

LOW TEMPERATURE NEUTRON DIFFRACTION AND MAGNETIZATION OF $\text{Fe}_{25}\text{Cu}_{75}$ SOLID SOLUTIONS

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Metastable $\text{Fe}_{25}\text{Cu}_{75}$ solid solution obtained by high-energy ball milling has been studied by means of neutron thermo-diffraction and magnetization measurements. This material, with face centred cubic (FCC) crystal structure, is ferromagnetic, with a value for the Curie temperature, around 190 K. The linear thermal expansion coefficient, α_T , has been estimated from the temperature dependence of the lattice parameter in the temperature range 5 K - 300 K. An increase in the value of α_T following the normal trend observed in other metallic compounds is observed below 150 K, however, above this temperature α_T remains almost constant indicating a slight magneto-volume effect in this material.