

MAGNETIC EXCITATIONS IN FCC Mn (37%Fe, 3%Cu) ALLOY.

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The similarity of phase diagrams of Mn-Fe and Mn-Ni alloys was thought to imply the similarity of the concentration dependence of the parameters of the magnetic excitations in these alloys. Our systematic studies demonstrated the essential differences between these two systems. Within this program the inelastic neutron scattering (INS) in the FCC Mn(37%Fe,3%Cu) alloy was measured at temperatures ranging from 1.7 K up to 600 K. Since our earlier study of the FCC Mn(38%Ni) demonstrated the pronounced uniaxial anisotropy both in the static and dynamical part of the generalised susceptibility one of the aims was the search for the similar feature in the FCC Mn-Fe system. The results of our present measurements did not confirm these expectations. The temperature dependence of spin wave parameters was another aim of our investigations. The spin wave dispersion relation for higher temperatures becomes stronger than the linear one observed at low temperature. The spin wave damping increases with temperature slower for lower energies than for higher energies. This is in contrast with the data for the fct Mn(10%Fe, 3%Cu) where the damping parameter was found to be temperature independent excepting the region close to the Neel temperature.

9.7 cm

13.4 cm

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