

## **Sterile neutrino search through Neutral Current Disappearance in NOvA experiment**

*Thursday, 8 June 2017 18:00 (2 hours)*

Contradictory evidence has been presented on the issue of neutrino mixing between the three known active neutrinos and a light sterile neutrino. The excess in observed events seen by LSND and MiniBooNE experiments can be interpreted as sterile neutrinos with mass at 1 eV level. While these results are tantalizing, they are not conclusive as they are in tension with null results from other short-baseline experiments, and with disappearance searches in long-baseline and atmospheric experiments. Resolving the issue of the existence of light sterile neutrinos has profound implications for both particle physics and cosmology. The NOvA (NuMI Off-Axis  $\nu_e$  Appearance) experiment may help to clarify the situation by searching for disappearance of active neutrinos from the NuMI (Neutrinos from the Main Injector) beam over a baseline of 810 km, assuming the missed neutrinos are oscillated to undetectable sterile flavor. In our poster, we will describe the methodology of NOvA to look for the sterile neutrinos, making use of the disappearance of neutral current (NC) neutrino events in the NOvA Far Detector. Specifically we will detail how we reject cosmogenic events in the FD which is a large potential background that can mimic our signal.

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