FERROMAGNETIC PHASE OF A UNIAXIAL MAGNET WITH ANISOTROPIC BIQUADRATIC EXCHANGE

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S u m m a r y

The ferromagnetic phase (FMP) of a uniaxial magnet with the easy-plane single-ion anisotropy (SIA) and the anisotropic biquadratic exchange interaction (BQEI) has been studied. The case $S = 1$ for the site spin S has been considered. Expressions for two branches of the spin excitation spectrum at finite temperatures T have been obtained, and the conditions for spectral mode stability have been determined. The spectral mode stability diagram in the $T - h$ coordinates has been constructed. The diagram testifies that, under certain conditions, the temperature decrease is accompanied by a violation of the spectral mode stability followed, as the temperature decreases further, by its restoration; i.e. the reentrance phenomenon is observed. The temperature of the second-order phase transition (PT) from the FMP into the phase with spontaneously broken symmetry has been demonstrated to depend considerably on the BQEI anisotropy constant.