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Separation-dependent emission pathways of quantum emitters.[1]
JUGAL TALUKDAR, D. BLUME, Univ of Oklahoma — System-environment interactions have been studied extensively for many decades and recent developments in quantum optics and circuit QED provide intriguing possibilities for realizing non-linear environments. The Bose-Hubbard lattice for photons, e.g., has been realized experimentally using superconducting circuits, thereby providing an exciting platform to study effective interactions between quantum emitters mediated by the engineered photonic environment. We consider a collection of macroscopically separated two-level emitters coupled to a non-linear environment and study the dissipative dynamics. Specifically, we report our theoretical progress on understanding the criteria for the existence of specific emission pathways as a function of the positions of the emitters.

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