

A Single Photon Produces General W State of N Qubits and Its Application

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Abstract: Based on the Wu's scheme [C.F. Wu, J.L. Chen, L.C. Kwekl, and C.H. Ohel, Phys. Rev. A 73 (2006) 012310], we prepare the general N-qubit W state. We find that the concurrence of two qubits in general N-qubit W state is only related to their coefficients and we successfully apply the general N-qubit W state to quantum state transfer and quantum state prepare like that in two-qubit system.

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Key words: N-qubit W state, concurrence, quantum state transfer

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