

Optical control of single-mode phonons via artificial atoms

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There is a plethora of mechanisms in quantum optics that allow for the optical control of the atomic decay. In this way, the spontaneous emission responsible for the population decay of the excited atom, can be enhanced or slowed-down. These control mechanisms can be, as well, applied to hybrid optomechanical devices that contain an emitter such as an artificial atom or a molecule. For such devices, changes in the spontaneous emission dynamics of the emitter influences the phonon dynamics as well. Here, we present how phonon dynamics behaves when optically manipulating the atomic spontaneous emission within an emitter based optomechanical device.

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