38th INTERNATIONAL CONFERENCE
ON HIGH ENERGY PHYSICS
AUGUST 3 - 10, 2016
CHICAGO

Contribution ID: **1234** Type: **Oral Presentation**

Results from Engineering Run of the Coherent Neutrino Nucleus Interaction Experiment (CONNIE) (12' + 3')

Saturday, 6 August 2016 17:15 (15 minutes)

CONNIE is an experiment that uses Charge Coupled Devices (CCD) with the aim to detect low-energy neutrinos through their coherent scattering with nuclei. The CONNIE detector prototype is operating at a distance of 30 m from a 3.8 GWth nuclear power plant. The extremely low energy threshold of our CCDs allows the detection of ionization signals produced by neutrino-nucleus recoils as low as 50 eV. We report on the results of the engineering run with 4 g of active mass. The CCD detector array is described, and the performance observed during the first year is discussed. The events rates with reactor ON and reactor OFF are compared. The results demonstrate that a cryogenic CCD based detector can be remotely operated at the reactor site with a stable noise below 2e- RMS and stable background. The success of the engineering test provides a clear path for the upgraded 100 g detector to be deployed during 2016. It also has opened the door to more ambitious CCD based detectors, more massive, lower noise, lower threshold and a compact low noise Data Acquisition System.

Co-author: CANCELO, gustavo (Fermilab)

Presenter: CANCELO, gustavo (Fermilab)

Session Classification: Detector: R&D and Performance

Track Classification: Detector: R&D and Performance