Particle Physics Seminar

Precision Reactor Antineutrino Spectrum Measurements: Recent Results and PROSPECTs

TUESDAY

NOVEMBER 3

4:00 P.M.

RM 415 NSH

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Illinois Institute of Technology

Current models of antineutrino production in nuclear reactors predict detection rates and spectra at odds with the existing body of direct reactor antineutrino measurements. High-resolution antineutrino detectors operated close to compact research reactor cores can produce new precision measurements useful in testing explanations for these observed discrepancies involving underlying nuclear or new physics. I will discuss the recent reactor neutrino measurements that have laid bare these discrepancies, while also discussing how the PROSPECT experiment, a U.S.-based, multi-phase liquid scintillator experiment with reactor-detector baselines of 7-20 meters, will be able to address the major hypotheses for these discrepancies. Recent PROSPECT R&D achievements will also be discussed.