Contribution ID: **131** Type: **Oral**

Large-Area Micromegas TPC R&D

Sunday, 12 March 2006 14:00 (25 minutes)

We present final analyis results of cosmic ray data taken with a Large-Area Micromegas TPC by the Berkeley-Orsay-Saclay (BOS) collaboration. The TPC gas chamber for these R&D studies was 50 cm diameter and 50 cm long and was operated with three gas mixtures, Ar:CF4 3%, ArCH4 (P10) and Ar:Isobutane 5% in magnetic fields up to 2 tesla. A large-area, 38 cm diameter, copper Micromegas electro-mesh with 60 micron pitch, and 50 micron mesh to anode pad plane gap provided gains up to 3000. Over 1000 channels of TPC readout electronics, with 1X10 and 2X10 mmˆ2 anode pads, have been used to cover the detector area. The detector ran very smoothly with excellent gain uniformity. Precision measurements of drift velocity, diffusion and electron attachment have been made and compared to MagBoltz simulations. We have obtained a Micromegas TPC extrapolated zero-drift, point resolution of 50 microns. We compare the measured resolution dependence on drift distance, up to 50 cm, to parameterized simulations of the drift and avalanche of individual ionization electrons for the gases studied.

Primary author: RONAN, Michael T. (LBL)

Presenter: RONAN, Michael T. (LBL)

Session Classification: Tracking and Vertexing

Track Classification: Tracking and Vertexing