

Abstract Submitted
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Improving reactor models with a precision beta spectroscopy experiment of the ^{235}U fission spectrum MELISSA BOSWELL, AMANDA GEHRING, JOHN ULLMANN, TODD HAINES, MATTHEW DEVLIN, STEVEN ELLIOTT, KEITH RIELAGE, JOHN GOETT, BRANDON WHITE, LANL — The reactor neutrino anomaly could be an indication of non-standard neutrino physics models (e.g. sterile neutrinos), or the discrepancy could be the result of uncertainties in the modeled reactor neutrino spectrum. Understanding the aggregate β spectrum is extremely important for improving the confidence in the underlying predicted reactor neutrino spectrum. The original β spectrum measurement was performed at the Institut Laue-Langevin (ILL) reactor in the early 1980s and suffered from a number of limitations. A recent attempt at reproducing the ILL experiment concluded that their uncertainties were driven by a low signal to noise ratio, and that the best way to decrease the uncertainties was to conduct the experiment at a neutron beam line similar to the one at Los Alamos. In this talk I will discuss the advantages of reproducing this experiment at the Lujan center at LANL, our proposed experimental setup, and finally steps we are taking to evaluate the systematics associated with these measurements at an accelerator-based neutron beam. Furthermore we will also discuss additional measurement with ^{238}U and ^{239}Pu that are also important to the non-proliferation communities.

Melissa Boswell
LANL

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