Particle Physics Seminar

First Neutrino Oscillation Results from NOvA

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TUESDAY

FEBRUARY 9

4:00 P.M.

RM 415 NSH

NOvA recently released its first oscillation physics papers announcing that it is primed to make significant contributions to our understanding of the neutrino sector. NOvA is a long-baseline neutrino experiment that consists of two functionally identical detectors; a 330 ton Near Detector located 100m underground at Fermilab, 1 km from the source, and a 14 kton Far Detector located 810 km north in Ash River, MN. I will present NOvA's first neutrino oscillation results, namely the first NOvA measurements of electron neutrino appearance and muon neutrino disappearance. The observation of muon-neutrino disappearance will allow for precision measurements of one of the mass-squared splitting values and determining its sign will answer the question of which neutrino mass eigenstate is the lightest. Measurement of the electron neutrino appearance rate will provide NOvA with sensitivity to the neutrino mass ordering and the amount of CP violation in the neutrino sector.