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The planar multiwire drift detector system with anode and cathode readout in the GlueX experiment

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The GlueX experiment was designed to search for hybrid mesons with exotic quantum numbers using a beam of linearly polarized photons incident on a liquid hydrogen target. The spectrum of these states and their mass splitting from normal mesons may yield information on confinement. The Forward Drift Chambers (FDC) are multiwire drift chambers with anode and cathode read-out designed to measure tracks of charged particles coming from hydrogen target in forward direction with angles up to 20°. The FDC is providing 3-dimensional points. It is using drift timing information from the wires and analog signals from the cathodes that allow working at big rate conditions. In addition to this requirement detector has minimum amount of material in active area and periphery. Active material affects momentum resolution of the charged particles and photons reconstruction by calorimeters. The amount of material in active area of all FDC system is ˜1.64% X0

Presentation type

Poster

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