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Origin of light-induced precession of magnetization in ferromagnetic (Ga,Mn)As EVA ROZKOTOVA, PETR NEMEC, DANIEL SPRINZL, NADA TESAROVA, PETR MALY, Charles University in Prague, Ke Karlovu 3, 121 16 Prague 2, Czech Republic, VIT NOVAK, KAMIL OLEJNIK, JAN ZEMEN, MIROSLAV CUKR, TOMAS JUNGWIRTH, Institute of Physics ASCR v.v.i., Cukrovarnická 10, 162 53 Prague, Czech Republic, JOERG WUNDERLICH, Hitachi Cambridge Laboratory, Cambridge CB3 0HE, United Kingdom — The impact of femtosecond laser pulse leads to the precession of magnetization in (Ga,Mn)As, which can be detected by the time- resolved Kerr rotation (KR) technique. Even though this phenomenon is known for several years [1], the exact physical mechanism inducing the precession is still not clear [2,3]. We show, by a detailed comparison of the KR experimental results and the microscopic calculations of the magnetic anisotropy, that the precession is a consequence of the anisotropy field modification due to the laser pulse-induced change of hole concentration and lattice temperature. [1] A. Oiwa, H. Takechi, H. Munekata, J. Supercond. 18, 9 (2005).[2] Y. Hashimoto, S. Kobayashi, H. Munekata, PRL 100, 067202 (2008).[3] E. Rozkotova, P. Nemec, P. Horodyska, D. Sprinzl, F. Trojanek, P. Maly, V. Novak, K. Olejnik, M. Cukr, T. Jungwirth, Appl. Phys. Lett 92, 122507 (2008).

Eva Rozkotova
Charles University in Prague, Ke Karlovu 3, 121 16 Prague 2, Czech Republic

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