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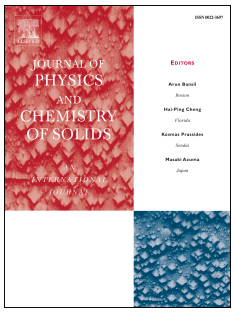

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Mixed-spin ferrimagnetic bilayer films with a random crystal field distribution

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Keywords; Phase diagrams, Magnetizations,
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Mixed-spin Ising bilayer films

Abstract

The magnetic properties (phase diagrams and magnetizations) of two mixed spin-1/2 and spin-1 Ising ferrimagnetic bilayer films with a random crystal field distribution are investigated by the use of the effective field theory with correlations. The single-ion anisotropy of spin-1 atoms is randomly distributed by the use of a bimodal distribution function. It is examined how unique phenomena can be realized for the magnetic properties in the two systems, due to the effects of the random crystal field distribution on the spin-1 atoms. The compensation point phenomena are found in the both systems, depending on the selections of physical parameters. But, the reentrant phenomena are found only for one of the two systems.

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