Cavity quantum electrodynamics with quantum dots in microcavities

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Cover: The picture on the cover shows an optical cavity with a dipole inside. The curves in the background illustrate a cavity reflectivity measurement. The photon entering the cavity (from the left) interacts with the dipole. When the dipole is coupled to the cavity and the photon is interacting on resonance with a dipole electron spin, the photon gets reflected. This can be measured by a peak in the dip of the reflection (blue) curve. In the uncoupled case with the dipole being out or resonance, the photon gets transmitted and a dip in the reflection (red) curve can be observed. This simplified idea can be realized with a quantum dot in a microcavity, which could serve as the building block (a qubit) for a quantum computer.

Cavity Quantum Electrodynamics with Quantum Dots in Microcavities

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