

New Perspectives 2016



Contribution ID: 19

Type: not specified

Sterile Neutrino Oscillations At The NOvA Near Detector

Monday, 13 June 2016 10:15 (15 minutes)

The anomalous electron antineutrino excess appearing in muon antineutrino beams seen by the LSND and MiniBooNE experiments can be explained by oscillations between the three known active neutrinos and new sterile neutrino flavors with masses near 1eV. If these light sterile neutrinos exist, they would open a brand new sector in physics, not predicted by the Standard Model.

NOvA is a long-baseline neutrino oscillation experiment primarily designed to measure the rate of electron neutrino appearance at the far detector using the NuMI neutrino beam, which is predominantly composed of muon neutrinos, at Fermilab. NOvA has two finely-grained liquid scintillator detectors placed 14 mrad off-axis to the NuMI beam. The near detector is located 1 km away from the NuMI target at Fermilab and the far detector is located 810 km away from Fermilab at Ash River, MN. Besides standard neutrino oscillation measurements, the NOvA near detector can be used to perform searches for anomalous short-baseline oscillations and probe the LSND and MiniBooNE allowed regions for the existence of exotic phenomena such as sterile neutrinos. This talk will present sensitivities to oscillations into sterile neutrinos by searching for electron neutrino appearance and muon neutrino disappearance at the near detector.

Primary author: Mr KASETTI, Siva Prasad (NOvA)

Presenter: Mr KASETTI, Siva Prasad (NOvA)

Session Classification: Session 1