

OPEN RESONATOR MEASUREMENTS ON FERROELECTRIC AND SUPERCONDUCTING THIN FILMS

R. Heidinger⁽¹⁾, **I. Danilov**⁽²⁾

*(1) Forschungszentrum Karlsruhe, Institute for Materials Research, P.O. Box 3640,
D-76227 Karlsruhe, Germany, E-mail:roland.heidinger@imf.fzk.de*

(2) As (1) above, but E-mail:roland.heidinger@imf.fzk.de

ABSTRACT

The open resonator technique is a powerful method to measure the material properties in the upper microwave range. Typically it is used for low-loss dielectrics where permittivity (ϵ_r) and dielectric loss tangent ($\tan\delta$) are quantified with low levels of uncertainty. The potential of this method is applicable to conductive materials, in particular superconducting thin films, which are qualified in terms of their effective surface resistance R_s . A novel approach allows the description of dielectric layers on dielectric substrates. Thus, the properties of materials with pronounced dielectric absorption or with very high permittivity, for example ferroelectric thin films, can be determined.