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Contribution ID : 133

Type : **Contributed Oral**

Study of some aspects of straw tube detectors for CBM-MuCh

Thursday, 2 March 2017 12:30 (0:20)

Content

The Compressed Baryonic Matter (CBM) experiment at the future Facility for Antiproton and Ion Research (FAIR) in Darmstadt, Germany is designed to explore the QCD phase diagram in the region of moderate baryon densities. This will only be possible with the application of advanced instrumentation, including highly segmented and fast gaseous detectors. Keeping in mind the high interaction rate at FAIR, the Muon Chamber (MuCh) detector in CBM will use Gas Electron Multiplier (GEM) chambers in the first two stations and straw tubes are the candidates for the 3rd and 4th stations.

We have carried out R&D with one small straw tube detector and the efficiency and gain have been studied with premixed gas of Ar/CO₂ 70/30. The count rates are measured with different radioactive sources. The attenuation of signal and the variation of gain with rate are also measured. The details of the measurement process and the experimental results will be presented.

Summary

Study of some aspects of straw tube detectors for CBM-MuCh

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The Compressed Baryonic Matter (CBM) experiment at the future Facility for Antiproton and Ion Research (FAIR) in Darmstadt, Germany is designed to explore the QCD phase diagram in the region of moderate baryon densities. This will only be possible with the application of advanced instrumentation, including highly segmented and fast gaseous detectors. Keeping in mind the high interaction rate at FAIR, the Muon Chamber (MuCh) detector in CBM will use Gas Electron Multiplier (GEM) chambers in the first two stations and straw tubes are the candidates for the 3rd and 4th stations.

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Session Classification : Micropattern gas detectors

Track Classification : Micropattern gas detectors