

عنوان مقاله:

Design of a two-dimensional pseudo coincidence Compton suppressor system for neutron activation analysis

محل انتشار:

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خلاصه مقاله:

Compton scattering events are the main source of error on the peak counting during the Neutron Activation Analysis (NAA). The Compton suppressor system in instrumental NAA reduces the detection limit of the technique and leads to a data with a higher degree of precision. In this paper, a two-dimensional pseudo coincidence Compton suppressor system is presented for the NAA technique. The system is established based on a CAEN digitizer which directly records the pre-amplifier output signals of the two HPGe detectors. The recorded events in the list mode file are analyzed offline by a Matlab code and the correlated photopeak events are realized. The performance of the system for Compton suppression is tested by measuring the gamma lines of Ba-133 and Cs-137 standard sources. The results show that the presented technique provides the peak to Compton ratio up to 104 and can be an alternative for conventional Compton suppressor systems.

کلمات کلیدی:

Compton suppressor, Neutron Activation Analysis, list mode, digitizer

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