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Nuclear Instruments and Methods in Physics Research A 428 (1999) 403-412

**NUCLEAR
INSTRUMENTS
& METHODS
IN PHYSICS
RESEARCH**
Section A

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Designing of stereo-wire geometry for a long cylindrical drift chamber with small jet cells

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Received 23 November 1998

Abstract

Common problems in designing stereo-wire geometry for a long cylindrical drift chamber with small jet cells are described and possible ways to approach them are discussed in detail. Among these problems, special emphasis is put on the surface field variation along an anode wire due to the geometrical deformation of the cell structure. Also estimated is the surface field variation due to electrostatic and gravitational sags, based on the sags measured for a 4.6 m-long test chamber. These field variations are translated into gain variation along the stereo wires and used to constrain the stereo geometry. © 1999 Elsevier Science B.V. All rights reserved.

Keywords: Stereo-wire geometry; Drift chamber; Gravitational sags
