

Monte Carlo study of phase separation in magnetic insulators

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Phase separation in the zero-bandwidth extended Hubbard with nearest-neighbors intersite Ising-like magnetic interaction J^z and on-site Coulomb interaction U is the focus of this study [1-4]. The system was analyzed by means of Monte Carlo simulations on two dimensional square lattice and the results in full range of chemical potential and electron concentration have been obtained. Depending on the values of interaction parameters the system could be in magnetic (F), non-ordered (NO) or phase separation state PS:F/NO [1-2]. The compressibility K is an indicator of the phase separation. Transitions between homogeneous phases (i.e. F-NO transitions) can be of first or second order. The tricritical point is also present on the diagrams.

References:

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