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Controllable quantum interference in Mössbauer spectroscopy: "valve" effect

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Abstract

A possibility of redistribution of line intensities in the spectrum of resonant Mössbauer scattering due to the RF-stimulated quantum interference of the spectroscopic amplitudes is shown. The three-level Σ scheme in the second order of the perturbation theory with respect to the interaction of γ radiation with nucleus is considered exactly taking into account the resonant RF field. The calculations suggest the use of the 57Fe isotope in magnetic materials in experiments.

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