



Time resolved Experiments on Materials with Photoelectrons

I.D. & beamline

Apple II – HU80 I.D.
Linear and Circular Polarization
Energy range: 80 - 1500 eV
Resolving power better than 10000

Experimental station

X-ray absorption : XMCD
XPS: MLDAD/MCDAD – (SES2002)
Secondary electrons spin polarization
(100kV Mott detector)

Experiment

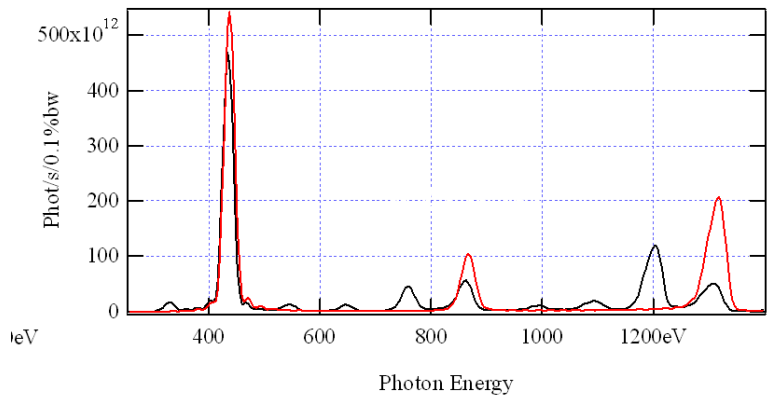
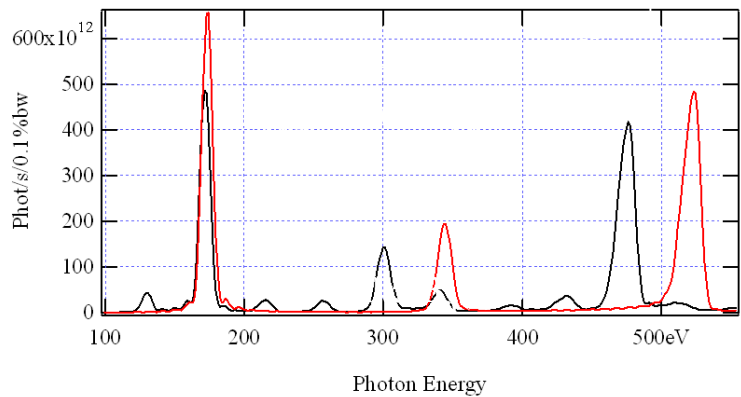
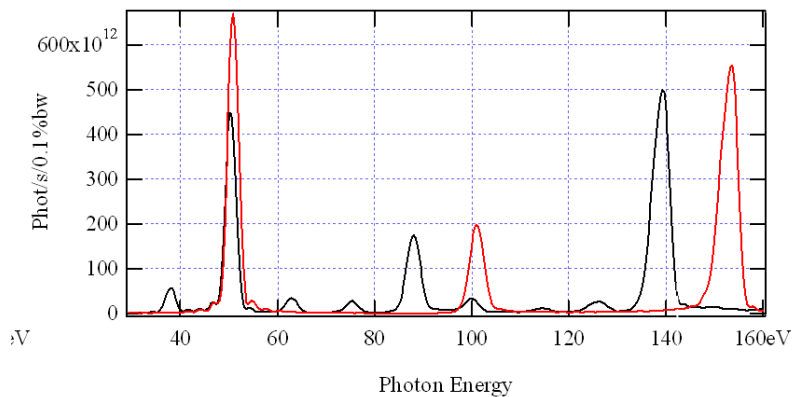
time resolution

- Fast photoemission (tens of microsecond)
- Magnetization dynamics (tens of picoseconds)
- Two photons experiments (tens of picoseconds)

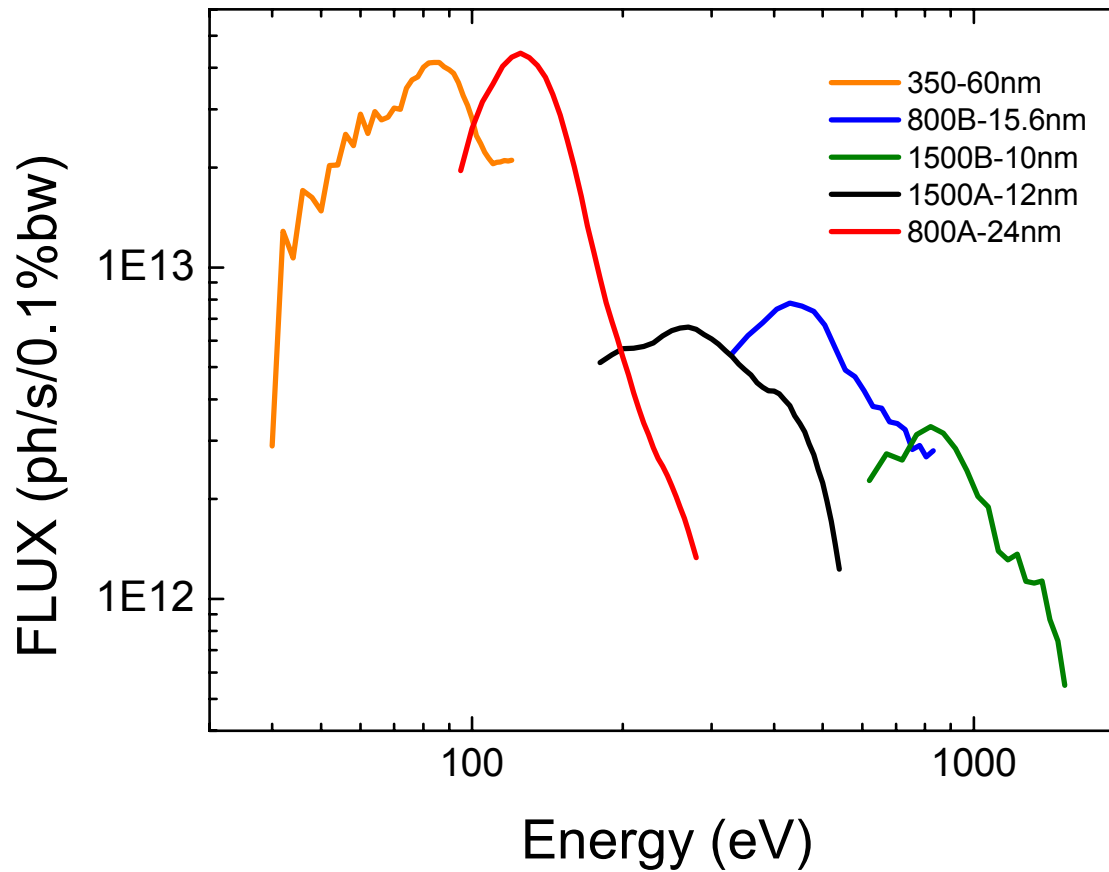
**Femtosecond pulses
Slicing at Soleil - Arc en Ciel**

HU80 emission without monochromator

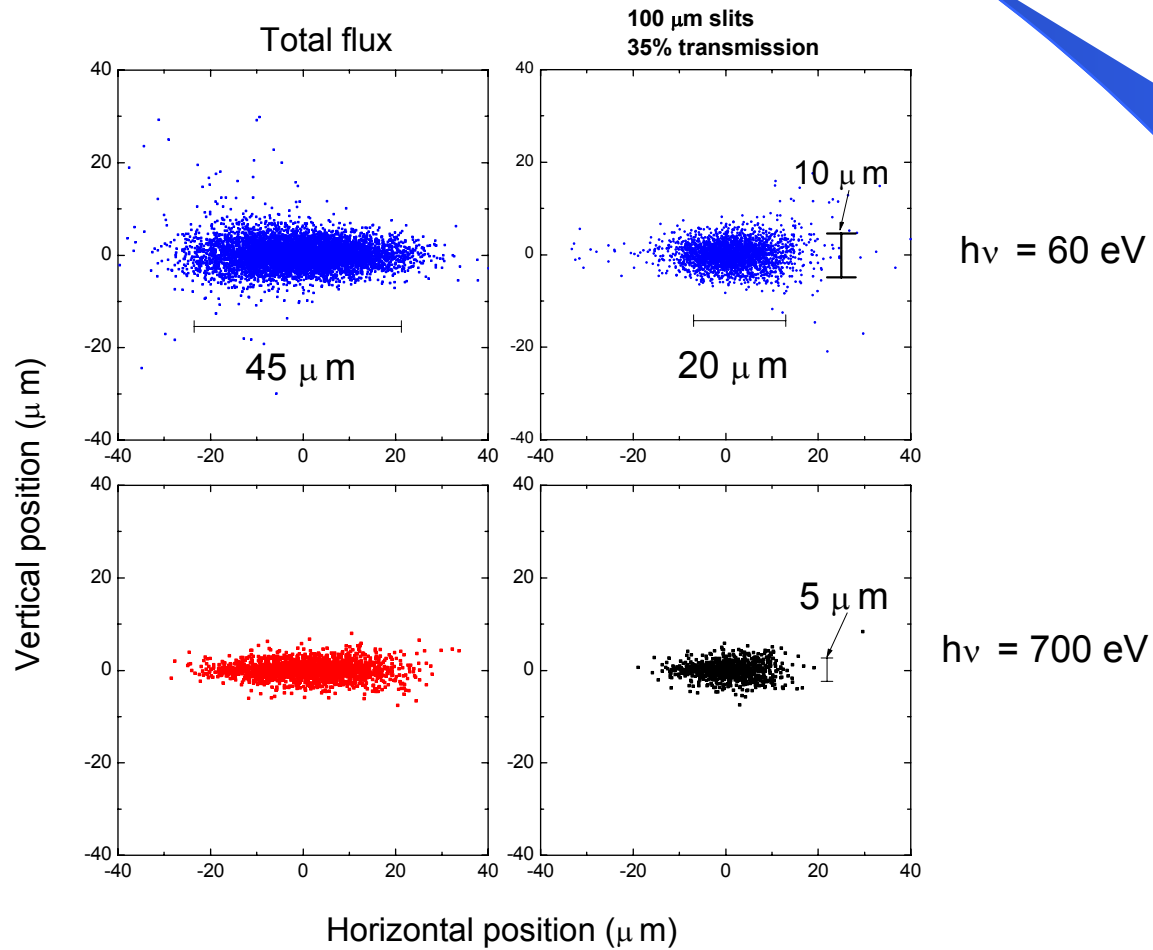
$$E/\Delta E = 19$$



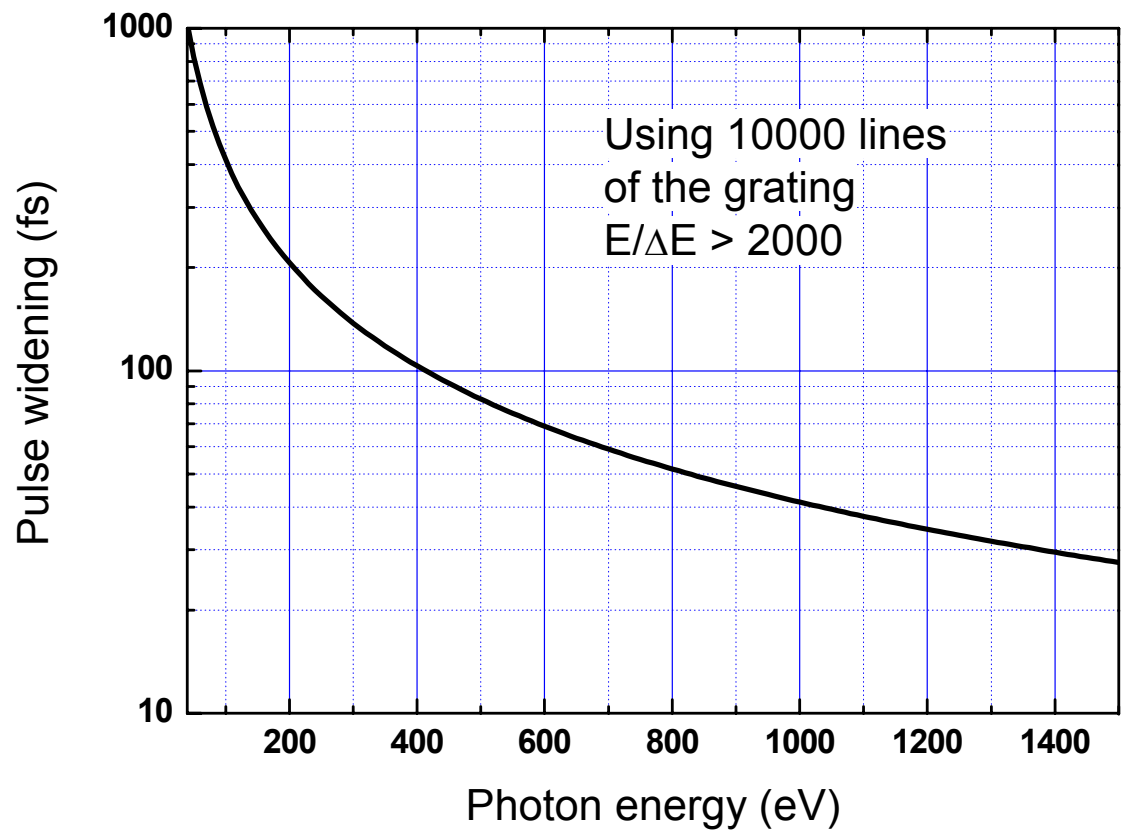
Photon flux on the sample in normal mode



Spot size on the sample



Monochromator pulse widening with 200 l/mm grating



Fast Photoemission

Surface reaction kinetics

Mn/Fe(100) surface alloy formation

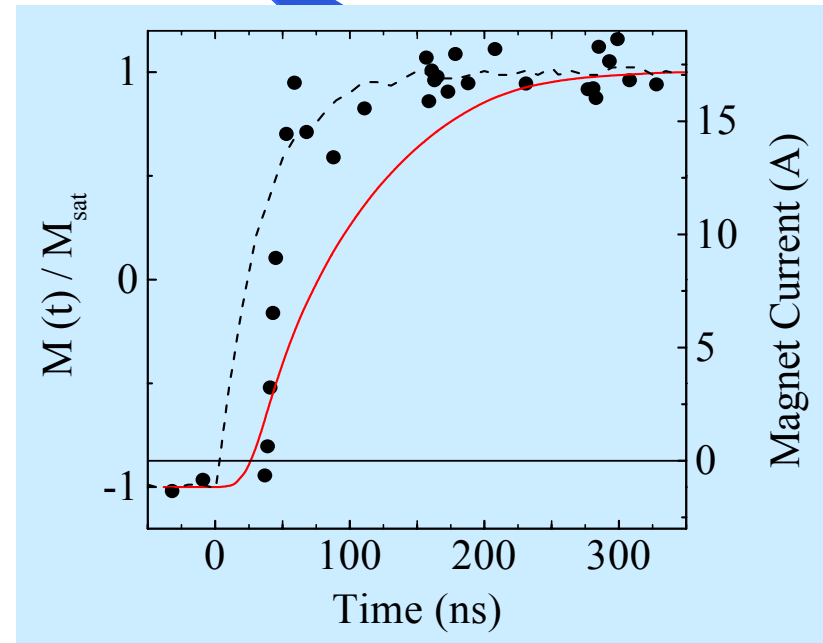
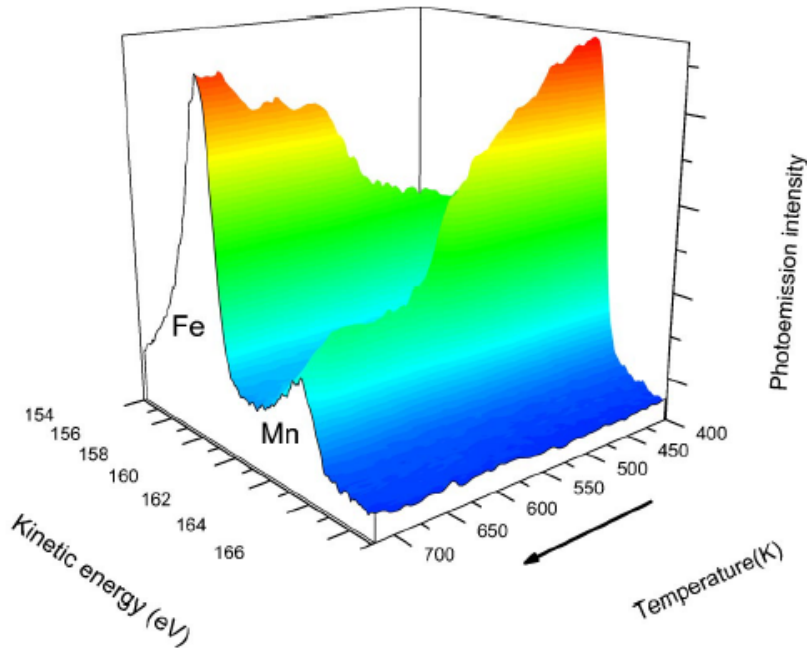
Phys. Rev B **68** (2003) 205413



Surface Magnetization dynamics

Static and dynamic magnetic properties of mass selected iron nanoclusters

Journal of physics:Cond. Matt. **15**(2003) 428



at

tens of microseconds



tens of picoseconds

tens of femtoseconds