

The NOvA Experiment

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NOvA is a long-baseline neutrino experiment designed to study $\nu_\mu \rightarrow \nu_e$ and $\text{anti-}\nu_\mu \rightarrow \text{anti-}\nu_e$ oscillations. It will measure the neutrino mixing angle θ_{13} with a high precision, probe the neutrino mass hierarchy, and search for CP violation in neutrino oscillations. The experiment consists of two detectors. The Near Detector will be located at Fermilab close to the source of the neutrino beam. The Far Detector is being built at Ash River in Northern Minnesota. It is positioned 14 mrad off the neutrino beam axis where the neutrinos have an energy distribution with a narrow peak around 2 GeV, and where the transition probability of $\nu_\mu \rightarrow \nu_e$ is close to its maximum. I will present the current status of the detector construction and show the proposed physics reach for θ_{13} , the mass hierarchy and CP violation in the neutrino sector.

Primary author: Dr EHRLICH, Ralf (University of Virginia)

Presenter: Dr EHRLICH, Ralf (University of Virginia)

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