

thinfilms and NEW IDEAS for SRF

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A simple model for the RF field dependence of the trapped flux sensitivity based on a non-linear pinning force

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Recently, the improvement of RF superconducting cavities performances has motivated a considerable research effort to elucidate the effect of trapped magnetic flux. Here we will show that by introducing a non-linear pinning force in the Gittleman-Rosenblum equations for the RF power dissipation due to an external trapped magnetic field in a superconductor, we can describe most of the common experimental features. In particular, the linear dependence on the RF field amplitude, the proportionality between the RF-field-dependent and independent parts, and the frequency dependence of stem naturally from this approach.

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