

Abstract Submitted  
for the 4CF09 Meeting of  
The American Physical Society

**Study of Charge Integration Electronics in Pi-Zero Detector of a Long-Baseline Neutrino Oscillation Experiment** RAJARSHI DAS, Colorado State University — The Pi-Zero Detector (P0D), a part of Long Baseline Neutrino Oscillation experiment, uses a beam produced and characterized in Tokai, Japan and measured 295 km away in Kamioka. The P0D consists of around 10,000 scintillator bars with wavelength-shifting fibers attached to a Multi-Pixel Photon Counter that measures the energy deposited by neutrino interactions in the bar. The charge output from each photon counter is integrated during a few hundred nanoseconds windows, stamped with hit time, and then read out into a data acquisition system. We also use a Light Injection system to introduce a controlled amount of light into the fibers by pulsing a set of LEDs. Here we present a study of the signals measured in a sequence of integration windows from individual photon counters as well as distributions of hit times. Our results indicate a substantial effect for integration windows following a large signal and demonstrate the need to have further studies of integration electronics so we can eliminate possible effects of background to the interaction signals.

Rajarshi Das  
Colorado State University

Date submitted: 28 Sep 2009

Electronic form version 1.4