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Magneto-Optical and Time Resolved Spectroscopy in Narrow Gap MOVPE Grown Ferromagnetic Semiconductors[1] M. MEEKER, B. MAGILL, M. BHOWMICK, G.A. KHODAPARAST, Virginia Tech, S. MCGILL, NHMFL, Florida, C. FEESER, B.W. WESSELS, Northwestern Univ., D. SAHA, G.D. SANDERS, C.J. STANTON, Univ. of Florida — We report on magneto-optical at high magnetic fields and time resolved studies, that provide insight into the band structure, time scales, and the nature of the interactions in ferromagnetic InMnAs and InMnSb grown by MOVPE. By probing the dynamical behavior of the nonequilibrium carriers and spins, created by intense laser pulses, we gain valuable information about different scattering mechanisms and observe the sensitivity and tunability of the carrier and spin dynamics to the initial excitation energy. Theoretical calculations are performed using an 8 band $k\cdot$ model including non-parabolicity, band-mixing, and the interaction of magnetic Mn impurities with itinerant electrons and holes.

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