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# Monte Carlo Modelling Of An Anti-Coincidence System For Gamma-Ray Spectroscopy

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**Abstract:** Anti-Coincidence system consists of a detector shielded by generally NaI guard detectors to reduce the unwanted background signal produced as a result of Compton scattering of gamma-rays with the sample medium. An Anti-Coincidence system was designed using Monte Carlo simulation technique for gamma-ray spectroscopy. An HPGe detector was shielded by an annular and a plug NAI detectors in order to reduce the unwanted background signal that appear in gamma-ray spectroscopy. This system uses multiple detectors operated in anticoincidence mode to remove the scattering interactions that raise the Compton continuum from the spectrum. As a result of the suppression small peaks are allowed to be analyzed which might be deteriorated before the Compton continuum was suppressed. A disadvantage is that some real counts might be lost and hence the detection efficiency might be reduced in a certain extend.

**Keywords:** HpGe, NaI, Anti-Coincidence, Compton scattering.

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