

Abstract Submitted  
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**Quantum efficiency of a double quantum dot microwave photon detector**<sup>1</sup> CLEMENT WONG, MAXIM VAVILOV, Univ of Wisconsin-Madison — Motivated by recent interest in implementing circuit quantum electrodynamics with semiconducting quantum dots, we study charge transfer through a double quantum dot (DQD) capacitively coupled to a superconducting cavity subject to a microwave field. We analyze the DQD current response using input-output theory and determine the optimal parameter regime for complete absorption of radiation and efficient conversion of microwave photons to electric current. For experimentally available DQD systems, we show that the cavity-coupled DQD operates as a photon-to-charge converter with quantum efficiencies up to 80%

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