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Dissipative phase transition in a one-dimensional circuit QED lattice: Theory ANDY C. Y. LI, Northwestern University, MATTIAS FITZPATRICK, NEEREJA SUNDARESAN, ANDREW HOUCK, Princeton University, JENS KOCH, Northwestern University — Our theoretical and experimental work indicate the occurrence of a dissipative phase transition in a linear chain composed of coupled microwave resonators and superconducting qubits. Studies of circuit QED lattices, therefore, have great potential for advancing our understanding of nonequilibrium many-body physics of light. Motivated by the experimental results, we present theory investigating the physics of a driven damped circuit-QED chain. Within mean-field approximation taking into account single-site driving and finite size of the chain, we numerically explore basic features of the transition observed when increasing the drive strength beyond a critical threshold.

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