



Canadian Association
of Physicists

Association canadienne
des physiciens et physiciennes

Contribution ID: 3526

(Étudiant(e) du 1er cycle)

Type: **Poster Competition (Undergraduate Student) / Compétition affiches**

(U*) (POS-44) Simulating an Active Target Time Projection Chamber

Tuesday, 7 June 2022 18:04 (2 minutes)

The A2 Collaboration uses the Mainz Microtron to measure to conduct measurements probing hadron structure. An upcoming experiment will study Compton scattering off of helium-3 to obtain the polarizabilities of the neutron. To get a full picture of these events and reduce backgrounds, an active target is required. We intend to use a compact Time Projection Chamber (TPC) for this purpose, in combination with our existing CB-TAPS photon detector set-up.

In preparation for this experiment, I have been simulating the TPC in Geant4, and implementing an event reconstruction framework in the A2 data analysis software. Various limitations in Geant4 have made this project more challenging than expected, but the resulting simulation will help design electronics for the detector and optimize experimental parameters, to make the best possible measurement of the neutron polarizabilities.

Primary author: POSTUMA, Alicia

Presenter: POSTUMA, Alicia

Session Classification: PPD Poster Session & Student Poster Competition (21) | Session d'affiches PPD et concours d'affiches étudiantes (21)

Track Classification: Technical Sessions / Sessions techniques: Particle Physics / Physique des particules (PPD)