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A Compton suppression system for gamma-ray spectroscopy

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A Compton suppression system was designed using Monte Carlo simulation technique. A 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.