Abstract Submitted
for the DNP13 Meeting of
The American Physical Society

A US short-baseline reactor neutrino experiment H. PIETER MUMM, National Institute of Standards and Technology, US SHORT BASELINE REACTOR EXPERIMENT COLLABORATION — Recent calculations of the predicted antineutrino flux from reactors compared to past measurements at baselines between 10-100 m have revealed an intriguing deficit. This discrepancy, combined with anomalous results from other electron antineutrino disappearance experiments, could be a sign of new physics. Precision measurements of the reactor antineutrino spectrum at very short baselines (order 1-10 m) can be used to probe this anomaly and search for possible oscillations into sterile neutrino species as well as provide valuable data for safeguards purposes and reactor flux predictions. Given proper site optimization, detector design, and background reduction, an experiment mounted at a typical US research reactor can provide 5 sigma discovery potential for the favored oscillation parameter space with 3 years of detector live time. We will discuss the technical challenges and recent progress in mounting such an effort.

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Date submitted: 01 Jul 2013 Electronic form version 1.4