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Status of TACTIC: a detector for nuclear astrophysics

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A new detector for nuclear astrophysics studies is being designed and built by TRIUMF and the University of York. TACTIC, the TRIUMF Annular Chamber for Tracking and Identification of Charged particles, is designed to detect low energy charged particles from reaction studies performed at the relevant astrophysical energies, in inverse kinematics. TACTIC is a cylindrical ionisation chamber with segmented anode strips which allow the dE/dx of the particle to be determined along with the total energy. Information from drift times allows the particle trajectory to be reconstructed. This in turn identifies the interaction point along the beam axis and hence the centre of mass energy of the reaction. To amplify the expected weak signals, a Gas Electron Multiplier (GEM) will be used in place of the usual Frisch grid. Full electronic readout of the charge and timing of each anode strip will be achieved with flash ADC cards allowing pulse shape analysis of the signals. Results from a test chamber and GEANT4 simulations will be presented.

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