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Neutron Scattering in the Ferromagnetic Semiconductor YbMnSb

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YETHIRAJ, M. MOOK, H. A. MANDRUS, D. G. SALES, Condensed Matter Science Division, Oak Ridge National Laboratory — The Zintl compound

ferromagnetic semiconductor YbMnSb crystallizes in a tetragonal structure with $a = 4.0$ Å and $c = 12.0$ Å. The only magnetic ion is Mn present at the level 3.8 at. %. With a transition at 2.5 K, YbMnSb is an ideal compound for investigating the physics of carrier mediated ferromagnetism in dilute magnetic semiconductors without the possible complications of clustering or impurity phases. In this talk we report on

the results of neutron scattering investigations of magnetism in single crystals of YbMnSb . Single crystal experiments are necessary to test the

possibility that the magnetic state in YbMnSb is complex, possibly involving the Sb atoms.

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