



量子物理学・ナノサイエンス第 191 回セミナー

Numerical simulations with CUDA of critical dynamics on Ising-like systems

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概要

Ageing phenomena may arise in systems quenched, from some initial state, either (i) into a coexistence phase with more than one stable equilibrium state or else (ii) onto a critical point of the stationary state. Studies of dynamical critical properties, in the same way that the steady state properties, are necessarily limited to samples of finite size. For this reason it is important to explore computational alternatives to obtain reliable results. In this work we explain how the critical dynamic can be implemented correctly in the Majority voter model, an non-equilibrium Ising-like model, using Compute Unified Device Architecture (CUDA). By means of Monte Carlo simulations of the critical Ising and Majority voter models with Glauber dynamics on two dimensional honeycomb lattices we found that the dynamic critical exponents for the Majority voter model are in good agreement with the reported values of the Ising model.

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