Deconfinement Phase Transition in SU(4) Lattice Gauge Theory

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Abstract

Investigations of deconfinement phase transition in $SU(N)$ lattice gauge theories may provide us with clues to understand the phenomenon of deconfinement in (quenched) quantum chromodynamics for which $N = 3$. The presence of a first order bulk transition for $N \geq 4$, which is presumably an artifact of the lattice cut-off, obfuscates the determination of the order of the deconfinement phase transition for the usual Wilson action of $SU(N)$ theories. I show how one can bypass the bulk phase transition and present new results for the deconfinement transition in $SU(4)$ lattice gauge theory.

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