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Spin relaxation of electrons in bulk CdTe DANIEL SPRINZL, PETRA NAHALKOVA, JAN KUNC, PETR MALY, PETR HORODYSKY, ROMAN GRILL, EDUARD BELAS, JAN FRANCO, PETR NEMEC, Faculty of Mathematics and Physics, Charles University in Prague — We report on the measurements of the spin relaxation time T_1 of photo-excited electrons in bulk CdTe. The carrier dynamics were investigated by transient absorption experiments using 80 fs circularly polarized laser pulses at sample temperatures from 20 to 300 K. We studied both p and n type doped CdTe samples, which were prepared in the form of thin platelets from the crystals grown by the modified Bridgman method. The obtained results are compared with the spin relaxation times reported for other semiconductors with the same crystal structure (e.g., GaAs [1]). Finally, the relative contributions of the D'yakonov-Perel, Elliott-Yafet, Bir-Aronov-Pikus, and other mechanisms to the measured spin relaxation times in CdTe are discussed. This work was supported by the Grant Agency of the Czech Republic (grant 202/03/H003), by the Ministry of Education of the Czech Republic in the framework of the research centre LC510 and the research plan MSM 0021620834. [1] J. M. Kikkawa and D. D. Awschalom, Phys. Rev. Lett. 80, 4313 (1998).

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