

Abstract Submitted  
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**Antineutrino Physics at MINOS** ALEXANDER HIMMEL, California Institute of Technology, MINOS COLLABORATION — We present two new measurements of antineutrino properties based on a data sample corresponding to  $3.2 \times 10^{20}$  protons-on-target, exploiting MINOS' unique ability to distinguish positive and negative muons and thus separate charged current neutrino and antineutrino interactions event-by-event. The first measurement takes advantage of the 6% antineutrino component of the NuMI neutrino beam to measure antineutrino oscillations between the near and far detectors, which leads to improved constraints on the oscillation parameters of antineutrinos relative to the results from previous world data. We also present a search for neutrino-antineutrino transitions  $\nu_\mu \rightarrow \bar{\nu}_\mu$ , which would result in an excess of antineutrino events in the Far Detector relative to the rate expected from the intrinsic antineutrino component in the neutrino beam.

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