

# Characterization of quadruple GEM with Am<sup>241</sup> source at different gas flowrates

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The Gas Electron Multiplier (GEM) detector is proposed to be used as a readout for ALICE TPC upgrade in LHC experiment, at CERN [1]. The existing Multiple Wire Proportional Chamber (MWPC) will be replaced by GEM based readout which provides intrinsic ion blocking capability with out any gating grid system [2]. So a generous study involving GEM characteristics and performance is needed for its further operations. Here we did the characteristics study for a 10×10 quadruple gem detector prototype, irradiated with Am<sup>241</sup>gamma source. First the callibration is done for Am<sup>241</sup> with the Fe<sup>55</sup> source. The result we got from the callibration is used in the further study of GEM. Since GEM detector operates in a gas flow mode, the gas property could play a major role upon detector performance. In this study, we investigate the performance of GEM detector in Ar/CO<sub>2</sub>:70/30 medium with a variation of flow rate from 25 to 150 SCCM measured from a mass flow monitor built in house [3].

## References

- [1] F. Sauli, et al., Nuclear Instruments and Methods 805 (2016) 224
- [2] G. Charpak, et al., Nuclear Instruments and Methods 62 (1968) 262
- [3] S. Sahu, et al., Proceedings of the DAE-BRNS Symp. on Nucl. Phys. 61 (2016), 1002

## Presentation type

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