Abstracts

Millimeter Wave Absorption of Y-Ba-Cu Based High TC Superconductors

Z. Shi-ping, J. Bian-jun, G. jin-mo, B. Jia-shan, A. Jabbar and C.S. Ahmad. "Millimeter Wave Absorption of Y-Ba-Cu Based High TC Superconductors." 1992 MTT-S International Microwave Symposium Digest 92.2 (1992 Vol. II [MWSYM]): 1023-1026.

Microwave absorption of the Yttrium-barium-copper oxides have been measured by using an open resonator technique in the temperature range of 20 K to samples critical temperatures and beyond. The samples with the start stoichiometries characterized as Y/sub 4/Ba/sub 7/Cu/sub 11/O/sub x/ Y/sub 5/Ba/sub 6/Cu/sub 11/O/sub x/ YBa/sub 2/Cu/sub 3/O/sub x/ and Y/sub 2/Ba/sub 4/Cu/sub 8/O/sub x/ have indicated a sharp drop in their temperature dependent surface resistance or the normal to superconducting phase transition with the range of 84 to 92 K, and the "123" sample shows a highest Tc as well as a lowest residual Rs, which is shown not only an intrinsic property of those materials but is associated with impurity phases or interfaces. significant absorption in the understudied materials was observed at temperature well below Tc, which may be associated with the intrinsic behavior of the materials despite of its sample dependent. We suggest that the anisotropy showing both in structure and electromagnetic behavior of these materials might be one of the dominate factors.

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