

Abstract Submitted
for the APR10 Meeting of
The American Physical Society

Muon Removal Techniques in the MINOS θ_{13} Analysis XIAOBO HUANG, Argonne National Laboratory, THE MINOS COLLABORATION — MINOS, a long baseline neutrino oscillation experiment using the NuMI ν_μ beam, might be able to access the last unknown neutrino oscillation angle (θ_{13}) by searching for ν_e appearance in the far detector. The dominant background component to this search comes from the neutral current (NC) neutrino interactions. By removing the energy deposited by the muons from the ν_μ charged current neutrino interaction events we are able to probe the hadronic shower modeling for the NC background. In addition, the efficiency of the signal selection is estimated by studying an artificial ν_e interaction data sample in which the energy deposited by the muons in the ν_μ charged current neutrino interaction events are replaced by energy deposited by simulated electrons having the same momentum. The background estimation and the signal selection efficiency for the MINOS θ_{13} analysis obtained using the muon removal techniques will be presented.

Xiaobo Huang
Argonne National Laboratory

Date submitted: 25 Oct 2009

Electronic form version 1.4