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Microwave Photon Counter Based on Josephson Junctions GUILHEM RIBEILL, DAVID HOVER, UMESHKUMAR PATEL, University of Wisconsin-Madison Department of Physics, YUNG-FU CHEN, Department of Physics, National Central University, ROBERT MCDERMOTT, University of Wisconsin-Madison Department of Physics — We describe progress in the development of a microwave photon counter based on current biased Josephson junctions; absorption of a single photon causes the junction to switch to the voltage state, producing a large and easily measured classical signal. We have combined multiple junctions with a broad-band, on-chip microwave beam splitter to realize a multiplexed microwave photon detector. We discuss application of the Josephson microwave counter to the study of full counting statistics of the microwave emission from various mesoscopic conductors, and we describe alternative biasing schemes to enable operation in more traditional photon counting modes.

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