

Performance of the SoLid reactor neutrino detector

Friday, July 6, 2018 4:42 PM (12 minutes)

The SoLid collaboration is currently operating a 1.6 ton neutrino detector near the Belgian BR2 reactor, with as main goal the observation of the oscillation of electron anti-neutrinos to previously undetected flavor states. The highly segmented SoLid detector employs a compound scintillation technology based on PVT scintillator in combination with a LiFZnS screens containing ^6Li isotopes. The experiment has demonstrated a channel-to-channel response that can be controlled to the level of a few percent, and energy resolution of better than 14% at 1 MeV, and a determination of the interaction vertex with a precision of 5cm.

In this contribution we will highlight the major outcomes of the R&D program that preceded the construction of the full-scale detector, the quality control during component manufacture and integration, as well as the current performance and stability of the full-scale system. The possibilities for in-situ calibration of the detector with various radioactive sources will be discussed as well.

Primary author: MANZANILLAS, Luis (Laboratoire de l'Accélérateur Linéaire (LAL))

Presenter: MANZANILLAS, Luis (Laboratoire de l'Accélérateur Linéaire (LAL))

Session Classification: Detector: R&D for Present and Future Facilities

Track Classification: Detector: R&D for Present and Future Facilities