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Photon tomography of a Josephson Parametric Amplifier WILLIAM KINDEL, MICHAEL SCHROER, JILA and the University of Colorado, GENE HILTON, LEILA VALE, MARTIN SANDBERG, MICHAEL VISSERS, JIANSONG GAO, DAVID PAPPAS, NIST, LEHNERT KONRAD, JILA and the University of Colorado — Josephson Parametric Amplifiers (JPAs) are an important resource for quantum limited measurement, feedback and nonclassical state generation. To study the JPA transformation, we use a superconducting qubit-cavity system to launch single photons or, n=1 Fock states, into a JPA, which measures the state. From repeated measurements, we can infer the state's loss of purity as a results of the JPA transformation. We will present our estimates of the JPA's efficiency as a photon detector along with progress toward measuring arbitrary superpositions of n=0 and n=1 Fock states.

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