2005 Vol.43 No.1 pp.69-72 DOI:

Probabilistic Teleportation of n-Particle State via n Pairs of Entangled Particles

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(Received: 2004-5-9; Revised:)

Abstract: The teleportation of an arbitrary n-particle state is proposed when n pairs of entangled particles are utilized as quantum channels. It can be successfully realized with a certain probability which is determined by the smallest coefficients of n entangled pairs. Using a Latin square of order 2^n, explicit expressions of two unitary operations corresponding to different Bell-basis measurements performed by Alice can be obtained at the end of Bob.

PACS: 03.67.Hk, 03.65.Ud
Key words: probabilistic teleportation, n-particle state, Latin square, n pairs of entangled particles