

Simulation studies and spectroscopic measurements of a position sensitive detector based on pixelated CdTe crystals

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Simulation studies and spectroscopic measurements are presented regarding the development of a pixel multilayer CdTe detector under development in the context of the COCAE project. The instrument will be used for the localization and identification of radioactive sources and radioactively contaminated spots. For the localization task the Compton effect is exploited. The detector response under different radiation fields as well as the overall efficiency of the detector has been evaluated. Spectroscopic measurements have been performed to evaluate the energy resolution of the detector. The efficiency of the event reconstruction has been studied in a wide range of initial photon energies by exploiting the detector's angular resolution measure distribution. Furthermore, the ability of the COCAE detector to localize radioactive sources has been investigated.

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