EVALUATION OF PEAK-FITTING SOFTWARE FOR GAMMA SPECTRUM ANALYSIS

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In all applications of gamma-ray spectroscopy, one of the most important and delicate parts of the data analysis is the fitting of the gamma-ray spectra, where information as the number of counts, the position of the centroid and the width, for instance, are associated with each peak of each spectrum. Theres a huge choice of computer programs that perform this type of analysis, and the most commonly used in routine work are the ones that automatically locate and fit the peaks; this fit can be performed in several different ways – the most common are either to fit a Gaussian function to each peak or simply to integrate the area under the peak, but some software go far beyond and include several small corrections to the simple Gaussian peak function, in order to compensate for secondary effects. In this work several gamma-ray spectroscopy software are compared in the task of finding and fitting the gamma-ray peaks in spectra taken with some calibrated standard sources. The results allow for a discussion on the performance of each software in the tasks of identifying and determining the correct area of the gamma-ray peaks, as well as on the advantages and difficulties in using automatic programs when comparing with a manual peak-fitting software, used as reference.