

Eigenvalues, Peres' Separability Condition, and Entanglement

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Abstract: The general expression with the physical significance and positive-definite condition of the eigenvalues of 4×4 Hermitian and trace-one matrix are obtained. The obvious expression of Peres' separability condition for an arbitrary state of two qubits is then given and its operational feature is enhanced. Furthermore, we discuss some applications to the calculation of the entanglement, the upper bound of the entanglement, and a model of the transfer of entanglement in a qubit chain with noise.

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Key words: density matrix, eigenvalues, separability, entanglement

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