

Abstract Submitted
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Particle Detector for Low Energy Heavy Ions¹ KARTHIK RAO, Texas AM University, HESHANI JAYATISSA, GRIGOR CHUBARYAN, TONY AHN, YEVGEN KOSHCHIY, GRIGORY ROGACHEV, Cyclotron Institute, Texas AM University — The purpose of this research is to build, calibrate and test a parallel-plate avalanche counter (PPAC) detector, which can be used to detect low energy heavy ion particles. The expected outcomes are that the detector can separate particles with equal magnetic rigidities, but different mass/charge ratios. It should be able to measure the time of flight for particles as they move from one end of the detector to the other. It should also be able to locate, with sufficient precision, the coordinates of the particle inside the detector so that the actual path which a particle takes can be found. Using this data, it will be possible to find the α -ANC of the ^{20}Ne ground state, which will be used to find the α -ANC of the ^{16}O . This quantity can then be used to determine the rate of $^{12}\text{C}(\alpha, \gamma)^{16}\text{O}$ reaction, which is one of the fundamental reactions in nuclear astrophysics.

¹Texas AM University

Karthik Rao
Texas A
M University

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