# Abstracts

## Electromagnets of Superconductors

*K.K. Mei and G.-C. Liang. "Electromagnets of Superconductors." 1991 Transactions on Microwave Theory and Techniques 39.9 (Sep. 1991 [T-MTT] (Special Issue on Microwave Applications of Superconductivity)): 1545-1552.*

The purpose of studying the electromagnetic behavior of superconductors is to identify the relevant material parameters of superconductive media and to examine their effects in the solution of classical electromagnetic boundary value problems. It is shown that a superconductor cannot be simply treated as a low loss conductor; rather, it should be treated as a negative dielectric material (with a negative dielectric constant). This approach is good only for vanishingly small field application with frequency significantly smaller than gap frequency, f/sub c/, and temperature not too close to the critical temperature, T/sub c/, of the superconductor. The electromagnetic of negative dielectric materials are discussed in terms of causality, perturbation technique, surface impedance, time-domain interpretation of current components, and computational electrodynamics.

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