

## Beyond Standard Model Neutrino Oscillation Results from NOvA

*Tuesday, August 2, 2022 6:12 PM (18 minutes)*

NOvA is a long-baseline neutrino experiment optimised for studying neutrino oscillations in the NuMI beam. The experiment consists of two functionally identical liquid scintillator detectors at baselines of 1km and 810km, with the latter placed 14.6 mrad from the beam's central axis.

This talk summarises beyond-standard-model neutrino oscillation results from NOvA, including the recent search for 3+1 sterile neutrino oscillations in neutrino beam using  $11.0 \times 10^{20}$  protons on target (POT) in the near detector and  $13.6 \times 10^{20}$  POT in the far detector. This analysis utilises charged current  $\nu_\mu$  and neutral current selections in a two-detector fit procedure utilising a Gaussian multivariate treatment of systematic uncertainties and a Poisson likelihood treatment of statistical uncertainties to place 90% CL limits on the  $\Delta m_{41}^2$ ,  $\theta_{24}$  and  $\theta_{34}$  mixing parameters.

A search for non-standard interactions that augment the standard 3-flavour oscillation paradigm is also presented, utilising charged current  $\nu_\mu$  and  $\nu_e$  selections in neutrino and antineutrino beam modes to produce 90% CL allowed regions for the  $\epsilon_{e\tau}$  and  $\delta_{e\tau}$  parameters.

### Attendance type

Virtual presentation

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