

Abstract Submitted
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A study of glassy behavior in amorphous dielectrics using GHz frequency superconducting resonators MOE KHALIL, M.J.A. STOUT-MORE, University of Maryland and Laboratory for Physical Sciences, AARON HOLDER, CHARLES MUSGRAVE, University of Colorado, C.J. LOBB, F.C. WELLSTOOD, University of Maryland, K.D. OSBORN, Laboratory for Physical Sciences — It has been shown that the dielectric constant of certain glassy materials can be changed with a dc electric field bias. Here we extend those studies to higher frequencies where both the real and imaginary part of the dielectric constant can be studied. We have designed a dc electric-field tunable LC resonator built from superconducting thin-film aluminum to test this effect in SiN_x at GHz frequencies. We will report progress on measuring these devices down to single photon storage energies at temperatures of approximately 30 mK, where the dynamics are dominated by the tunneling of two-level defects.

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