



Contribution ID: 701

Type: Poster

Improved Measurement of the Reactor Antineutrino Flux at Daya Bay

Monday 15 July 2019 18:30 (1h 30m)

Using four near and four far functionally identical antineutrino detectors, the Daya Bay Reactor Neutrino Experiment measures the antineutrino flux and spectrum from six commercial reactor cores. I will report a new precise measurement of the reactor antineutrino flux using 2.2 million inverse beta decay (IBD) events collected with the Daya Bay near detectors in 1230 days. The dominant uncertainty on the neutron detection efficiency is reduced by 56% with respect to the previous measurement through a comprehensive neutron calibration and detailed data and simulation analysis. The new average IBD yield is determined to be $(5.91 \pm 0.09) \times 10^{-43} \text{ cm}^2/\text{fission}$, which is 0.952 ± 0.014 (exp.) ± 0.023 (model) of the Huber-Mueller model prediction, confirming the discrepancy between the world average of reactor antineutrino flux and the Huber-Mueller model. The mean fission fractions from the four main fission isotopes ^{235}U , ^{238}U , ^{239}Pu , and ^{241}Pu will also be presented.

Author: Prof. CHU, Ming-chung (The Chinese University of Hong Kong)

Presenter: Prof. CHU, Ming-chung (The Chinese University of Hong Kong)

Session Classification: Wine & Cheese Poster Session

Track Classification: Neutrino Physics