

Technical Meeting on Nuclear Data Needs for Antineutrino Spectra and their Applications

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Novel methods to derive nuclear reactors antineutrino spectra

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A multi average-branch fit to the Inverse Beta Decay antineutrino spectrum recently measured by the Daya Bay collaboration with fine binning is performed to derive its corresponding electron spectrum. Utilizing the ^{235}U to ^{239}Pu electron spectrum ratio measured by Kopeikin *et al.*, as well as the ^{235}U to ^{238}U and ^{241}Pu electron spectra ratio from summation calculations, we are able to obtain the $^{235,238}\text{U}$ and $^{239,241}\text{Pu}$ electron spectra following their neutron induced fission under equilibrium condition, which are then compared with direct electron measurements. Following multi average-branch fits to these electron spectra, their corresponding IBD antineutrino spectra are obtained, which are compared to different measured and derived spectra.

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