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Electron Neutrino Appearance in the MINOS Experiment

JOSHUA BOEHM, Harvard University, MINOS COLLABORATION — The MINOS experiment has the potential to observe the appearance of electron neutrinos in a muon neutrino beam, thereby measuring or further limiting the value of θ_{13} of the PMNS mixing matrix. This angle is the remaining unknown element of the matrix and is inextricably linked to the ability to measure charge-parity violation in the neutrino sector, a symmetry violation that could explain the dominance of matter over antimatter in our universe. The techniques developed to perform this two detector oscillation analysis, including background prediction, derivation of signal efficiency, and systematic uncertainties will be presented as will the prospects for future analyses.

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