

Abstract Submitted
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Measuring Neutrino Oscillations in MINOS STEPHEN COLEMAN,
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Neutrino Oscillation Search (MINOS) is a two detector experiment in the NuMI
muon neutrino beam. It is designed to measure muon neutrino disappearance af-
ter traveling 734km through the Earth. The survival probability of the oscilla-
tion hypothesis for neutrino disappearance is L/E dependent, so with a fixed L an
energy-dependent muon neutrino disappearance measurement allows precision de-
termination of neutrino oscillation parameters $\sin^2(2\theta_{23})$ and Δm_{32}^2 . Other exotic
disappearance hypotheses are also tested. We present techniques developed to im-
prove our sensitivity compared to previous analyses. These include improving our
beam extrapolation from the Near Detector to the Far Detector, the determination
of backgrounds, and systematic uncertainties. We are also including information
from additional datasets, such as anti-neutrino oscillations and muons from beam
neutrino interactions in the rock upstream from the Far Detector. These techniques
will be used to analyze data obtained from an accumulated 7.2×10^{20} protons on
target, which is about twice the size of the previously analyzed dataset.

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