

## QUANTUM SECRET SHARING VIA FOUR PARTICLE ASYMMETRIC ENTANGLED STATE

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### ABSTRACT

A general scheme for quantum secret sharing of an arbitrary single-qubit state with four-qubit asymmetric entangled state is proposed. In this scheme, the sender performs Bell measurement on his particle, the two collaborators and the receiver perform joint unitary operation on the rest particles. Then the two collaborators perform measurement on their particle using mutually orthogonal bases. Thus the receiver can successfully reconstruct the single particle with a certain probability.

**Keywords:** Quantum secret sharing; asymmetric entangled state; joint unitary operation; Bell measurement.