

Recent searches for sterile neutrinos at NOvA

Wednesday 8 September 2021 17:00 (20 minutes)

Although the majority of neutrino oscillation data can be successfully explained by three-flavour neutrino oscillations, some data can be interpreted using short-baseline neutrino oscillations with a fourth sterile neutrino mass state with $\sim 1 \text{ eV}^2$ mass. This data comprises the event excesses seen by the LSND and MiniBooNE experiments, and the event deficits seen by the GALLEX and SAGE experiments. However, this interpretation is complicated by null results from other short-baseline searches, and disappearance searches in long-baseline and atmospheric searches.

The NOvA (NuMI Off-axis ν_e Appearance) experiment can probe this tension by searching for the disappearance of active neutrinos from the NuMI (Neutrinos from the Main Injector) beam, with a near detector at a baseline of 1 km and a far detector at a baseline of 810 km. This talk will present recent results from NOvA on searches for active to sterile oscillations in neutral current and charged current ν_μ events using neutrino and antineutrino beam.

Working group

WG5

Primary author: HEWES, Jeremy Edmund (University of Cincinnati (US))

Presenter: HEWES, Jeremy Edmund (University of Cincinnati (US))

Session Classification: WG 5