

## Search for sterile neutrinos in neutrino data in the NOvA near and far detectors

### Authorship annotation

for the NOvA collaboration

### Session and Location

Monday Session, Poster Wall #141 (Hölderlin-Room)

### Abstract content

This poster presents an updated analysis of neutrino data from the NOvA experiment to search for sterile neutrino oscillations. NOvA consists of two functionally identical liquid scintillator detectors in Fermilab's NuMI neutrino beam: a 300 ton near detector at a 1km baseline, and a 14,000 ton far detector 810km away in Ash River, MN, 14.6 mrad off the beam's central axis. Sterile neutrino oscillations are constrained by searching for neutrino disappearance in neutral current interactions between the near and far detectors. A covariance matrix approach is utilised to cancel systematic uncertainties between the two detectors over a broad range of  $\Delta m^2_{41}$  parameter space. This analysis uses neutrino data collected between February 2014 and February 2017, corresponding to an exposure equivalent to  $8.85e20$  protons on target. Limits on the sterile neutrino mixing parameters  $\theta_{24}$  and  $\theta_{34}$  as a function of  $\Delta m^2_{41}$  are presented, along with a full analysis of systematic uncertainties.

### Poster included in proceedings:

yes

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**Session Classification :** Poster Session Monday

**Track Classification :** Poster (not participating in poster prize competition)