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Tomography of microwave states based on parametric interactions MANUEL CASTELLANOS-BELTRAN, MICHAEL DEFEO, NIST-Boulder, ADAM SIROIS, LEONARDO RANZANI, University of Colorado at Boulder, NIST-Boulder, FLORENT LECOCQ, RAYMOND SIMMONDS, JOHN TEUFEL, JOSE AUMENTADO, NIST-Boulder — Due to recent innovations, Josephson junction-based superconducting circuits have emerged as a platform for performing quantum optics experiments in the microwave regime. These circuits have given us the ability to manipulate the quantum states of microwave light fields in ways that have only been possible in theory. One crucial step in our efforts to build a flexible platform for implementing these experiments in superconducting circuits is the development of a protocol for efficient measurement of the state of light in our systems. In recent years, several approaches have been developed in order to accomplish this, either by performing tomography of states within the cavity or on the itinerant photons escaping from it. In this talk, I will discuss our progress toward the goal of efficient measurement of the quantum state of light, in particular, as part of our goal to implement an "on-chip" optical table which utilizes parametric interactions for state preparation and measurement.

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