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**Coherent Spin Waves in Thin-Film GaMnAs** D. M. WANG, Y. H. REN, R. MERLIN, University of Michigan, K. DZIATKOWSKI<sup>1</sup>, X. LIU, J. K. FURDYNA, University of Notre Dame, M. GRIMSDITCH, Argonne National Lab — We report on the observation of coherent oscillations associated with standing spin waves in thin films of the ferromagnetic semiconductor GaMnAs. The oscillations were observed in differential magnetic Kerr measurements using a standard pump-probe setup. Subpicosecond pump pulses from a Ti: sapphire laser induce a coherent precession of the magnetization which is detected by measuring the rotation of the polarization of the delayed probe pulses. The magnetic anisotropy and spin stiffness constants ( $D$ ) were determined from the magnetic-field dependence of the spin-wave frequencies. We obtain  $D = 0.7 \pm 0.1 \times 10^{-13} T \cdot cm^2$  for two as-grown samples ( $T_C = 65$  K) and  $D = 3.5 \pm 0.5 \times 10^{-13} T \cdot cm^2$  for an annealed sample with  $T_C = 80$  K.

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