

Recent Results from Short-Baseline Reactor Antineutrino Experiments

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Current models of antineutrino production in nuclear reactors predict absolute detection rates and energy spectra at odds with the existing body of direct reactor antineutrino measurements. If these discrepancies are taken seriously, then they must be indicative of a misunderstanding of neutrino production in nuclear reactor cores and/or the fundamental properties of neutrinos. New short-baseline reactor antineutrino measurements performed at highly-enriched and commercial reactors are enabling independent testing of these two explanations for existing flux and spectrum anomalies. In this talk, I will focus on recent reactor antineutrino measurements performed by the PROSPECT, STEREO, NEOS, and DANSS short-baseline reactor experiments, which have demonstrated the feasibility of precision on-surface reactor antineutrino detection, advanced understanding of antineutrino production by the primary fission isotopes, and placed new limits on sterile neutrino oscillations.

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