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One-, two-, and three-dimensional ising model in the static fluctuation approximation

Nigmatullin R., Khamzin A., Ghassib H.

Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Viewed as a prototype for strongly interacting many-body systems, the spin-1/2 n -dimensional Ising model ($n = 1, 2, 3$) is studied within the so-called static fluctuation approximation (SFA). The underlying physical picture is that the local field operator $\sigma_z f$ with quadratic fluctuations is replaced with its mean value $[(\sigma_z f)^2] \cong$.
