Permanent Magnetic Films for Biasing Waveguide Isolators

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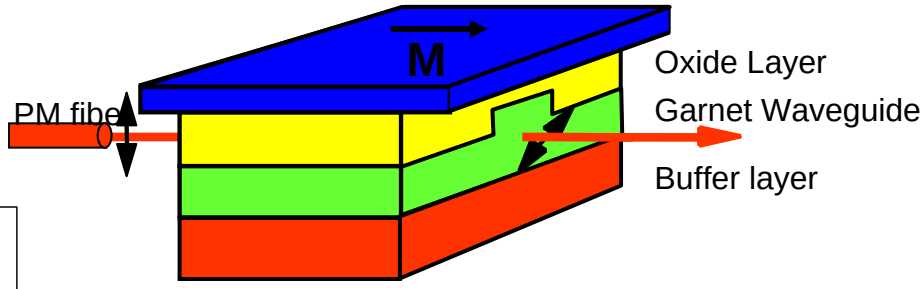
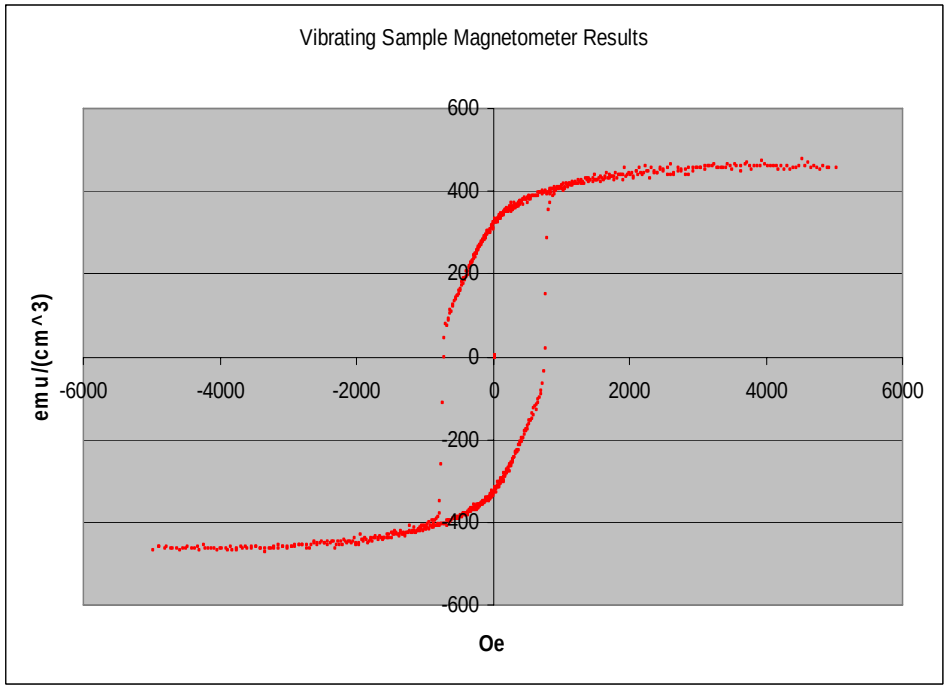
- Motivation
  - A magnetic field is necessary to enable Faraday rotation of light within the garnet
  - Room-temperature fabrication results in easy integration

Waveguide Isolator Schematic





- Process
  - Samarium Cobalt magnetic films are sputtered at room temperature
  - SmCo films are characterized using a profilometer, EDS, VSM, and X-ray diffraction
- Results
  - SmCo films have large enough fields and coercivities to bias the waveguide
  - Magentic films are appoximately 2000 Angstroms of amorphous SmCo