Development and operation of the CGEM Inner Tracker for the BESIII experiment
Alberto Bortone on behalf of the CGEM-IT working group

The CGEM-IT (Cylindrical GEM Inner Tracker) detector consists of three detector layers with independent gas volume, power management and readout electronics. Each layer consists of three GEM foils (Gas Electron Multiplier), a cathode and an anode for signal collection. The detector will upgrade the internal tracking system of the BESIII experiment by improving spatial resolution in both the $r/\varphi$-plane and z-axis without compromising material budget and radiation tolerance.

Test beam with planar detectors

Planar GEM detectors

Detectors can be tilted to scan different incidence angles

Trigger System with scintillators and PMT

80 GeV Muon or 150 GeV Pion beam

Resolution: HV scan

Preliminary

GEMs cumulative voltage [V]

Resolution [nm]

view
x
y