Abstracts

Power dependence of HTS disk-resonator quality factor

O.G. Vendik and I.B. Vendik. "Power dependence of HTS disk-resonator quality factor." 1998 Transactions on Microwave Theory and Techniques 46.6 (Jun. 1998 [T-MTT]): 851-856.

The simple closed-form model of nonlinear response of a high-temperature superconducting disk resonator on microwave power is proposed. The model is based on superconducting film nonlinearity and describes the dependence of unloaded quality factor on the incident power. The specified normalizing power is used as the only fitting parameter. Good quantitative agreement of modeled and measured data has been obtained. The results observed exhibit the kinetic nature of the nonlinearity of the disk resonator on an LaAlO/sub 3/ substrate at T=60 K and more complicated, presumably thermal, heating nature of the nonlinearity at lower temperature.

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