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Long range correlations by local dissipation in lattice waveguide QED BAPTISTE ROYER, ARNE L. GRIMSMO, Univ of Sherbrooke, ALEXANDRE BLAIS, Univ of Sherbrooke, CIFAR — In waveguide QED, superconducting qubits acting as artificial atoms are coupled to 1D superconducting transmission lines playing the role of common bath for the qubits. By controlling their effective separation and coupling to the transmission line, it is possible to engineer various types of dissipation-induced interactions between the qubits. In this talk, we consider the situation where multiple superconducting qubits are coupled to a lattice ofsuperconducting transmission lines. We show that this can lead to the creation of highly entangled dark states using local dissipation only. Using tensor networks techniques, we study such large-scale highly-correlated systems.

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