Spatial Distribution of Gaussian Fluctuations of the Molecular Field and Magnetization in the Pyramid-like Ising Nanoscopic System Interacting with the Substrate

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We study thermodynamic properties of an Ising model of a ferromagnetic nanoscopic pyramid deposited onto a ferromagnetic bulk substrate. The influence of the interaction between the pyramid and the substrate is calculated in terms of the reduced-state (density) operator used for description of thermodynamic properties of nanoscopic systems. The spatial distribution of the magnetization in the nanoscopic pyramid is obtained in the Gaussian fluctuations approximation.

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