

Structure and magnetic characteristics of $\text{Mn}_{1-x}\text{Fe}_x\text{NiGe}$ ($0.05 \leq x \leq 0.30$) solid solutions

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Intermetallic alloys and solid solutions having magnetostructural phase transitions are of interest for theory and practice due to the presence of magnetoresistance, magnetocaloric effect, magnetostriction effects. MnNiGe-based alloys and solid solutions are convenient model objects for studying static and dynamic distortions of the crystal lattice, since magnetostructural transformations of both the first and second kind realized in them [1]. The features of the relationship of magnetic properties and changes in the crystalline structure of solid solutions $\text{Mn}_{1-x}\text{Fe}_x\text{NiGe}$ ($0.05 \leq x \leq 0.30$) are studied. It has been established that MnNiGe is an antiferromagnet with a Neel temperature $T_N \approx 346$ K. Substitution of Mn atoms with iron ones causing a decrease in the parameters of the MnNiGe unit cell leads to the emergence of a ferrimagnetic state and in some cases to a manifestation of ferromagnetic ordering of magnetic moments.

References:

[1] C.-H. Zhang, D.-H. Wang, J. Chen et [al.], Chinese Physics B. **20**, 9 (2011)