2006 Vol.46 No.1 pp.65-68 DOI:

Quantum Key Distribution Using Four-Qubit W State

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(Received: 2005-9-26; Revised:)

Abstract: A new theoretical quantum key distribution scheme based on entanglement swapping is proposed, where four-qubit symmetric W state functions as quantum channel. It is shown that two legitimate users can secretly share a series of key bits by using Bell-state measurements and classical communication.

PACS: 03.67.Hk

Key words: quantum key distribution, W state, Bell-state measurement, security

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