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Phase diagrams of Potts model with competing binary-ternary-quaternary interactions on Cayley tree   (Conference Paper)   (Open Access)

Baki, N.F.I.O. ✉,   Rodzhan, M.H.M. ✉

Department of Computational and Theoretical Sciences, Faculty of Science, International Islamic University Malaysia, Kuantan, Pahang, 25200, Malaysia

Abstract

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We study the phase diagrams for the Potts model with competing binary, ternary and quaternary interactions on Cayley tree of order 2. At vanishing temperature T, the phase diagram is fully determined for all values of competing binary, ternary and quaternary interactions . We extend the results (for the case $J_q = 0$) obtained by Ganikhodjaev and Mohd Rodzhan [8]. Our results show that the appearance of addition phases: Antiferromagnetic and Period 6, in the case of nonzero quaternary interactions for several ranges of the competing parameters. © 2019 Author(s).

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