Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Superconducting microstrip resonators for circuit QED experiments[1] M. HAEBERLEIN, M. KRAWCZYK, A. BAUST, J. GOETZ, E. HOFFMANN, E. P. MENZEL, M. SCHWARZ, F. WULSCHNER, L. ZHONG, F. DEPPE, A. MARX, R. GROSS, Walther-Meissner-Institut — Superconducting microstrip resonators have several advantages when designing scalable circuit QED systems. Their simple geometry facilitates the implementation of additional circuit elements and control lines, and, most importantly, their spectrum tends to exhibit nearly no parasitic modes up to 20 GHz even for more complicated geometries. However, due to their specific field configuration they are not expected to yield high Q-factors at very low temperatures. We analyzed such resonators at Millikelvin temperatures and find experimentally useful quality factors of approximately 1500 even in the low temperature low power limit. Our analysis indicates that even ten times higher quality factors can be achieved straightforwardly by choosing substrates with better dielectric properties. Supported by the DFG via SFB 631 and by the German Excellence Initiative via NIM

[1]Supported by the DFG via SFB 631 and by the German Excellence Initiative via NIM.

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Date submitted: 21 Nov 2011 Electronic form version 1.4