



Raman scattering investigation of $\text{Mn}_x\text{Fe}_{1-x}\text{In}_2\text{S}_4$ solid solutions

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Abstract

Spinel-type $\text{Mn}_x\text{Fe}_{1-x}\text{In}_2\text{S}_4$ solid solutions grown by the planar melt crystallization method (the horizontal version of the Bridgman method) are investigated by means of energy dispersive X-ray analysis and Raman scattering spectroscopy for x values from 0 to 1. The distribution of cations in octahedral and tetrahedral sites of the spinel structure is analysed on the basis of the behaviour of Raman active vibration modes. Additionally, the assignment of Raman active modes and some Raman-inactive modes activated by lowering in the symmetry caused by the disordering effects in the cation sublattice are reported.