

May 19th 2009

Exercises “Methoden Moderner Röntgenphysik II”

Materials science with X-rays

To be discussed on Tuesday May 26th 14:00

1. Is it possible to observe resonant scattering from orbital order (magnetic order) in LaMnO_3 (lattice parameter 5.4 Angstroem) at the Mn L-edge?
2. At which position of (h,k,l) can magnetic scattering and scattering from orbital order be measured in LaMnO_3 and $\text{La}_{0.5}\text{Ca}_{0.5}\text{MnO}_3$
3. Explain the principle of a polarization analyzer?
4. Explain why structure studies on bulk metallic glasses are almost exclusively performed on high energy X-ray beamlines.
5. Verify the empirical rules for bulk metallic glass formation on a couple of systems. Can you find exceptions?