

Absorption and emission of single photons by single atoms

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Controlled interaction between single atoms and single photons is a key tool in quantum networking, required to implement, for example, a quantum repeater. I will describe recent experiments where single trapped ions emit bandwidth-tunable single photons, and where single ions interact with single photons from a SPDC photon pair source. In the latter experiment, absorption of a single photon is signalled by a quantum jump in the ion, while it is heralded by the photon's entangled partner. We show that entanglement is preserved in the heralded absorption process.