

Abstract Submitted
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Sterile antineutrino search in the MINOS experiment RUI CHEN, the University of Manchester, MINOS COLLABORATION — The MINOS experiment is a long-baseline on-axis neutrino oscillation experiment. The two detectors are separated by 734km and optimised for sensitivity to the disappearance of muon neutrinos and antineutrinos delivered by the NuMI beam at Fermilab. The MINOS detectors are magnetised, giving the experiment a unique ability to separate neutrinos and antineutrinos on an event-by-event basis. Thanks to the different possible NuMI beam configurations, MINOS has accumulated 10.56×10^{20} POT from a muon neutrino dominated beam and 3.36×10^{20} POT from a muon antineutrino enhanced beam. In this talk I will present an analysis of the muon antineutrino interactions collected in both beam configurations. The LSND and MiniBooNE experiments have observed non-standard electron antineutrino appearance in their oscillation analyses. A possible explanation for this is the 3+1 sterile neutrino model where one adds an additional neutrino to the current three-flavour model. MINOS is sensitive to this model through looking at the charged current neutrino and antineutrino energy spectra to probe any deviations from the three-flavour muon neutrino and antineutrino survival probabilities. In this talk, I will present new limits on sterile antineutrinos, using this 3+1 model.

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