

Abstract Submitted  
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**Conditional Bell-state discrimination by direct photodetection of emission from a pair of atoms**<sup>1</sup> RICHARD WAGNER, JAMES CLEMENS, Department of Physics, Miami University — We report on the performance of a protocol for conditional Bell-state discrimination by means of direct photodetection of the spontaneous emission from a pair of atoms. The performance is characterized by the fidelity of the teleportation of an unknown quantum state from one of the atoms onto the photon number states of a cavity field mode. We find a fidelity approaching unity for atomic separation much less than an emission wavelength with a success probability of 25%. The fidelity is reduced from the ideal value when imperfect photodetection efficiency is taken into account but still exceeds the value of 2/3 predicted for a classical teleportation protocol.

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