Abstracts

Performance and Modeling of Superconducting Ring Resonators at Millimeter-Wave Frequencies

K.B. Bhasin, C.M. Chorey, J.D. Warner, R.R. Romanofsky, V.O. Heinen, K.S. Kong, H.Y. Lee and T. Itoh. "Performance and Modeling of Superconducting Ring Resonators at Millimeter-Wave Frequencies." 1990 MTT-S International Microwave Symposium Digest 90.1 (1990 Vol. I [MWSYM]): 269-272.

Microstrip ring resonators operating at 35 GHz have been fabricated from laser ablated YBCO thin films deposited on lanthanum aluminate substrates. They were measured over a range of temperatures and their performance compared to identical resonators made of evaporated gold. Below 60° Kelvin the superconducting strip performed better than the gold, reaching an unloaded 'Q' ~1.5 times that of gold at 25° K. A shift in the resonant frequency follows the form predicted by the London equations. The Phenomenological Loss Equivalence Method is applied to the ring resonator and the theoretically calculated Q values are compared to the experimental results.

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