

Abstract Submitted
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Improvements in Drift Chamber 5 for the COMPASS II polarized Drell-Yan experiment¹ JAMES MALLON, Abilene Christian University — The COMPASS project is a fixed-target nuclear physics experiment at CERN which explores the internal structure of the proton, and COMPASS II's polarized Drell-Yan experiments will be exploring the quark angular momentum contribution to the spin of the proton through Semi-Inclusive Deep Inelastic Scattering. As a part of this process, Drift Chamber 5 (DC5), based on DC4 built by CEA-Saclay, must be constructed to replace a faulty straw chamber. The 23 total frames of DC5 have an outside measurement of 2.94m by 2.54m, with the 8 anode frames having a total of 4616 approximately 2m-long wires, giving a detection region of 4.19m (squared) with a resolution of 200 microns. These wire planes are orientated with the x- and x'-frames in the vertical x-direction, the y- and y'-frames in the horizontal y-direction, the u- and u'- frames offset +10deg from the vertical x-direction, and the v- and v'-frames offset -10deg from the vertical x-direction, and are strung with 100 micron field wires and 20 micron sense wires. In order to solve left-right ambiguity, x', y', u', and v' are shifted by 4mm, or one drift cell. The x- and y-frames have 513 wires strung across them, with the field wires at 400g of tension, the sense wires at 55g on the x-frames, and 70g on the y-frames. The u- and v-frames will have 641 wires, with the field wires at 400g, and the sense wires at 55g. DC5 will also have an updated front end electronics setup, using a new pre-amplifier-discriminator chip, in order to allow the recording of more events per second.

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