Abstract Submitted
for the APR13 Meeting of
The American Physical Society

Sensitivity of the NOvA ν_e appearance analysis CHRISTOPER BACKHOUSE, California Institute of Technology, NOVA COLLABORATION —
We know that much larger flavor mixing occurs in the neutrino sector than between quarks. Some of the remaining outstanding questions in neutrino physics concern how deep this difference goes. Does the electron neutrino mix strongly with the heaviest states? Is the third mass state more ν_μ or ν_τ, or exactly equal? Quark mixing violates CP-symmetry. Do neutrinos do the same, and if so how much? The presence of nonzero CP-violation could help explain the matter/antimatter asymmetry of our universe, through the mechanism of leptogenesis. With its long baseline, and ability to run both neutrino and antineutrino beams, the NOvA experiment is best-placed of the current generation of experiments to address these questions. I describe the NOvA $\nu_\mu \leftrightarrow \nu_e$ oscillation analysis and show sensitivities to determine the mass hierarchy, measure the θ_{23} octant, and the CP-violating parameter δ.

Christoper Backhouse
California Institute of Technology

Date submitted: 08 Jan 2013 Electronic form version 1.4