

Effects of optical radiation on the Mössbauer spectrum of $^{151}\text{Eu}^{3+}$: CaF_2

Olariu S., Kolesov R., Vagizov F., Kocharovskaya O.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

We study the changes in the shape of the Mössbauer spectrum for the 21.5 keV transition of $^{151}\text{Eu}^{3+}$ nuclei in a CaF_2 lattice, assuming that a population of the excited electronic state $5D_0$ is maintained by optical pumping. For a population of the excited state $5D_0$ of 10%, we determine the magnitude of the changes in the Mössbauer spectrum as 1.9% of the area of the unperturbed spectrum. © 2005 Taylor & Francis Group Ltd.

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