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## Improving quantum teleportation with a quantum dot-based entangled photon source

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All-optical quantum teleportation relies on properties of entangled states that, in the prospect of operation in quantum networks, should be encoded on photon pairs on demand. Quantum dots are a promising solution, as shown in recent multi-photon experiments [1]. Here, we demonstrate quantum teleportation with quantum dot photons achieving improved protocol fidelity [2]. The experimental results are predicted based on entanglement fidelity and photon indistinguishability. The Bell state measurement implementation and spectral filtering are investigated within the same model. Finally, we envision the next steps towards realization with remote nodes. [1] F. Basso Basset, M. Rota, C. Schimpf, D. Tedeschi, et al., Phys. Rev. Lett. 123, 160501 (2019). [2] F. Basso Basset., et al., npj Quantum Inf. 7, 7 (2021).

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