Abstract Submitted
for the APR11 Meeting of
The American Physical Society

Electromagnetic Shower Identification in NOνA ALENA GAVRILENKO, College of William and Mary, NOνA COLLABORATION — The NuMI Off-Axis ν_e-Appearance project (NOνA) is a second generation neutrino oscillation experiment consisting of two liquid scintillator detectors positioned 810 km apart and 14 mrad off-axis in the NuMI muon neutrino beam at the Fermi National Accelerator Laboratory. NOνA is optimized for the detection of the oscillations $\nu_\mu \to \nu_e$ and $\bar{\nu_\mu} \to \bar{\nu_e}$. The current limits on the ν_e-appearance probability are constrained by MINOS as $2\sin^2(2\theta_{13})\sin^2\theta_{23} < 0.12$ (0.20) for the normal (inverted) mass hierarchy at the 90% C.L. No limits have been placed on the neutrino CP-violating phase, δ_{CP}. To observe the desired oscillations, a particle identification algorithm will be developed to distinguish electrons in the final state of neutrino interactions. A method for selecting ν_e charged-current events utilizing a neural network of variables characterizing electromagnetic showers is presented here.

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Date submitted: 12 Jan 2011 Electronic form version 1.4