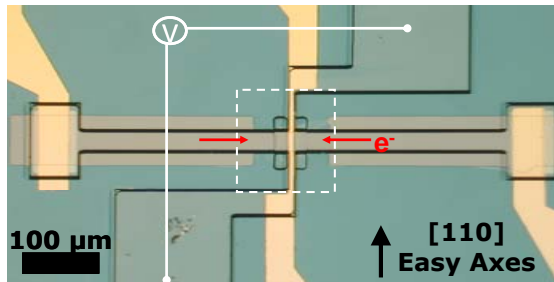
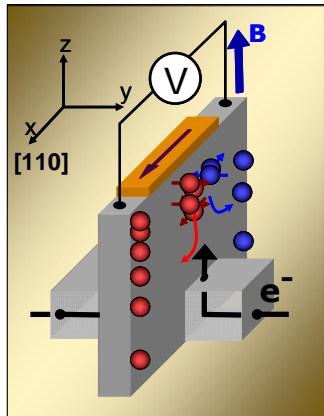


Spin Transport in Semiconductors

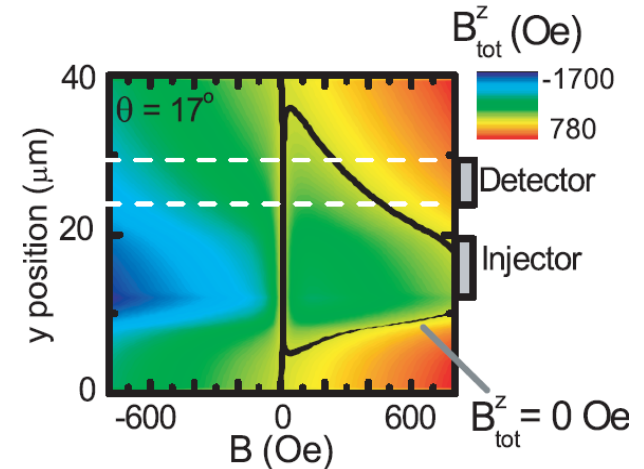
Mun Chan¹, Eric Garlid¹, Paul Crowell¹ (PI), Qi Hu², Chris Palmstrøm (PI)²
University of California Santa Barbara², University of Minnesota¹

- Spin transport in ferromagnet/III-V semiconductor heterostructures
 - ◆ Growth by molecular beam epitaxy
 - ◆ Schottky tunnel barriers used as spin injectors and detectors
 - ◆ Fabrication in NFC
 - ◆ Transport measurements probe electron spin polarization



Schematic and optical micrograph of an Fe/GaAs spin Hall device

- Major Observations
 - ◆ Enhancement of spin detection sensitivity at a biased Schottky contact
 - ◆ Quantitative measurement of the electron spin polarization through the Knight field
 - ◆ Measurement of spin Hall effect



Simulation of dynamic nuclear polarization in an Fe/GaAs device

- Publications
 - ◆ S. A. Crooker *et al.*, Phys. Rev. B **80**, 041305R (2009)
 - ◆ M. K. Chan *et al.*, Phys. Rev. B **80**, 161206R (2009)
 - ◆ B. D. Schultz *et al.*, Phys. Rev. B **80**, 201309R (2009)