

FLUORESCENCE AND COSTER-KRONIG YIELDS OF THE L_1 SHELL IN GADOLINIUM¹

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Using a Si(Li) X-ray spectrometer, we have measured the respective fractions of L_1 , L_2 , and L_3 X rays in the L X-ray spectrum emitted in the ^{157}Tb - ^{157}Gd electron-capture decay. Using, in addition, our previously measured value for the ratio of L and K X rays, we deduce values for the fluorescence and Coster-Kronig yields of the L_1 subshell. These are $w_1 = 0.101 \pm 0.005$, $f_{12} = 0.166 \pm 0.020$, and $f_{13} = 0.287 \pm 0.014$. The f_{12} and f_{13} values are significantly below the predictions of the independent-particle model (IPM). The deduced L_1 level width of 3.7 eV is also significantly below the IPM width of 4.6 eV.

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