Abstracts

Magnetostatic Surface-Wave Propagation in Ferrite Thin Films with Arbitrary Variations of the Magnetization Through the Film Thickness

N.E. Buris and D.D. Stancil. "Magnetostatic Surface-Wave Propagation in Ferrite Thin Films with Arbitrary Variations of the Magnetization Through the Film Thickness." 1985 Transactions on Microwave Theory and Techniques 33.6 (Jun. 1985 [T-MTT]): 484-491.

A variational formulation for the magnetostatic problem in an anisotropic and inhomogeneous region bounded by perfect conductors is described. The method is applied to the special case of magnetostatic surface-wave (MSSW) modes propagating in a ferrite thin film with arbitrary variations of the saturation magnetization through the film thickness. Methods for calculating dispersion relations, delay characteristics, and magnetostatic potential functions are discussed. The functional that is minimized is interpreted in terms of contributions to the mode energy. Also, concepts pertaining to homogeneous films such as mode bandwidth and dimensional scaling effects are extended to the general inhomogeneous case. Calculations for a two-layer film with a gradual transition region and an ion-implanted film are presented as numerical examples.

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