

The 19th International Workshop on Neutrinos from Accelerators  
(NUFACT2017)



Contribution ID: 150

Type: **talk**

## Latest Results from MINOS+ on Sterile Neutrinos, and Combined Analysis of MINOS, Daya Bay and Bugey-3

*Tuesday, 26 September 2017 12:00 (30 minutes)*

The MINOS/MINOS+ long-baseline neutrino experiment operated at the Fermi Laboratory between 2003 and 2016. The experiment was situated along the central axis of the NuMI accelerator neutrino beam, and comprised a pair of kiloton-scale steel-scintillator detectors, located 1km and 735km downstream of the beam target. MINOS accumulated in excess of  $15 \times 10^{20}$  protons-on-target (POT) using a low-energy beam; MINOS+ subsequently collected a further  $10 \times 10^{20}$  POT using a medium-energy beam. Both MINOS and MINOS+ have made precise measurements of three-flavour neutrino oscillations, and have also performed searches for new physics beyond the standard model of neutrino oscillations. In particular, both phases of the experiment are sensitive to sterile neutrinos in the region of parameter space favoured by the LSND and MiniBooNE experiments. In this talk, I will present the latest sterile neutrino results from MINOS and MINOS+, which are based on a 3+1 model, and combine both charged-current and neutral-current data in a two-detector analysis of neutrino disappearance. I will also discuss a combined analysis of the MINOS accelerator data with the Daya Bay and Bugey-3 reactor data, which has yielded strong constraints on anomalous muon to electron neutrino appearance. In addition to these results, I will present the latest direct searches by MINOS+ for sterile-driven anomalous appearance of electron neutrinos.

**Primary author:** Dr BLAKE, ANDREW (LANCASTER UNIVERSITY)

**Presenter:** Dr BLAKE, ANDREW (LANCASTER UNIVERSITY)

**Session Classification:** WG1+WG5

**Track Classification:** Working Group 1: Neutrino Oscillations