

Kondo effect on Fe_{0.5}Cu_{99.5} studied by XMCD

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When *3d* elements are diluted in non-magnetic metals, the localized magnetic states on the *3d* elements can interact with the conduction electrons of the host metal. The Kondo effect has been revived recently by Scanning Tunnelling Microscopy giving useful information on structural and spatial dependence of the Kondo effect [1-3]. However we need more information about the electronic and magnetic configuration of the magnetic impurity atoms.

We studied a bulk Fe_{0.5}Cu_{99.5} by mean of X-ray Absorption Spectroscopy (XAS) and X-ray Magnetic Circular Dichroism (XMCD) giving us the possibility to probe the electronic structure and the magnetic properties of the Fe atoms by chemical selectivity. The sample was probed under a magnetic field up to 7 teslas and in a temperature range between 4 and 300K. We observed a strong deviation of the magnetic behaviour with respect to a paramagnetic compound and we found a significant difference on the shape and absolute value, between the hysteresis loop measured with SQUID and the one extracted by XMCD.

References

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