Abstract Submitted
for the MAR13 Meeting of
The American Physical Society

Universal dielectric loss in amorphous solids in Josephson qubits from simultaneous bias and microwave fields ALEXANDER BURIN, Tulane University, KEVIN OSBORN, LPS University of Maryland, KHALIL MOE, LPS, University of Maryland — We calculate the microwave dielectric loss of an ensemble of two-level systems in amorphous solids within superconducting qubits during the application of a time-varying electric bias field. We find that this loss becomes universal in a wide range of temperatures and frequencies of the AC drive field, corresponding to the bare linear dielectric permittivity in the low-temperature limit. This non-equilibrium theory allows the separate extraction of the TLS density and their dipole size in experiments and can be used to reduce the destructive effect of decoherence.

Alexander Burin
Tulane University

Date submitted: 07 Nov 2012 Electronic form version 1.4