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Monte Carlo Acceptance Simulations for the Prototype Active-Target Time-Projection Chamber[1] JOSEPH GUTIERREZ, JOURDEN SIMMONS, ADAM FRITSCH, Gonzaga University — In a previous experiment (Fritsch et al., Phys. Rev. C **93**, 014321) the Prototype Active-Target Time-Projection Chamber (PAT-TPC) was used to investigate the α-cluster structure of ^{14}C by way of a 38 MeV secondary ^{10}Be beam incident on a 90:10 He:CO_2 active target gas at the University of Notre Dame. The ^{10}Be beam was produced by TwinSol and delivered to the PAT-TPC. In addition to measuring elastic and inelastic $^{10}Be + \alpha$ resonances, evidence of 3-body decays of ^{14}C were observed in the data. Current work is being done to create a Monte Carlo simulation to calculate the detector acceptance for the 3-body decays at relevant reaction energies in order to produce normalized cross sections. Preliminary results will be presented.

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