

Energy reconstruction in the STEREO experiment

The Reactor Antineutrino Anomaly (RAA) has challenged our understanding of antineutrino fluxes near fission reactors. Adding an extra oscillation channel with $\Delta m^2 \simeq 1\text{eV}$ involving a new “sterile” neutrino flavor would resolve the RAA. This hypothesis can be tested by looking at disappearance oscillation patterns at very short baseline from reactor cores.

The STEREO experiment measures the antineutrino spectra using a Gd-doped liquid scintillator in 6 cells covering baselines from 9 to 11m from a compact reactor core. In order to cope with significant differences between the light collections of the detector cells during the first phase of data taking, a procedure of energy reconstruction has been developed. We present the details of this method and show that a remarkable time stability of the reconstructed energy is achieved for different types of events, independent of the calibration sources.

Authorship annotation

for the STEREO collaboration

Session and Location

Monday Session, Poster Wall #196 (Ballroom)

Poster included in proceedings:

yes

Primary author: Mr BLANCHET, Adrien (CEA-Saclay)

Presenter: Mr BLANCHET, Adrien (CEA-Saclay)

Track Classification: Poster (participating in poster prize competition)