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Some experience in setting up of a Compton suppression system

The Compton continuum in gamma ray spectra is generated by gamma rays that undergo Compton scattering in the detector and the escape of the scattered photon from the active volume of the detector. The full energy absorption results in no escaping photons. The reduction of the Compton continuum can be achieved by surrounding the Ge detector with a large detector shield used in anti coincidence mode with the main detector. This technique reduces the number of events in the Compton distribution in the gamma ray spectrum and improves the peak to Compton ratio. This in turn lowers the detection limits of the system.

In this paper setting up of a Compton system using a HPGe detector with a large NaI shield is described. With the present set up, for 137 Cs a maximum photo peak retention of 99.7% was achieved with a Compton reduction of 45.5%. Compton reduced spectra obtained with 60Co and 22Na will is presented.