

Abstract Submitted
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Three flavour analysis of neutrino oscillations with MINOS, and sterile neutrinos in MINOS+ ASHLEY TIMMONS, Univ of Manchester, MINOS/MINOS+ COLLABORATION — MINOS is a two-detector on-axis experiment based at Fermilab. The NuMI beam encounters the MINOS Near Detector 1 km downstream before travelling 734 km through the Earth's crust until the beam reaches the Far Detector located at the Soudan Underground Laboratory in Northern Minnesota. MINOS has analysed muon neutrino and antineutrino data from the NuMI beam looking at ν_μ disappearance and $\nu_\mu \rightarrow \nu_e$ appearance. This complete set of MINOS data is combined with 37.88 kton years of atmospheric neutrino data. I will present results of this analysis, in a three-flavour framework, that makes the world's most precise measurement of Δm_{23}^2 and places new constraints on δ_{cp} , the θ_{23} octant degeneracy and the mass hierarchy. I will also report on MINOS+: the recent energy and intensity upgrade of the NuMI beam and the plans to study it with the MINOS detectors. By looking at both charged current and neutral current interactions in this region of L/E MINOS+ will look for beyond the Standard Model physics such as sterile neutrinos.

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