

Abstract Submitted  
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**The Josephson Microwave Photomultiplier**<sup>1</sup> BRENDAN OSBERG,  
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The current lack of single microwave photon counters -as opposed to microwave  
amplifiers- has become a problematic omission in the toolkit of available circuit  
QED devices. Hence, we propose a microwave photo-multiplier based on a modi-  
fied phase qubit. Such a system, trapped in the metastable state, can be activated  
over its potential energy barrier by an incoming photon, creating an avalanche ef-  
fect analogous to current photo-diodes. Linear coupling of the junction flux with  
the radiation field, in the weak damping regime, permits photodetection from an  
arbitrary quantum source in the GHz range. We model this device theoretically  
and investigate its sensitivity, bandwidth, efficiency, and dark-count rate using the  
Langevine stochastic differential equations and a path integral approach.

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