

The Hyperbolic drift chamber for ALERT

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A Low Energy Recoil Tracker (ALERT) experiment will occur in Hall B at Jefferson Laboratory, Virginia, USA. It will study the partonic structure of bound nucleons in He-4. The ALERT detector must track and identify low energy nucleons and light nuclei of momenta ranging from 70 MeV/c to 250 MeV/c at a rate up to 60 MHz. It will be used in tandem with the already installed CLAS12 spectrometer in Hall B to detect the scattered electrons.

ALERT is composed of a tracker and a time of flight detector (TOF). The tracker is designed to minimize the amount of material before the particles reach the TOF. This talk will present the ALERT Hyperbolic Drift Chamber developed for the tracker. It will detail the readout, mechanical and mounting challenges posed by the wire density of 24 wires/cm². It will be followed by the resolutions expectations compared to the performance of prototype obtained during beam tests performed at a accelerator facility (ALTO) in Orsay, France.

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