

Electron dynamics at GaAs-AlGaAs heterojunction studied by ultrafast spectroscopy

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Abstract

In this letter the electron and spin dynamics at GaAs/AlGaAs heterojunction was studied by ultrafast spectroscopy techniques (photon echo and transient grating studies). Relaxation times and diffusion coefficients of photoexcited electrons and spins were obtained using pure optical setup. The estimated spin diffusion coefficient value of 160 cm²/s is relatively high and comparable to the electron diffusion coefficient of 200 cm²/s. This feature makes GaAs/AlGaAs heterostructure a promising material for practical application in semiconductor spintronics. © Published under licence by IOP Publishing Ltd.

<http://dx.doi.org/10.1088/1742-6596/478/1/012020>
