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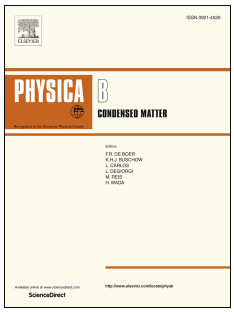

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Tripartite quantum correlations in the renormalized space of Heisenberg-Ising spin$-1/2$ chain

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Abstract

The dynamics of tripartite entanglement and tripartite quantum discord in the superposition of the two degenerate ground states of the Heisenberg-Ising spin$-1/2$ chain with the increasing size of the system are studied through quantum renormalization group (QRG) technique. It is shown that although, both the correlations exhibit quantum phase transition in the thermodynamics limit, however, quantum discord is more sensitive to the size of the system. Unlike the bipartite case, the tripartite correlations are maximum when the Ising coupling between the spins dominates the Heisenberg coupling. Interestingly enough, it is found that the regions of entangled phase and product phase in the tripartite case are swapped with respect to the ones in the bipartite case.

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