# Abstracts

## Generalized Spectral-Domain Analysis for Multilayered Complex Media and High-Tc Superconductor Applications

*Z. Cai and J. Bornemann. "Generalized Spectral-Domain Analysis for Multilayered Complex Media and High-Tc Superconductor Applications." 1992 Transactions on Microwave Theory and Techniques 40.12 (Dec. 1992 [T-MTT] (1992 Symposium Issue)): 2251-2257.*

An efficient algorithm to rigorously derive the spectral-domain impedance dyadic Green's function for MMIC's on general complex anisotropic or bi-anisotropic substrates is developed. The main advantage of the applied technique is that it provides closed-form expressions for transverse propagation constants and related immittances in the spectral domain and, therefore, allows the following parameters to be taken into account: dielectric and magnetic losses of anisotropic or bi-anisotropic media without restrictions to the magnitude of tensor elements, alternative directions for magnetic bias, the finite metallization thickness of conventional conductors and/or superconductors including their losses, microstrip and coplanar waveguide structures in open, shielded and conductor-backed technology. The theory is verified by comparison with previously published data. The flexibility is demonstrated for both superconductor and conventional conductor (M)MIC structures on ferrite-dielectric or bi-anisotropic substrates with different directions for magnetic bias. The CPU time is 10-20 seconds per frequency sample on a modern workstation.

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