Abstracts

Numerical Analysis and Computer Simulation of Magnetostatic Wave Propagation in a YIG-Loaded Waveguide

Magnetostatic Wave (MSW) propagation in a finite-width ferrite slab placed inside and along a rectangular wave-guide is investigated theoretically and numerically. Using the integral equation method, the general solution to the problem of wave propagation has been derived for the first time here in this paper. Thin-slab approximation made the derived solution more tractable and provided the dispersion relations in terms of an infinite determinant. From the presented results, it can be concluded that in order to obtain high value of group time delay over a large bandwidth thin, narrow slabs placed in the center of the guide must be used. On the other hand, to maximize the device bandwidth, thin slabs placed at the top or bottom of the guide are most appropriate.

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