

Abstract Submitted  
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**Floquet formulation for the investigation of multiphoton quantum interference in a superconducting qubit driven by a strong field<sup>1</sup>**  
SANG-KIL SON, SHIH-I CHU, University of Kansas — We present a Floquet investigation of multiphoton quantum interference in a strongly driven superconducting qubit. The procedure involves a transformation of a time-dependent problem into an equivalent time-independent infinite-dimensional Floquet matrix eigenvalue problem. The results of a two-level qubit system show quantum interference fringes around multiphoton resonance positions in agreement with the experimental results of Oliver et al., *Science* **310**, 1653 (2005). We further explore the interference patterns in terms of quasienergies and the resonance position shifts as the tunneling strength increased. The Floquet formulation promises a new and accurate approach for the investigation of quantum interference phenomenon in the qubits.

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