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**Quantum Optics with Superconducting Circuits: From Single Photons to Schrodinger Cats**

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Over the last decade and a half, superconducting circuits have advanced to the point where we can generate and detect highly-entangled states, and perform universal quantum gates. Meanwhile, the coherence properties of these systems have improved more than 10,000-fold. I will describe recent experiments, such as the latest advance in coherence using a three-dimensional implementation of qubits interacting with microwave cavities, called “3D circuit QED.” The control and strong interactions possible in superconducting circuits make it possible to generate non-classical states of light, including large superpositions known as “Schrodinger cat” states. This field has many interesting prospects both for applications in quantum information processing, and fundamental investigations of the boundary between the macroscopic classical world and the microscopic world of the quantum.