

Abstract Submitted
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Observation of Muon Neutrino Disappearance with the MINOS Detectors in the NuMI Neutrino Beam¹

PATRICIA VAHLE, University College London, MINOS COLLABORATION — The Main Injector Neutrino Oscillation Search (MINOS) is a long baseline neutrino oscillation experiment that uses a muon-neutrino beam produced by the Neutrinos at the Main Injector (NuMI) facility at Fermi National Accelerator Laboratory (FNAL). The experiment is conducted with a pair of functionally identical detectors, located at two sites, the Near Detector (ND) at FNAL and the Far Detector (FD) in the Soudan Underground Laboratory in Minnesota. The NuMI beamline and the 735 km long-baseline allow a search for ν_μ disappearance, a rigorous test of the oscillation hypothesis, and a measurement of the Δm_{32}^2 and $\sin^2(2\theta_{23})$ mixing parameters studied previously with atmospheric neutrinos and by the K2K experiment. I will describe the MINOS experiment and discuss highlights from the second year of beam data-taking before presenting a measurement of Δm_{32}^2 and $\sin^2(2\theta_{23})$ based on an exposure of 2.5×10^{20} POT (protons on target). I will conclude with a discussion of the experiment's future prospects, including a search for sub-dominant $\nu_\mu \rightarrow \nu_e$ transitions.

¹For the MINOS Collaboration

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