Contribution ID: **35** Type: **Oral**

NOvA's approaches on estimation of wrong sign contamination

Tuesday, 11 June 2019 15:20 (15 minutes)

NOvA is a long-baseline neutrino experiment with two functionally identical liquid scintillator detectors 809 km apart, off-axis from the NuMI beam. The main goal of this experiment is to determine the mass hierarchy and precise measurement of several neutrino oscillation parameters. To measure these parameters precisely we need to have a correct estimate of the neutrino and antineutrino composition in our beam. There are two modes of beam operation, Forward Horn Current (FHC) which is mostly neutrinos and Reverse Horn Current (RHC) which is mostly antineutrinos. The RHC beam has comparatively higher contamination from neutrinos. In NOvA we use several techniques to identify neutrinos and antineutrinos and employ various data-driven methods to estimate this contamination. A summary of our approaches to determine wrong sign contamination in RHC will be presented.

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Session Classification: Tuesday Afternoon I