Systems of Coupled Dissipative Jaynes-Cummings Cavities DEAN RYE, SETH RITTENHOUSE, United States Naval Academy — In this talk we consider a many-cavity Jaynes-Cummings model in which each cavity is coupled to the environment through drive and dissipation. We examine how the bistable behavior of a single cavity extends to a system of weakly interacting cavities, and the emergence of symmetry-breaking steady states within the bistable regime. Numerical solutions to the Lindblad master equation are compared to the bistable solutions produced from semiclassical equations. Quantum trajectory calculations demonstrate switching between symmetry-breaking and symmetry-preserving states. We then use semiclassical mean field approximations to examine how the bistable and symmetry-breaking behavior changes when the single and several cavity model are extended to a many body model.

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