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Simulation of a coaxial HPGe detector using FLUKA code

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The simulation of the spectroscopy systems using MC codes is a common practice in these days. The most popular softwares to do this are MCNP and Geant4 codes. In this work we present the simulation of a gamma spectroscopy system based on a coaxial HPGe detector using FLUKA code. The geometrical characterization of the detector was done from manufacturer information and using the spatial FEP efficiency distribution of the detector for 661.65 keV. The last one was used to determine the dimensions of the inner cavity of the detector, which are not informed by the manufacturer. Due to the differences between the real and simulated response functions, we suppose that these are proportional.
The aims of this work is double. On the one hand, to characterize the detector without the necessity to apply a radiography or any other technique that is not directly associated to a nuclear physics laboratory. And, on the other hand, to validate the simulation of a coaxial HPGe detector using FLUKA code.

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