

Simplified Analysis of UCNtau+ Monte Carlo Simulations via an Alternate Geometry

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Over the summer I worked in Dr. Holley's research group on simulations of very low energy "ultracold" neutrons (UCN). These "Monte Carlo" simulations use random sampling to model the path of UCN in physical geometries including an experiment called UCNtau+ that measures the free neutron lifetime. Because real experimental geometries require significant computational time to simulate, I developed a simplified geometry that I used to learn techniques needed for simulating experiments like UCNtau+. In this talk I will describe my experience with learning to run simulations, developing my simplified geometry to run them through, and analyzing the subsequent data.