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BSM Physics Potential of the PROSPECT-II Experiment

Friday 11 February 2022 12:00 (15 minutes)

The Precision Reactor Oscillation and SPECTrum (PROSPECT) experiment is a short baseline reactor neutrino experiment that produced one of the world-leading limits on eV-scale sterile neutrinos and performed a precision measurement of the reactor antineutrino spectrum from the High Flux Isotope Reactor–a highly enriched uranium reactor–located at Oak Ridge National Laboratory. PROSPECT also demonstrated the capability to perform an on-surface reactor neutrino measurement with a signal-to-background ratio better than 1 for the first time. PROSPECT collaboration is now preparing an upgraded detector for the second phase of the experiment. With evolutionary changes to the PROSPECT detector, PROSPECT-II aims to perform a high precision reactor neutrino spectrum measurement and probe the unexplored parameter space for sterile neutrinos. This talk will describe the unique beyond the standard model physics potential of the PROSPECT-II experiment in addressing the short baseline anomalous results.

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