

Abstract

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Contribution of pair production process in full-energy peak

Study has been made of the contribution of the pair production process in calculation of detector efficiency. Particular attention has been paid to positron annihilation in flight and subsequent scattering of the annihilation quanta in the detector material. A mathematical formula has been derived to directly calculate the linear attenuation coefficient of the full-energy peak (μ_{pe}) for a Ge (Li) detector using an axial point source. The calculated values of the photopeak efficiency are found to be in a good agreement with published experimental data.