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Steady-state phases of the non-equilibrium Rabi-Hubbard Model HAKAN TURECI, Princeton University, CHAITANYA JOSHI, University of St Andrews, MYKOLA BORDYUH, Princeton University, ROSARIO FAZIO, Scuola Normale Superiore, JONATHAN KEELING, University of St Andrews, MARCO SCHIRO, Institut de Physique Theorique, CEA, CNRS-URA — We study the realization of a tunable Rabi-Hubbard Model with a coupled cavity array containing Raman-pumped 4-level qubits. This effective model is found to display a phase diagram that features a normal phase (vanishing polarization and photon coherence) and a finite-frequency ordered phase. The ordered phase may either display a "ferroelectric" order where the photon coherence is uniform through the array, or one with an alternating phase that we refer to as "anti-ferroelectric."

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