

## Teleportation of Two-Particle Entangled State via Cluster State

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Abstract: In this paper, two schemes for teleporting an unknown two-particle entangled state from the sender (Alice) to the receiver (Bob) via a four-particle entangled cluster state are proposed. In these two schemes, the unknown two-particle entangled state can be teleported perfectly. The successful probabilities and fidelities of the schemes can reach unity.

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Key words: quantum teleportation, Bell state measurement (BSM), quantum controlled phase gate

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