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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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