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Quantum phase transition in SU(N) $J-Q$ Heisenberg model

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Validity of the scenario of deconfined critical phenomena of a quantum spin model is examined numerically by extending previously attained range of system sizes. We carry out quantum Monte Carlo simulation for the SU(N) ($N = 2, 3, 4$) generalization of the Heisenberg model on square and honeycomb lattices. Finite-size scaling analysis works well with the same critical parameters for both lattices, upto the maximum lattice size studied ($L = 256$).