

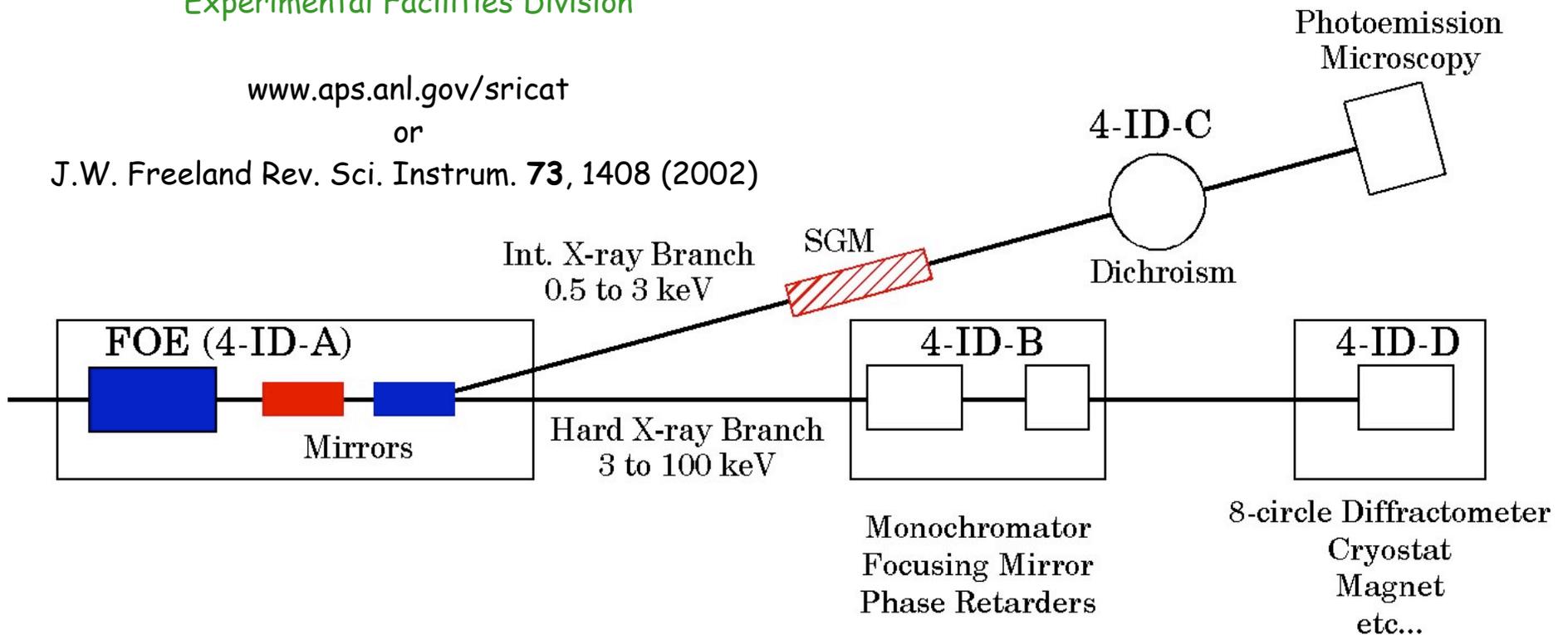
Sector 4 Polarized X-ray Facility

Polarization Studies Group
Experimental Facilities Division

www.aps.anl.gov/sricat

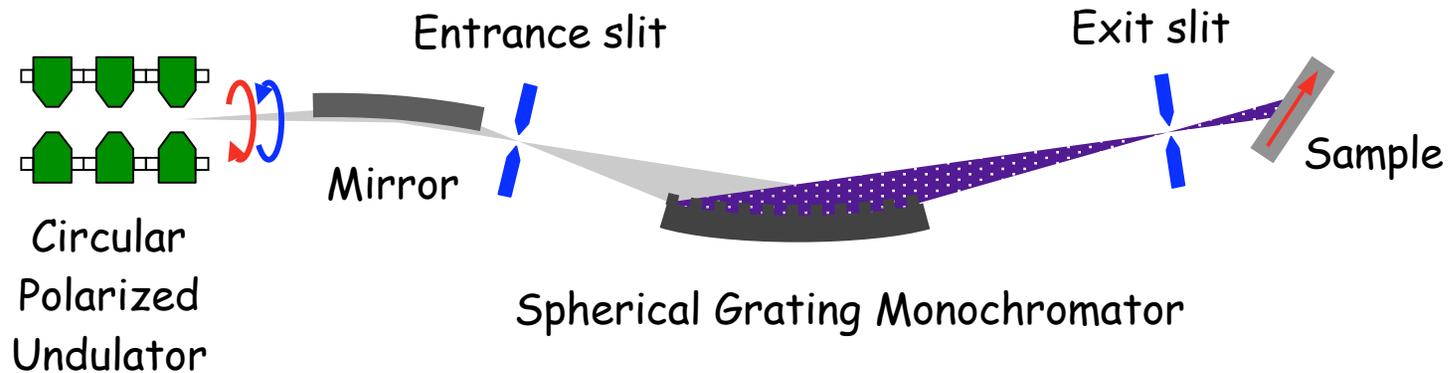
or

J.W. Freeland Rev. Sci. Instrum. **73**, 1408 (2002)



Polarized X-ray Techniques

Advanced Photon Source Soft X-ray beamline (4-ID-C)

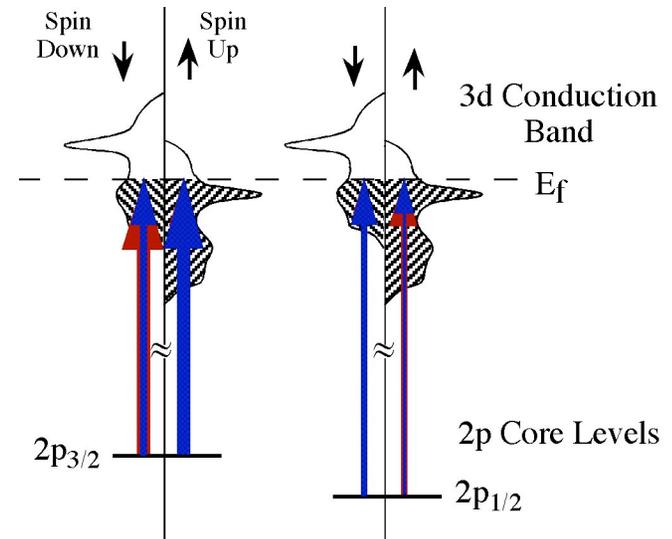
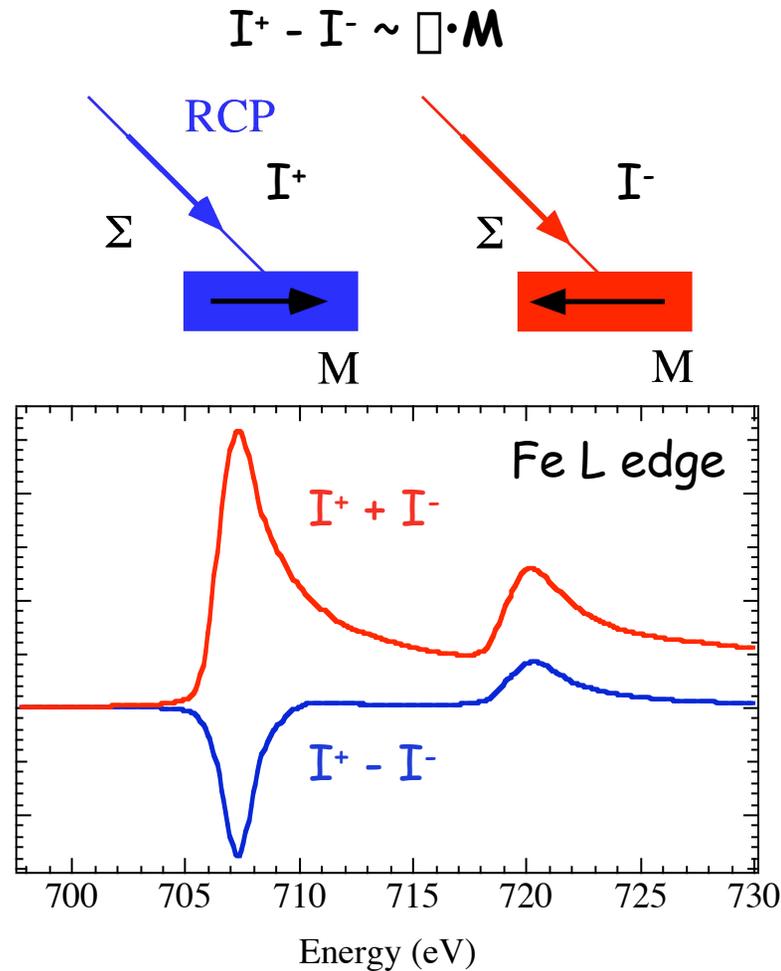


Element specific electronic and magnetic properties

- X-ray magnetic circular dichroism (XMCD)
- X-ray resonant magnetic scattering (XRMS)
- Photoemission microscopy (PEEM)

X-ray Magnetic Circular Dichroism (XMCD)

Helicity (Σ) dependent absorption of x-rays in a magnetic material

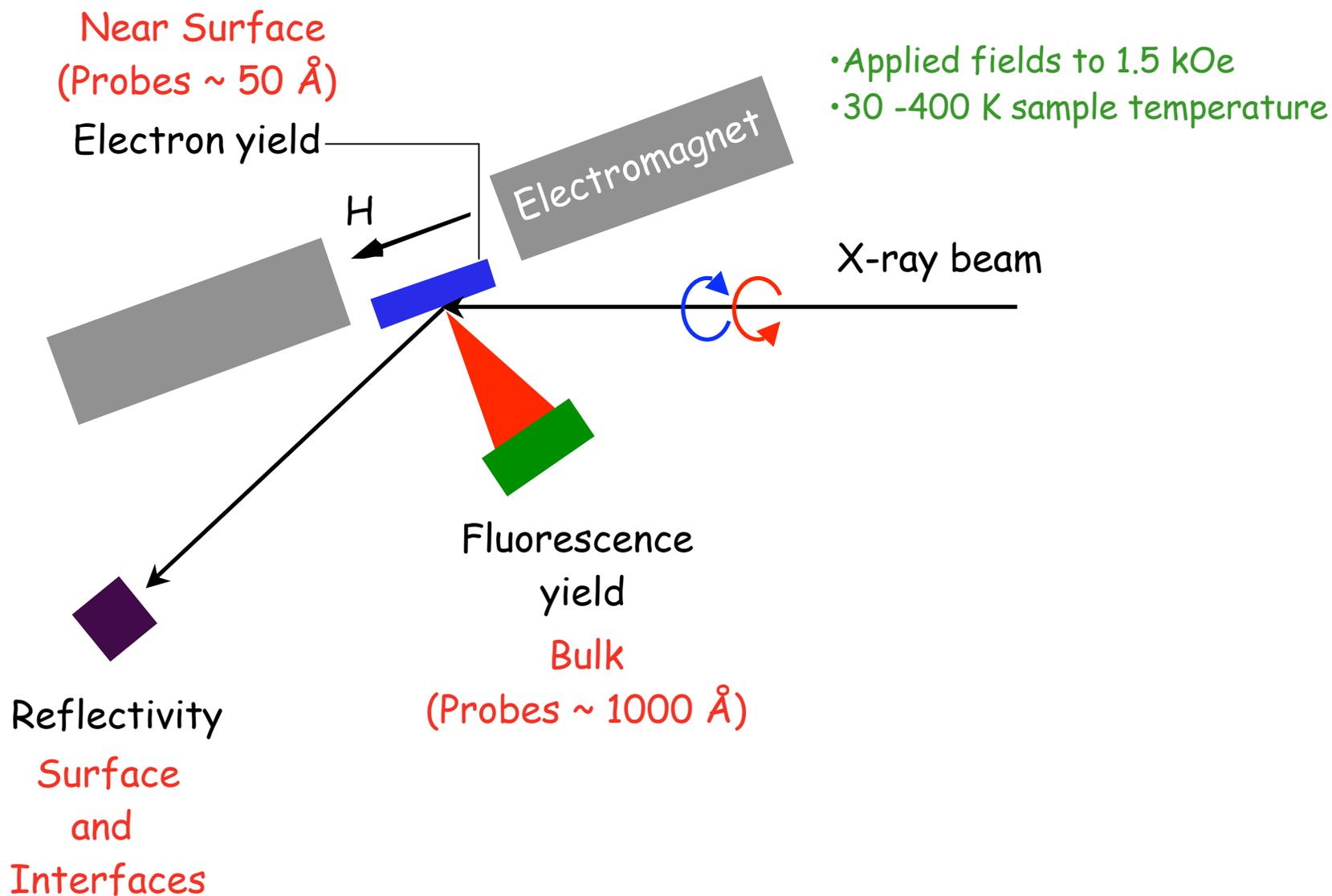


$I^+ + I^- \rightarrow$ Electronic

$I^+ - I^- \rightarrow$ Magnetic

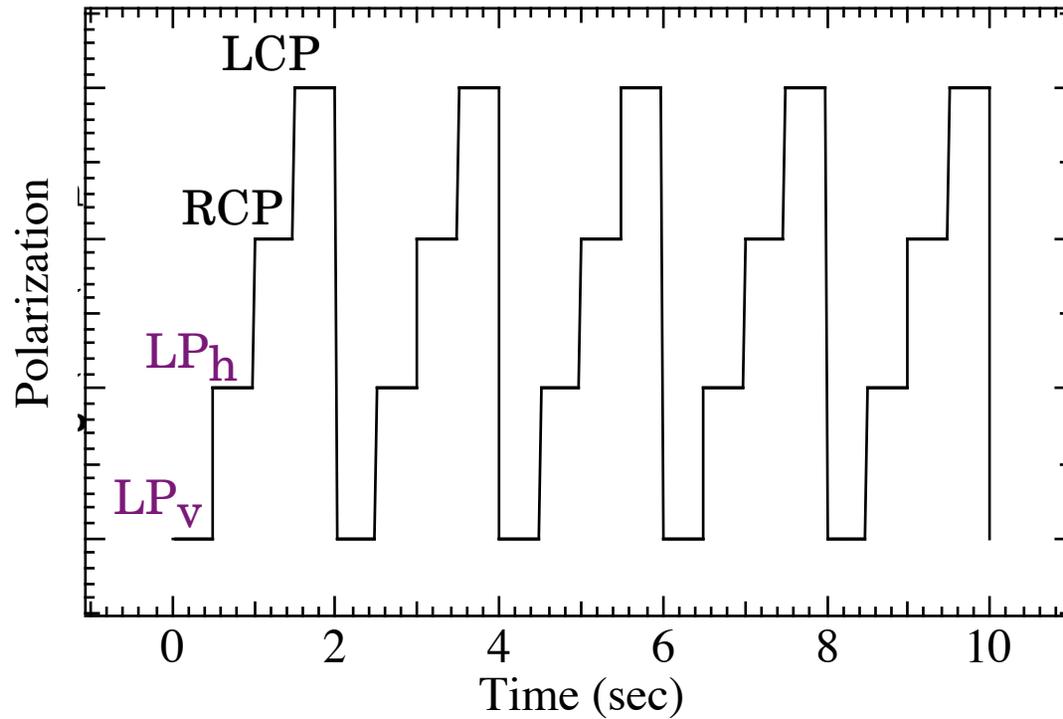


X-ray Probes



Time Dependence

Future experiments require changing polarization



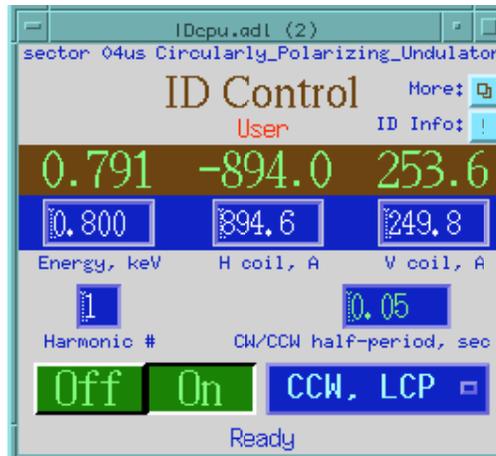
Control

Input: Energy & Polarization

Control: Polarization Control via TTL levels or via EPICS???

(Mode (linear/circular) & Polarization (RCP/LCP or LP_h/LP_v))

Readback?



Questions

- Can we eliminate AC mode and have the software load correctors to deal with the transient?
- Can we utilize PV Waits for CPU PV's?
- Who is in charge of CPU software?
- Spare power supply?/Upgrade to standard components?
- Matching linear/circular tuning curves? (~0.3 eV offset)
- Match flux when changing polarization (2-3% difference)

