

Spectroscopy of rare isotopes 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 one step 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 to perform 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 recent results obtained on nuclei in the beryllium to carbon region using pure proton, deuterium and alpha targets. Highlights will include results on resonances in ^{11}Be that are indicative of cluster configurations, as well as new results on single particle configuration in unbound states of neutron-rich carbon isotopes.

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