Contribution ID: **32** Type: **not specified**

eV-scale sterile neutrino searches with reactor neutrino experiment PROSPECT

Tuesday 27 June 2023 15:00 (20 minutes)

PROSPECT, the Precision Reactor Oscillation and SPECTrum Experiment, is a short-baseline reactor-based neutrino experiment aiming to make a precision measurement of reactor antineutrino energy spectra and model-independently search for eV-scale sterile neutrinos. The experiment collected over 50,000 neutrino interactions over the course of five reactor-on cycles at the High Flux Isotope Reactor (HFIR) at Oak Ridge National Laboratory in 2018. Based on the same dataset, we performed relative energy spectra comparison between baselines and found no statistically significant indication of sterile neutrino mixing and disfavored the Reactor Antineutrino Anomaly best-fit point at 2.5σ confidence level. This talk will present an overview of reactor neutrino anomaly and the latest results and updates from PROSPECT.

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Session Classification: Parallel

Track Classification: Particle