Contribution ID: **13** Type: **Talk**

Progress towards understanding the source of the Reactor Antineutrino Anomaly

Tuesday, 19 September 2023 16:40 (20 minutes)

We have reviewed the nuclear data used in the normalization of the electron spectra measured at the Institut Laue Langevin in the 1980s, concluding that they are very close to currently recommended values, except for the neutron capture cross section on 207Pb, which is 9% higher. This would lead to an artificially larger 235U electron and antineutrino spectra, consistent with the Daya Bay Collaboration results, as well as those reported recently by Kopeikin and collaborators. Additionally, following an analysis that employs the latest nuclear databases of the electron data measured at ORNL in the 1970s by Dickens and collaborators, we have deduced new electron and antineutrino spectra for 235U and 239,241Pu under equilibrium conditions, which are consistent with the above mentioned normalization issue, and which can better reproduce the IBD antineutrino spectrum near its maximum, thus providing a coherent explanation for the origin of the Reactor Antineutrino Anomaly.

Abstract title

Progress towards understanding the source of the Reactor Antineutrino Anomaly

Primary authors: SONZOGNI, Alejandro (Brookhaven National Laboratory); Dr MATTERA, Andrea (Brookhaven National Laboratory); Dr MCCUTCHAN, Elizabeth (Brookhaven National Laboratory)

Presenter: SONZOGNI, Alejandro (Brookhaven National Laboratory)

Session Classification: Flux and spectrum prediction