

Characterization and Calibration of a Triple-GEM Detector for Medical Dosimetry

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We characterized and calibrated a triple Gas Electron Multiplier (triple-GEM) detector, and studied its possible applications in medical dosimetry. The response to various sources of radiation was analyzed, and its efficiency, gain, energy resolution, and time resolution were calculated. Then, radiation doses from an Iron-55 source and a medical portable X-ray machine were measured, obtaining the calibration factor for the GEM detector by comparison with reference values.

We found an energy resolution of 19.5%, a time resolution of 40ns, and a maximum gain of 5×10^6 . The detector's response to dose measurements was linear, with a calibration coefficient of 1.13×10^4 for different sources of radiation. It was concluded that GEM detectors can be reliably used as dosimeters in nuclear medicine and radiology.

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No, this is an entirely new submission.

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