

Abstract Submitted
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Efficient scheme for creating a W-type optical entangled coherent state.¹ HANYU ZHANG, 499437370@qq.com — W-type optical entangled coherent states have important applications in quantum communication. Previous works require performing measurement in the preparation of such W states. We here propose an efficient scheme for creating a W-type optical entangled coherent state without measurement. This scheme employs a setup composed of three microwave cavities and a superconducting flux coupler qutrit. Because no measurement is required, the W state can be generated deterministically. In addition, the system complexity is greatly reduced because of using only one qutrit to couple the three cavities. Numerical analysis shows that within current experimental technology, the W state can be prepared with high fidelity. This scheme is universal and can be extended to create the W-type optical entangled coherent state, by using three microwave or optical cavities coupled via a three-level natural or artificial atom.

¹Efficient scheme for creating a W-type optical entangled coherent state

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