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Detector Stability in NEOS-phase2

Regarding anomalies in the rate of reactor antineutrinos, NEOS-phase1 tested the existence of sterile neutrino, one of the most prominent candidate, but no strong evidence of the sterile neutrino within the detector sensitivity. The phase2 started to figure out the anomaly in the shape of a reactor antineutrino energy spectrum, called 5-MeV excess, and aims to take about 600-days data including whole burn-up cycle. In phase2, which is about three times longer than phase1, the detector stability emerged as a more significant issue as it was found that the light output continues to drop since installation. This is likely to have the significant impact on the analysis in terms of energy resolution. In this presentation, we report on the stability of the detector as well as the effect of the continuous increase in energy resolution on the analysis.

Mini-abstract

The stability of the NEOS detector in phase2 and its effect on the analysis

Experiment/Collaboration

NEOS Collaboration

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