

Abstract Submitted  
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**Direct Observation of Quasiparticle Tunneling Rates in a Pair of Superconducting Charge Qubits** M.D. SHAW, University of Southern California, Department of Physics and Astronomy, Los Angeles CA 90089-0484, B. PALMER, Laboratory for Physical Sciences, College Park, MD 20740, P. DELSING, Chalmers University of Technology, Microtechnology and Nanoscience, MC2, 412 96 Goteborg, Sweden, P.M. ECHTERNACH, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA 91109 — We directly measure quasiparticle tunneling rates in the time domain for a pair of superconducting charge qubits based on the single Cooper-pair box. We discuss the dependence of these rates on a variety of experimental parameters, such as RF power, microwave power, magnetic flux, sample temperature, and gate voltage. Measurements are performed using RF reflectometry to measure the quantum capacitance of each device.

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