Abstracts

Full-Wave Nonlinear Analysis of Microwave Superconductor Devices : Application to Filters

M.A. Megahed and S.M. El-Ghazaly. "Full-Wave Nonlinear Analysis of Microwave Superconductor Devices : Application to Filters." 1995 MTT-S International Microwave Symposium Digest 95.3 (1995 Vol. III [MWSYM]): 1265-1268.

A full-wave three-dimensional nonlinear HTS finite-difference time-domain electromagnetic simulator is developed. The HTS nonlinear model, based on the Ginzburg-Landau theory, is blended with Maxwell's equations. The analysis is performed in time domain, which is necessary for modeling the nonlinear aspects of microwave superconductor devices. The fields in the superconducting device are calculated. Interesting aspects of the nonlinearity in a superconducting material are observed. Applications to microstrip line and filters are presented.

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