

Monte Carlo Simulation の実際

Phase Transition ?

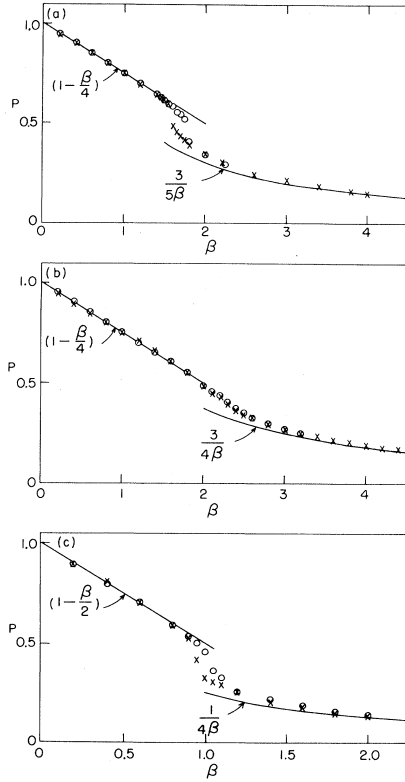


FIG. 1. The average plaquette as a function of β as obtained on cooling and heating the gauge systems with (a) SU(2) in five dimensions, (b) SU(2) in four dimensions, and (c) SU(2) in four dimensions. Crosses, heating; circles, cooling.

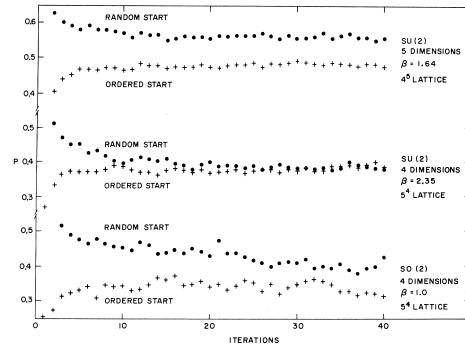


FIG. 2. The average plaquette as a function of number of iterations at a fixed β .

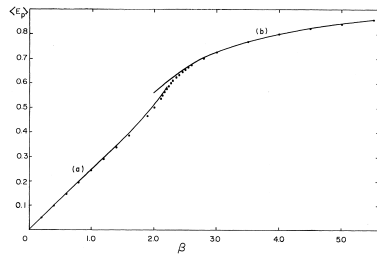


FIG. 3. The SU(2) average plaquette energy $\langle E_p \rangle$ as a function of β for a lattice of size 4^4 . The curves labeled a and b are obtained from the strong and weak coupling expansions, Eqs. (2) and (3).

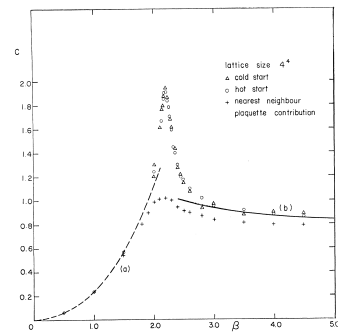


FIG. 4. The specific heat C as a function of β obtained from Monte Carlo runs starting from cold (triangles) and hot (circles) configurations and the contribution to C from nearest-neighbour plaquettes (crosses). The curves labeled a and b are obtained from the derivatives of the strong and weak coupling expansion, Eqs. (2) and (3).

Scaling ?

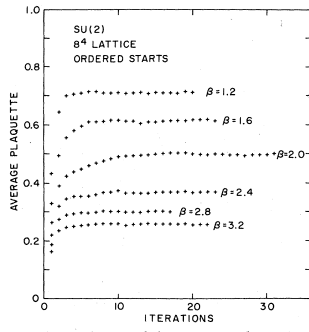


FIG. 2. The evolution of the average plaquette at several values of β .

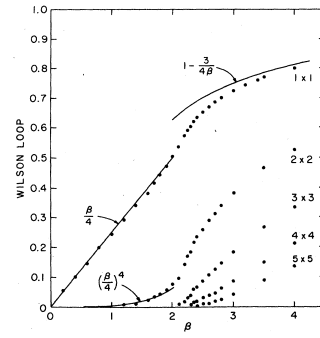


FIG. 4. Wilson loops as a function of β .

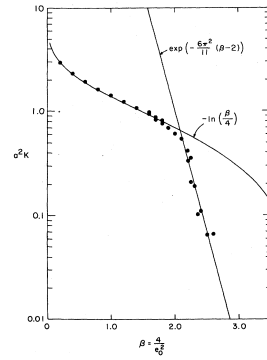


FIG. 6. The cutoff squared times the string tension as a function of β . The solid lines are the strong- and weak-coupling limits.

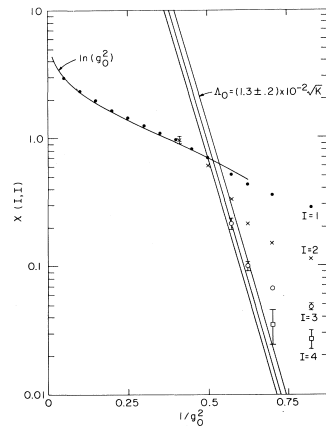


FIG. 1. The quantities $\chi(I, I)$ for SU(2) gauge theory as a function of $1/g_0^2$.

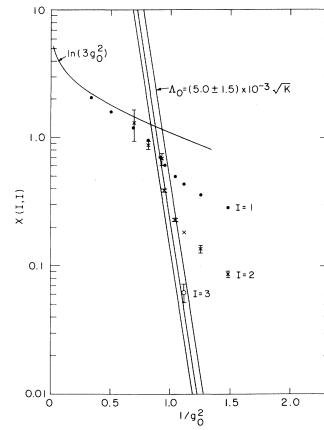


FIG. 2. The quantities $\chi(I, I)$ for SU(3) gauge theory.

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