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On Construction of Quantum Markov Chains on Cayley trees (Conference Paper)

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Abstract

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The main aim of the present paper is to provide a new construction of quantum Markov chain (QMC) on arbitrary order Cayley tree. In that construction, a QMC is defined as a weak limit of finite volume states with boundary conditions, i.e. QMC depends on the boundary conditions. Note that this construction reminds statistical mechanics models with competing interactions on trees. If one considers one dimensional tree, then the provided construction reduces to well-known one, which was studied by the first author. Our construction will allow to investigate phase transition problem in a quantum setting. © Published under licence by IOP Publishing Ltd.

Indexed keywords

Engineering controlled terms: Algebra; Boundary conditions; Chains; Forestry; Statistical mechanics

Arbitrary order; Cayley trees; Competing interactions; New constructions; Quantum setting; Transition problems

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