

Giuseppe Florio

Centro Fermi and Università di Bari
Via Amendola 173 - 70126 Bari, Italy
giuseppe.florio@ba.infn.it

Entropy-Driven Phase Transitions of Entanglement

G. Florio, P. Facchi, G. Parisi, S. Pascazio, K. Yuasa

We study the behavior of bipartite entanglement at fixed von Neumann entropy. We look at the distribution of the entanglement spectrum, that is the eigenvalues of the reduced density matrix of a quantum system in a pure state. We report the presence of two continuous phase transitions, characterized by different entanglement spectra, which are deformations of classical eigenvalue distributions.

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