



Contribution ID: 281

Type: **Poster**

## **Multiple angles on the sterile neutrino - combining data from Planck and MINOS**

*Monday, August 8, 2016 6:30 PM (2 hours)*

The possible existence of sterile neutrinos is an important unresolved question for both particle physics and cosmology. Data sensitive to a sterile neutrino is coming from both particle physics experiments and from astrophysical measurements of the Cosmic Microwave Background. In this study, we address the question whether these two contrasting data sets provide complementary information about sterile neutrinos. We focus on the muon-disappearance oscillation channel, taking data from the MINOS and Planck experiments, converting the limits into particle physics and cosmological parameter spaces, to illustrate the different regions of parameter space where the data sets have the best sensitivity. For the first time, we combine the data sets into a single analysis to illustrate how the limits on the parameters of the sterile-neutrino model are strengthened. Finally, we investigate how data from future accelerator neutrino experiments will be able to further constrain this picture.

**Primary author:** SOLDNER-REMBOLD, Stefan (University of Manchester (GB))

**Co-authors:** Mr ELVIN-POOLE, Jack (University of Manchester); EVANS, Justin (University of Manchester (UK)); GUZOWSKI, Pawel (University of Manchester); Prof. BRIDLE, Sarah (University of Manchester)

**Presenter:** SOLDNER-REMBOLD, Stefan (University of Manchester (GB))

**Session Classification:** Poster Session

**Track Classification:** Neutrino Physics