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## Recent Reactor Antineutrino Results from the PROSPECT Experiment

*Tuesday, August 6, 2019 3:00 PM (12 minutes)*

### Summary

**Abstract:** 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 uranium reactors will enable independent testing of these two explanations for existing flux and spectrum anomalies. The PROSPECT experiment is currently operating a 4 ton segmented lithium-doped liquid scintillator detector covering baseline ranges of ~7-11 meters from the U235-enriched High Flux Isotope Reactor at Oak Ridge National Laboratory. In this talk, I will focus on recent reactor antineutrino measurements performed by the PROSPECT experiment, which have demonstrated the feasibility of precision on-surface reactor antineutrino detection, advanced understanding of antineutrino production by the primary fission isotope U235, and placed world-leading limits on sterile neutrino oscillations.

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