

Incoherently generated photon echo in a crystal of ruby using fiber optical delay line

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Abstract

This paper is about the possibilities of optically dense impurity media spectroscopy by means of the incoherent photon echo. The theoretical model of the phenomenon is given. The results of experiment on incoherent photon echo in a crystal of ruby at liquid helium temperature are presented. Fiber optical delay line was used to make an incoherence of the excitation radiation. The dependence of the incoherent echo intensity on the excitation wavelength was studied. The echo decay curve was obtained and the phase relaxation time was found to be equal to 98 ns.

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Keywords

Coherent transient phenomena, Incoherent photon echo, Optical fiber, Photon echo spectroscopy, Ruby, Ultrafast relaxation measurements