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Resonance fluorescence of gamma radiation under conditions of coherent mixing of Mössbauer sublevels

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Abstract

A method is proposed for calculating the resonance fluorescence spectrum of coherent gamma radiation with a finite linewidth under conditions when the sublevels of the ground nuclear state are coupled through a strong field. The spectrum line shape is substantially affected by both the coherent effects induced in the system by a strong field and the finite gamma-radiation width. The results obtained earlier and in this work give impetus to experimental investigations into the coherence of a quantum system and quantum interference of Mössbauer gamma transitions through the excitation of coherent magnetization dynamics or an optical sub-system in solids. © 2003 MAIK "Nauka/Interperiodica".

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