NEUTRON DIFFRACTION STUDY OF SEMI-HEUSLER SOLID SOLUTIONS.

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9.7 cm

Recent studies of $CoV_{1-x}Mn_xSb$ and $NiTi_{1-x}Mn_xSb$ solid solutions show very interesting properties. For low Mn concentration, 3d states of manganese are well localized, the resistivity is metallic. Magnetic interactions strongly increase near x = 0.4, while semiconducting-like behaviour is observed in the range x = 0.35-0.45. These features are explained by the Anderson localization of d states in these disordered solutions. In order to investigate the atomic and magnetic structures and disorder, neutron diffraction experiments have been done. The crystallographic order is discussed together with the X-ray data. Ferromagnetic order followed by short range order has been observed for $CoV_{1-x}Mn_xSb$ samples with x from 0.25 to 0.45. Spin-glass behaviour has been found for $NiTi_{1-x}Mn_xSb$ samples with x = 0.35, 0.45 with spin-glass temperatures below 15K. The phase diagram of these solutions is discussed.

13.4 cm

Subject category :

3. Transition Metals, Alloys and Compounds

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