

# Interpreting Reactor Antineutrino Anomalies

*Friday 19 July 2024 20:40 (20 minutes)*

The experimental & theoretical research on physics of massive neutrinos is based on standard paradigm of three-neutrino mixing, which describes the oscillations of neutrino flavors measured in solar, atmospheric & long-baseline experiments. However, several anomalies, corresponding to an L/E of 1m/MeV could be interpreted by involving sterile neutrino as RAA & Galium anomaly.

STEREO was designed to investigate this conjecture, which would potentially extend the SM, detector provides a complete study of anomalies for a pure  $^{235}\text{U}$  antineutrino spectrum, using HEU core

We will describe an analysis of full set of data generated by STEREO & an accurate prediction of reactor. The measured antineutrino energy spectrum suggests that anomalies originate from biases in nuclear experimental data used for predictions, while rejecting the hypothesis of a light sterile neutrino. Our result supports neutrino content of SM & establishes a new reference for  $^{235}\text{U}$  antineutrino energy spectrum.

## Alternate track

### I read the instructions above

Yes

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