



Contribution ID: 103

Type: Poster

Neutrino Elastic-scattering Observation with NaI(Tl)(NEON)

NEON aims an observation of a coherent elastic neutrino-nucleus scattering (CEvNS) using reactor anti-electron neutrino with NaI(Tl) crystal detectors at Hanbit nuclear power plant in Yeonggwang, South Korea. Even though CEvNS was observed by COHERENT collaboration in 2017 with the spallation neutron source, the same process with the reactor neutrino has not yet been observed. The NEON pilot detector consists of a 10 kg NaI(Tl) target mass which will be installed 24 meters from the reactor core. CEvNS observation probability relies on detector performance such as background level and low-energy threshold. The background level of approximately 7 counts/day/kg/keV and below 0.5 keV energy threshold are already achieved. Further analysis to optimize the low energy threshold is ongoing. In this poster, the overview of the NEON experiment as well as the measured performance of the NaI(Tl) detector will be described.

Mini-abstract

NEON aims an detection of CEvNS using reactor neutrino with NaI(Tl) crystal detectors

Experiment/Collaboration

The NEON experiment/collaboration

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Session Classification: Poster session 4