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Time Resolved Magneto-Optical Studies of Ferromagnetic InMnSb Films[1] MATTHEW FRAZIER, RAJEEV KINI, KANOKWAN NONTAPOT, ALIYA GIFFORD, GITI KHODAPARAST, Department of Physics, Virginia Tech, TOMASZ WOJTOWICZ, Institute of Physics, Polish Academy of Sciences, XINYU LIU, JACEK FURDYNA, Department of Physics, University of Notre Dame — Current research activities in the area of ferromagnetic semiconductor have been mainly focused on III-Mn-V alloys with small lattice constants and large effective masses of valence-band such as GaMnAs. Various theoretical models have been proposed to explain the actual mechanism of ferromagnetism in III-Mn-Vs but the microscopic mechanism is still a matter of controversy. It is therefore important to explore the opposite extreme of the III-Mn-V ternaries *i.e.*, InMnSb, which has the largest lattice constant in this family of materials. We report magneto-optical measurements in time domain of photo-induced spin and carrier in InMnSb and compare them to analogous measurements in InBeSb and InSb films. In this work, magneto-optical Kerr effect and standard pump-probe technique provided a direct measure of the photo-excited spin and carrier lifetimes, respectively. Our measurements provide new information on the dynamics and interactions in these materials systems.

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