constructed 14 mrad off beam axis to optimize the energy profile of the neutrinos. This system consists of a surface based 14 kTon liquid scintillatior tracking volume located 810 km from the main injector source (NuMI) in Ash River, Minnesota and a smaller underground 222 Ton near detector at the Fermi National Accelerator Laboratory (FNAL). The first neutrino signals at the Ash River Site are expected prior to the 2012 accelerator shutdown. In the meantime, a near detector surface prototype has been completed and neutrinos from two sources at FNAL have been observed using the same highly segmented PVC and liquid scintillator detector system that will be deployed in the full scale experiment. Design and initial performance characteristics of this prototype system along with implications for the full NOνA program will be presented.

Author: Dr MUETHER, Mathew (Fermilab)

Presenter: Dr MUETHER, Mathew (Fermilab)