

Abstract Submitted  
for the MAR06 Meeting of  
The American Physical Society

**Unusual Nuclear Spin Alignment in GaAs** JAMES MCGUIRE,  
NIST, TOM SILVA, NIST — Time-resolved Faraday rotation experiments are used  
to measure nuclear spin polarization in GaAs due to hyperfine coupling with pumped  
electron spins. Both bulk and epilayer samples are examined. We find unusual de-  
pendence of the induced nuclear field on the cw pump power, the cw pump helicity,  
and the external magnetic field. Our results are compared with existing theories  
and experiments of the coupling of the electron and nuclear spin systems.

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Date submitted: 30 Nov 2005

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