

Abstract Submitted
for the APR12 Meeting of
The American Physical Society

Coherent ρ Production in Neutrino-nucleus Interactions XINCHUN TIAN, CHRIS KULLENBERG, HONGYUE DUYANG, SANJIB MISHRA, University of South Carolina, NOMAD/LBNE COLLABORATION — The new generation of neutrino experiments will measure (1) the unknown small mixing angle - θ_{13} , (2) the CP violation phase - δ_{CP} , and (3) the mass hierarchy. To correctly interpret the oscillation data, one needs to understand the neutrino-nucleus interaction very well. The charged or neutral ρ can be produced coherently in the neutrino nucleus interactions. We present a study of Coh ρ production in a fine grained tracker where momenta, charges, and photons are precisely measured. The high resolution straw tube tracker (STT), built upon the NOMAD experience, has been proposed as a near detector for LBNE. We present a sensitivity study of Coh ρ production in the STT in LBNE. The high statistics NOMAD data serve to check our calculation.

Xinchun Tian
University of South Carolina

Date submitted: 06 Jan 2012

Electronic form version 1.4