

Reaction studies with the Active Target Time Projection Chamber

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The Active Target Time Projection Chamber (AT-TPC) has been used in experiments aimed at the exploration of structural effects in radioactive nuclei using various reactions such as transfer or elastic and inelastic scattering. When used as a solenoidal spectrometer by placing it inside a magnetic field, the AT-TPC allows performing this type of measurement in inverse kinematics with much reduced beam intensities, down to 100 particles per second, while preserving a good resolution and a wide range of angular coverage. This presentation will showcase the performance of this detector, based on results obtained on nuclei in the beryllium to carbon region using pure proton, deuterium and alpha targets. This research used resources of Argonne National Laboratory's ATLAS facility, which is a DOE Office of Science User Facility under Contract No. DE-AC02-06CH11357, and the Facility for Rare Isotope Beams (FRIB), which is a DOE Office of Science User Facility under Award Number DE-SC0023633.

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