Contribution ID: **267** Type: **Poster**

Detector calibration in the sub-MeV range in JUNO

Wednesday 30 August 2023 16:14 (1 minute)

The Jiangmen Underground Neutrino Observatory (JUNO) is a multi-purpose physics underground experiment in southern China. Its central detector mainly consists of a 20-kton liquid scintillator and more than 17,000 20-inch photomultiplier tubes. A dedicated multi-messenger trigger system has been developed to maximize JUNO's potential for astrophysics events, lowering the data-taking threshold down to O(10) keV equivalent. The currently existing calibration sources for JUNO are envisioned to be deployed to calibrate the MeV energy range, and hence new radioactive sources as well as calibration strategy are necessary to calibrate the sub-MeV range (O(10)˜O(100) keV). For this purpose, Radium-226 (186 keV gamma-ray) and Americium-241 (59.5 keV gamma-ray) are considered as primary radioactive calibration sources. This poster will discuss the calibration feasibility in this very low-energy range including impacts on the calibration quality due to the source apparatus geometry, separation from Carbon-14 backgrounds, etc. using the JUNO detector simulation tool, and also present the status of the low-energy calibration source preparation.

Submitted on behalf of a Collaboration?

Yes

Author: Dr TAKENAKA, Akira (Shanghai Jiao Tong University, Tsung-Dao Lee Institute)

Presenter: Dr TAKENAKA, Akira (Shanghai Jiao Tong University, Tsung-Dao Lee Institute)

Session Classification: Poster session

Track Classification: Neutrino physics and astrophysics