

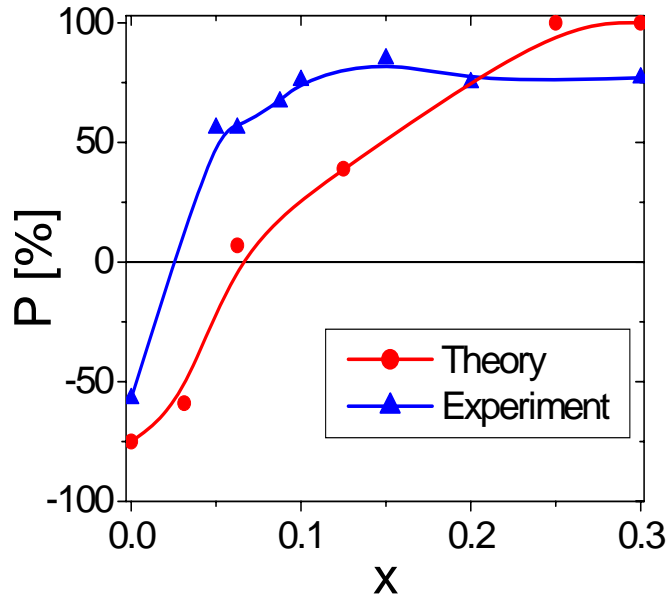
Highly Spin-polarized $\text{Co}_{1-x}\text{Fe}_x\text{S}_2$ Thin Films

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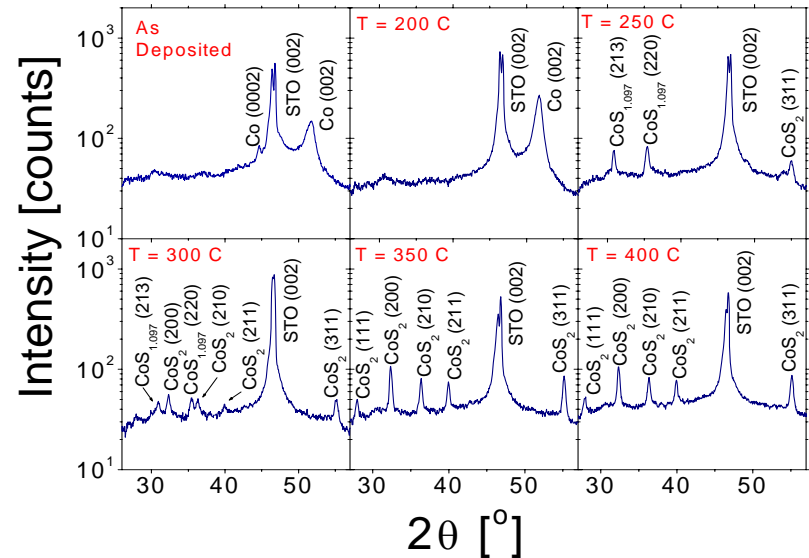
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NNIN Facilities utilized: Characterization Facility & Nanofabrication Center

- High, tunable, spin polarization films for spintronic applications
 - ◆ Composition control over magnitude and sign of polarization ($-56\% < P < +85\%$)
 - ◆ Ideal for spin injection into GaAs



- Thin film deposition by sulfidation of epitaxial CoFe and crystal growth by chemical vapor transport
 - ◆ Single phase polycrystalline films
 - ◆ Composition controlled by sulfidation temp.



- Publications (2007)
 - ◆ "The structure of the CoS_2 (100)-(1x1) surface", Z.X. Yu *et al*, J. Phys. Cond. Mat. **19** 156223 (2007).
 - ◆ "Composition controlled spin polarization in $\text{Co}_{1-x}\text{Fe}_x\text{S}_2$ alloys", C. Leighton *et al*, J. Phys. Cond. Mat. **19** 315219 (2007)
 - ◆ "The Electronic Band Structure of CoS_2 ", N. Wu *et al*, J. Phys. Cond. Mat. **19** 156224 (2007).