THE ROLE OF ORBITAL ON THE MAGNETIC PROPERTIES OF SOME V OXIDES

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9.7 cm

Orbital degeneracy plays a very important role in the magnetic properties of transition metal compounds. In recent years a lot of attention has been place on the relation between the magnetic structures and the orbital occupation of the $3d$ transition metal compounds. Resonant X ray scattering has made it possible to quite directly determine the local distortions related to orbital ordering and recent studies of V_2O_3 , YVO_3 have revealed some surprises. Also recent studies of the properties of $LiVO_2$ and YVO_3 display surprising temperature dependent behaviour such as transitions to non magnetic states and temperature dependent multiple magnetisation reversals. I will discuss these results and present an interpretation in terms of the strong coupling between the orbital and spin structure.

Recent references are :

Y. Ren et al., Nature **396**, 441 (1998)
H.F. Pen et al., PRL **78**, 1323 (1997)
I.S. Elfimov et al., PRL June 1999
M.A. Korotin et al., PRL **80**, 4305, (1998)

13.4 cm

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