Simulating Calibrations and Energy Response in the PROSPECT Detector[1] ADAM HANSELL[2], Temple Univ, PROSPECT COLLABORATION —

The PROSPECT experiment utilizes a 1.2 x 1.6 x 2.0 m^3 segmented liquid scintillator antineutrino detector to probe short-baseline neutrino oscillations and precisely measure the antineutrino spectrum of the primary fission isotope ^{235}U. The PROSPECT antineutrino detector, located at a closest distance of $\sim$ 7 meters from the High Flux Isotope Reactor (HFIR) at Oak Ridge National Lab, began physics data-taking in early 2018. A precision measurement of the antineutrino energy spectrum, as well as any oscillation-induced distortions to that energy spectrum in a relatively compact detector, the energy response in all 154 segments of the PROSPECT detector must be well characterized. For PROSPECT, this will be achieved via comparison of detector-internal calibration source and intrinsic background data to Monte Carlo modeling of these sources in the Geant4 platform. This talk will provide an introduction to the PROSPECT computing environment and simulation and data analysis framework, and will utilize PROSPECT Monte Carlo simulation data to demonstrate aspects of PROSPECTs expected energy response.

[2]Authorship should be "Adam Hansell on behalf of the PROSPECT Collaboration"

Adam Hansell
Temple Univ

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