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Opportunities for applied measurements using the PROSPECT antineutrino detector: reactor physics and safeguards[1] NATHANIEL BOWDEN, Lawrence Livermore National Laboratory, PROSPECT COLLABORATION — Disagreement of reactor antineutrino spectrum and flux measurements with updated predictions indicates that we have much to learn about the complicated processes underlying antineutrino production in reactors, as well as hinting at new physics. A number of new efforts seek to address these questions, including the PROSPECT experiment planned at the HFIR research reactor. In addition to greatly advancing our understanding of reactor antineutrino emissions, PROSPECT can support a rich applied physics program. The detection technology developed for PROSPECT will enable precision antineutrino spectrum measurements close to essentially any reactor type. Here we describe how such measurements provide opportunities to probe fissile isotope and fission daughter distributions, and their potential use for reactor physics and safeguards applications.

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