Abstracts

New Experimental Results for Microwave Conductivity of High-TC Superconductors and Consequences for Applications to Linear Devices

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Experimental results for the surface impedance of the oxide superconductor YBa/sub 2/Cu/sub 3/O/sub 7/ in the frequency range from 3 to 90 GHz and the temperature range from 4.2 to 300 K are presented for single-crystalline and polycrystalline layers. Today the best results were achieved with a film grown epitaxially on SrTiO/sub 3/ by pulsed laser ablation leading to a surface resistance of less than 8 m Omega at 86.7 GHz and 77 K. Therefore applications to microwave and millimeterwave components which require a much higher quality factor as realizable with normal conductors or which have to be miniaturized by some orders of magnitude can be envisaged. Furthermore "inductive films" with "electronically tunable" properties may be realized.

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