

Abstract Submitted
for the APR09 Meeting of
The American Physical Society

The Double Chooz Experiment - the Precision Reactor Neutrino Experiment in the Quest for θ_{13} ¹ JELENA MARICIC, Drexel University, DOUBLE CHOOZ COLLABORATION — The Double Chooz experiment will perform a highly sensitive measurement of the neutrino mixing angle $\sin^2 2\theta_{13}$. The Double Chooz will utilize a two detector design where the near detector provides an “unoscillated” neutrino flux measurement (high count rate, but higher background as well), while the far detector provides the “oscillated” neutrino flux characterized by the lower count rate and lower background level. The signal comparison between the two detectors will be necessary to see the subtle sign of θ_{13} . The Double Chooz experiment will contribute to the discovery of θ_{13} if above 0.03 or improve the existing limit on $\sin^2 2\theta_{13}$ from 0.2 to 0.03 in just 3 years of running of the Double Chooz experiment. Reaching this goal requires significant improvement in systematic uncertainties which will be obtained with careful design, construction and extensive calibrations throughout the detector’s active target volume.

¹Project Supported by NSF grant 0748544.

Jelena Maricic
Drexel University

Date submitted: 13 Jan 2009

Electronic form version 1.4