Probabilistic Teleportation of a Four-Particle Entangled W State

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Abstract: In this paper, two schemes for teleporting an unknown four-particle entangled W state is proposed. In the first scheme, two partial entangled four-particle states are used as quantum channels, while in the second scheme, four non-maximally entangled particle pairs are considered as quantum channels. It is shown that the teleportation can be successfully realized with certain probability, for both schemes, if a receiver adopts some appropriate unitary transformations. It is also shown that the successful probabilities of these two schemes are different.

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