

Non-oscillation measurement with NOvA detectors

The NuMI Off-Axis electron neutrino Appearance experiment (NOvA) is a long-baseline neutrino oscillation experiment and the flagship project of the Intensity Frontier initiative of the Fermi National Laboratory. The NOvA experiment has started taking data with a near detector prototype placed in a surface building in November 2010. The far detector of the NOvA experiment is currently under construction and will be located in Ash River, 810 km away from Fermilab and 14 mrad off the beam axis. The totally active scintillator detector is designed to identify electron neutrinos that result from the oscillation of beam muon neutrinos.

Besides the main physics goals of measuring oscillation parameters NOvA detectors are sensitive to make a number of non-oscillation measurements e.g. supernovae, magnetic monopoles, atmospheric neutrinos, neutrino magnetic moment, axion-like particle (ALP), hidden sector photons. Some of the non-oscillation measurements require special data-driven triggers, which select signal candidates to be safe for later analysis. The algorithm for the data-driven triggers and examples of NOvA detectors sensitivities for non-oscillation measurements will be presented.

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