

Abstract Submitted
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Simulation and Reconstruction for the OLIVIA Experiment TIMOTHY BORUCKI, University of Michigan - Ann Arbor, OLIVIA COLLABORATION — OLIVIA is an experiment that will provide a sensitive test of the weak interaction. The idea is to analyze Li-8 beta decay, followed by the double-alpha decay of the Be-8 daughter, using a gas-based Time Projection Chamber (TPC). Specifically, precision kinematic measurements of the 2 MeV alphas allow us to probe the V-A nature of the weak interaction. Alphas emitted in the TPC produce trails of ionization, which are drifted down through the detector to an amplification plane. The amplified track signals are then photographed and read out in time to provide a three-dimensional picture of the Li-8 decay event. Along with presenting the status and outlook for the OLIVIA project, I will discuss my work on simulating and reconstructing double-alpha waveforms from the TPC's amplification plane. This work is essential for achieving excellent alpha energy resolution, which will ultimately set OLIVIA's sensitivity to new physics.

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