

Spectral gap in PEPS

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Quantum information theory and the theory of quantum many body systems are inextricably connected. An important part of this connection is mediated through the so called Projected Entangled Pair States (PEPS), variational families of states which mimic the entanglement structure present in ground states and thermal states of quantum many body systems. Each PEPS comes together with an associated 'parent' Hamiltonian. Proving whether this Hamiltonian is gapped or gapless remains an important open problem. In this talk I will review some recent progress in this problem. (joint work with M. Kastoryano, A. Lucia and A. Pérez.)