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The effect of uncorrelatedness of inhomogeneous broadening on the formation of transient optical processes in multilevel systems

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Abstract

The correlation of inhomogeneous broadening at various frequency transitions in three-level systems is investigated, as is its effect on the intensity of a stimulated photon echo. It is shown that the correlation coefficient of inhomogeneous broadening at two different transitions and the response intensity of the stimulated photon echo depend on the parameter of the random interaction of an optical electron with a local field, as well as on the distribution width of additional frequency shifts owing to a partial fixation of transition energies. In this case, an insignificant variation of the correlation coefficient results in a considerable decrease in the response intensity. © Pleiades Publishing, Ltd., 2012.

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