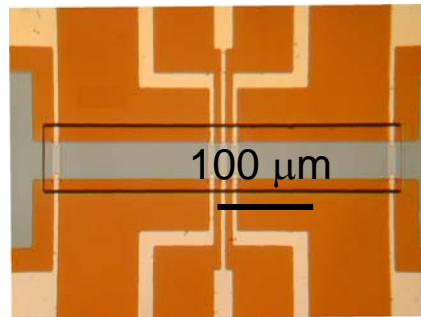
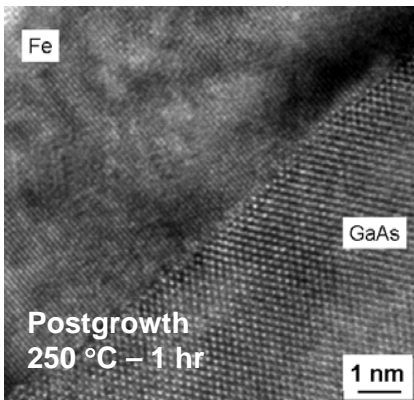


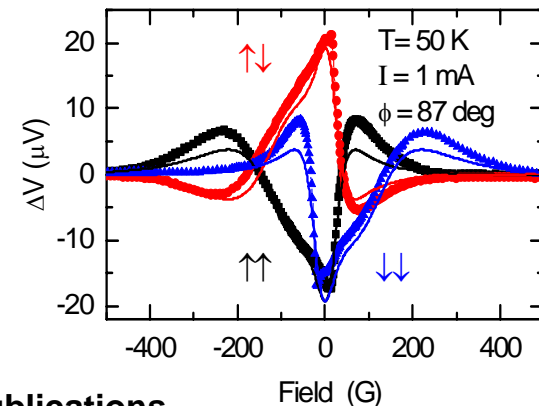
Hyperfine Interactions and Tunneling Anisotropic Magnetoresistance in Ferromagnet-Semiconductor Heterostructures

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NNIN Facility utilized: Nanofabrication Center & Characterization Facility

- Fabrication of Ferromagnet-Semiconductor Heterostructures
 - ◆ Molecular Beam Epitaxy
 - ◆ Characterization by XPS, TEM, Magnetometry
 - ◆ Fabrication by photolithography, wet etching, ion milling, PECVD e-beam evaporation of contacts
 - ◆ Low-noise transport measurements



- Major Observations
 - ◆ Hyperfine interactions lead to dephasing of spin-polarized electrons
 - ◆ Detection of dynamic nuclear polarization
 - ◆ Detection of nuclear magnetic resonance at micron length scales
 - ◆ Detection of tunneling anisotropic magnetoresistance



- ◆ **Publications**
- ◆ M.R. Fitzsimmons, B.J. Kirby, N.W. Hengartner, F. Trouw, M.J. Erickson, S.D. Flexner, T. Kondo, C. Adelman, C.J. Palmstrøm, P.A. Crowell, W.C. Chen, T.R. Gentile, J.A. Borchers, C.F. Majkrzak, and R. Pynn, Phys. Rev. B. **76**, 45301(2007).