

## Quantum Physics

# Efficient routing of single photons by one atom and a microtoroidal cavity

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Single photons from a coherent input are efficiently redirected to a separate output by way of a fiber-coupled microtoroidal cavity interacting with individual Cesium atoms. By operating in an overcoupled regime for the input-output to a tapered fiber, our system functions as a quantum router with high efficiency for photon sorting. Single photons are reflected and excess photons transmitted, as confirmed by observations of photon antibunching (bunching) for the reflected (transmitted) light. Our photon router is robust against large variations of atomic position and input power, with the observed photon antibunching persisting for intracavity photon number  $0.03 \lesssim n \lesssim 0.7$ .

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