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Determination of lifetimes by the Doppler Shift Attenuation Method on a multilayer target using the program package LINESHAPE¹ BRIAN KLESZYK, GERFRIED KUMBARTZKI, NOEMIE KOLLER, Rutgers University — The lifetimes of low lying levels in 92,96 Ru and 72 Ge were remeasured. The projectiles were Coulomb excited in inverse kinematics on a target consisting of a carbon (or magnesium) layer deposited on a gadolinium (or iron) foil followed by a copper backing designed for magnetic moment measurements. The setup consisted 4 HPGe clover detectors located around the target so as to obtain forwards and backwards Doppler shifts of the detected γ rays. Each clover consists of 4 independent Ge crystals which were treated as independent detectors. The energy spectra of γ rays de-exciting the levels of interest were examined using the program LINE-SHAPE by Wells and Johnson [1]. The program package consists of a Monte Carlo simulation of the energy loss of the projectiles passing through the target. Then the velocity histories are converted into velocity profiles as seen by each particular detector. Subsequently, the calculated line shapes are fitted to the experimental data using the minimization and error analysis contained in Minuit. In this work the effects of different representations of $\frac{dE}{dx}$ and detector arrangements were investigated. Findings will be presented.

[1] J.C. Wells and N.R. Johnson, "Computer code LINESHAPE" (1999), PD-LNL version.

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