

Abstract Submitted
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Two-dimensional classical XY model by HOTRG JI-FENG YU, ZHIYUAN XIE, TAO XIANG, None — Two-dimensional (2D) classical XY model has a special phase transition, the so-called Kosterlitz-Thouless (KT) transition. Below the transition temperature, the system has quasi long range order with all spins aligned, and the correlation function decays as power law, while the other unordered phase is exponential. Large size system study by numerical simulation is necessary, but practically difficult. In this work, we applied a newly well-developed method: high-order tensor renormalization group (HOTRG) to investigate this model. This method is verified by 2D Ising model, and theoretically, it can deal with infinite system size. Some thermodynamic quantities such as entropy, specific heat and magnetic susceptibility etc., are computed, which may be used to find Fisher's zero of the partition function, and then to characterize the transition.

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None

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