

QMC simulation of Heisenberg ferromagnet

Presenter: Leszek Bogacz

Leszek Bogacz, Wolfhard Janke

Abstract: We use Quantum Monte Carlo Stochastic Series Expansion (SSE) algorithm to investigate the properties of Heisenberg ferromagnet. We consider the model for two spin values $s = 1/2$ and $s = 1$. Spins are placed either on $1d$ chain or $2d$ square lattice. We investigate the dependence of specific heat, magnetization and susceptibility on temperature and magnetic field. Results obtained for $1d$ and $s = 1/2$ are compared to those received by analytical methods (Bethe ansatz, Green function).