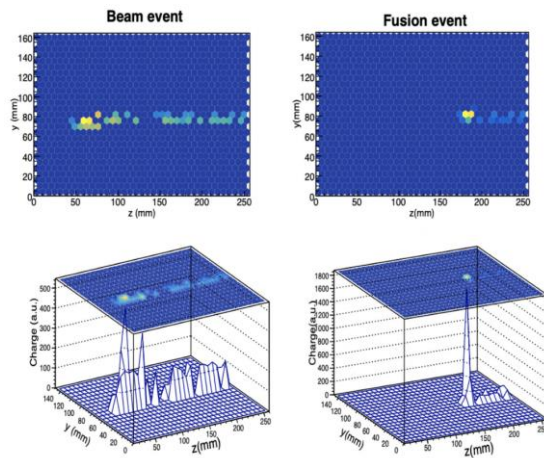
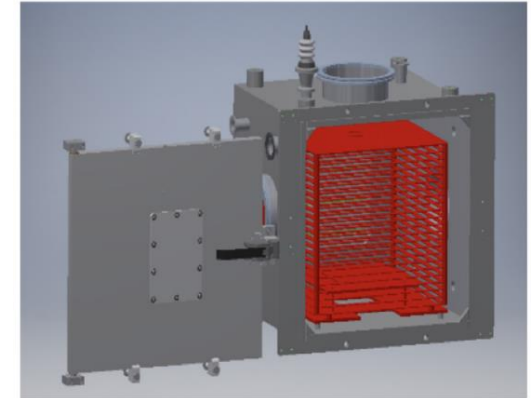


The Commissioning of the Notre-Dame Cube Active-Target Detector



The Notre-Dame Cube (ND-Cube) is an active-target time-projection chamber that was designed for studies in nuclear structure and astrophysics through the imaging of charged-particle tracks. The use of the ND-Cube's tracking medium as a target offers the advantages of a thick target for higher reaction yields, high geometrical efficiency, and low energy thresholds for detecting outgoing particles. The ND-Cube will expand the possibilities for experiments at Notre Dame's Nuclear Science Lab.



The ND-Cube was developed and successfully commissioned by T. Ahn and his research team using a ${}^7\text{Li} + {}^{40}\text{Ar}$ fusion reaction, which showed that the detector's capability for measurements under in-beam experimental conditions. The ND-Cube will also be used as a development platform for the testing of Micropattern Gas Detectors and the use of novel gas mixtures that will allow for a number of noble gas targets. The ND-Cube is especially well suited for TwinSol radioactive beams.



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NSF Grant No's. 1713857 and 2011890

