

Probabilistic Teleportation of One-Particle State of S-level

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Abstract: A scheme for probabilistically teleporting an unknown one-particle state of S-level by a group of pairs of partially entangled 2-level particle state is proposed. In this scheme unitary transformation and local measurement take the place of Bell state measurement, then proper unitary transformation and the measurement on an auxiliary qubit with the aid of classical communication are performed. In this way the unknown one-particle state of S-level can be transferred onto a group of remote 2-level particles with certain probability. Furthermore, the receiver can recover the initial signal state on an S-level particle at his hand.

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Key words: probabilistic teleportation, discrete Fourier transform, local measurement, one-particle state of S-level

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