One-dimensional time-dependent Ising model in external magnetic field

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A process of relaxation from the non-equilibrium state described by the Ising model to the equilibrium state has been proposed. The process is described by the action of the transition matrix on the state vector and the requirement of its normalisation. It is assumed that in the state of non-equilibrium the vector of state depend in the same way on the measurable quantities as the eigenvector of the transition matrix corresponding to the highest eigenvalue. Two cases are considered: of the cell composed of one or two sites. The calculations have been performed for a uniform initial state. For the two cases of one and two-site cells the mode of reaching the equilibrium state via magnetisation has been compared. When the external magnetic field and temperature tend to zero, both magnetisation and the correlation function of the nearest neighbours show the critical slowing down phenomenon.

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