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Reactor antineutrino anomaly in light of recent flux model refinements

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We study the status of the reactor antineutrino anomaly in light of new reactor flux models from both conversion and summation methods. In order to unify the calculation of IBD yields for different model predictions, we recalculate IBD yields with 1-order Vogel-Beacom IBD cross section and PDG 2020 inputs at first. And then our global fitting work shows that both the reactor rate and fuel evolution data are consistent with the predictions from both the conversion model of Kopeikin *et al.* and the summation model of Estienne *et al.* We also apply the Kurchatov Institute (KI) measurement into the conversion model of Hayen *et al.* including forbidden transitions which can partially explain the shape anomaly, and the rate anomaly is decreasing. The convergence of these model predictions indicates the robustness for the solution to the reactor anomaly in terms of flux model refinements. Our work also implies that the rate anomaly might stem from an inappropriate normalization of ILL measurements if the KI measurement is confirmed.

Working group

WG5

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