Theoretical calculation of XMCD for Mn_2VAl

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X-ray absorption spectroscopy (XAS) is used for investigating the local structure of materials because the fine structure on the spectrum called X-ray absorption fine structure (XAFS) indicates the information. X-ray magnetic circular dichroism (XMCD) is a kind of XAS techniques used for examining the magnetic properties of materials with ferro- or ferri-magnetism and is applied to any substances including disordered systems. Since spin and orbital magnetic moments are obtained respectively by use of sum rules, this technique is a powerful tool for magnetic study.

It is supposed that the sign of XMCD indicates the direction of magnetic moment on each element although it has almost not studied. In this work we verify the idea by theoretical calculation for Mn_2VAl, which is one of ferri-magnetic materials, based on multiple scattering theory[1].

References

[1] T. Fujikawa and S. Nagamatsu, J. Electro. Spectro. Relat. Phenom. **129**, 55 (2003).