

Abstract Submitted
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3 Body Nuclear Kinematic Modeling HANK THURSTON, ADAM FRITSCH, Gonzaga Univ — When observing the reactions induced by a ^{10}Be beam incident on a helium gas target using the Prototype Active-Target Time-Projection Chamber (PAT-TPC), three-body decays were observed, consisting of two α particles and a ^6He nucleus. This three-body decay provides insight into α clustering of light atomic nuclei and increases understanding of astrophysical nuclear synthesis. The experiment consisted of a $\sim 38\text{MeV}$ ^{10}Be beam targeted on the PAT-TPC containing a 90:10 He:CO₂ gas, backed by a Micromegas gaseous amplifier. Detector efficiency will be normalized via a Monte Carlo simulation. Such a simulation requires a robust code base including kinematic modelling of the the 3-body reaction which computes all allowable decay tracks given user-defined input settings. Analysis is ongoing and preliminary results will be presented.

Hank Thurston
Gonzaga Univ

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