

Preliminary results from the cosmic data taking of the BESIII cylindrical GEM detectors

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BESIII (Beijing Spectrometer III) is a multipurpose spectrometer optimized for tau-charm physics. Detector and accelerator are upgrading to allow BESIII to run until 2029.

Cylindrical Gas Electron Multipliers will replace the inner drift chamber to improve both secondary vertex reconstruction and the radiation tolerance. The CGEM-IT will be composed of three concentric layers of cylindrical triple GEMs read out with TIGER electronics in 110 nm CMOS technology. The front end custom ASIC features fully digital output operated in triggerless mode. It provides analog and time measurements with a TDC time resolution better than 100 ps.

The CGEM-IT project, TIGER features and performance, and analysis of first cosmic ray data taking will be presented. Focus will be on the strip analysis, measuring basic detector properties, and cluster analysis, including a comparison with results with planar prototypes. First results on efficiency and spatial resolution will be also presented.

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