Abstracts

Effect of Finite Thickness on the Surface Impedance of High T/sub c/ Thin Films

H. Chaloupka, N. Klein and S. Orbach. "Effect of Finite Thickness on the Surface Impedance of High T/sub c/ Thin Films." 1990 MTT-S International Microwave Symposium Digest 90.2 (1990 Vol. II [MWSYM]): 855-858.

The effect of the finite film thickness on the microwave surface impedance is investigated both theoretically and experimentally. It was found that the surface resistance is enhanced due to the altered current density distribution in the film as well as power transmission through the film. The surface resistance of an YBa/sub 2/Cu/sub 3/O/sub 7-delta/ thin film grown epitaxially on LaAlO/sub 3/ by laser ablation has been determined from data measured at 87GHz by closed cavity method. At T=77K an effective surface resistance of (30±8) mOmega was measured resulting in a corresponding value in the limit of infinite film thickness of (15±8) mOmega.

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