Abstract Submitted
for the APR10 Meeting of
The American Physical Society

Measuring Antineutrino Disappearance at MINOS using a NuMI Antineutrino Beam ALEXANDER HIMMEL, California Institute of Technology, MINOS COLLABORATION — The NuMI beam-line was recently reconfigured to produce a primarily $\bar{\nu}_\mu$-beam by reversing the current in its two focusing horns. With an exposure 1×10^{20} protons-on-target we can measure $\Delta\bar{m}^2_{23}$ to a precision of 25% at maximal mixing at 90% confidence, more than a factor of 3 improvement over current combined world limits. It is also a significant improvement on MINOS' own measurement of $\bar{\nu}_\mu$ oscillation parameters using the small $\bar{\nu}_\mu$ component of the primarily ν_μ beam. The measurement will take advantage of MINOS' two magnetized steel-scintillator detectors and their unique ability to distinguish positive and negative muons and thus separate charged current neutrino and antineutrino interactions event-by-event.

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Date submitted: 19 Oct 2009 Electronic form version 1.4