

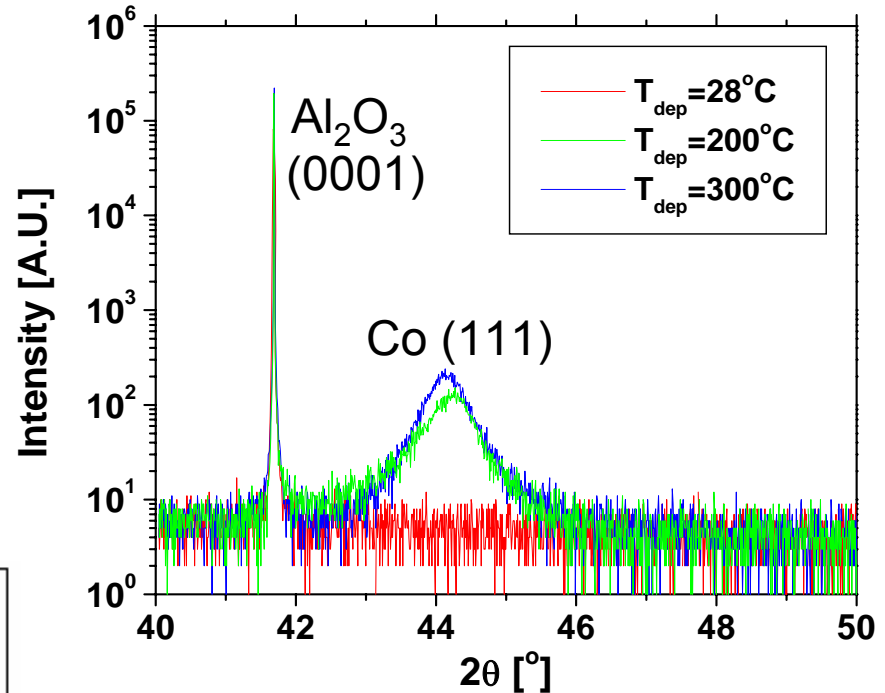
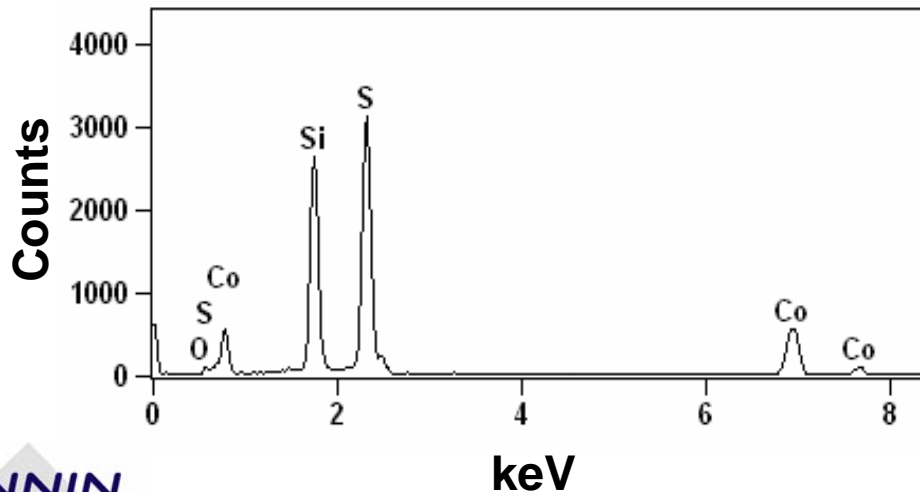
# Co<sub>1-x</sub>Fe<sub>x</sub>S<sub>2</sub> Thin Film Deposition

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- Half-metallic ferromagnet: All conducting electrons are in one spin state
- Macroscopic crystals → Spin polarization dependent on Fe concentration
- Project Goal: Deposit Co<sub>1-x</sub>Fe<sub>x</sub>S<sub>2</sub> thin films
- Device applications: Spin valve, spin injector, magneto-tunnel junction

### EDS Spectrum



- Films T<sub>c</sub> near bulk samples (~125 K)
- S incorporation not trivial operation
- Film delaminating on initial substrates
- Improvements in Co deposition on STO and Al<sub>2</sub>O<sub>3</sub> underway