LU Invariants and Canonical Forms and SLOCC Classification of Pure 3-Qubit States

DI Yao-Min and Cao Ya

Department of Physics, Xuzhou Normal University, Xuzhou 221116, China
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Abstract: In this paper the entanglement of pure 3-qubit states is discussed. The local unitary (LU) polynomial invariants that are closely related to the canonical forms are constructed and the relations of the coefficients of the canonical forms are given. Then the stochastic local operations and classical communication (SLOCC) classification of the states are discussed on the basis of the canonical forms, and the symmetric canonical form of the states without 3-tangle is discussed. Finally, we give the relation between the LU polynomial invariants and SLOCC classification.

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