Abstracts

Analysis of Waveguiding Structures Employing Surface Magnetoplasmons by the Finite-Element Method (Short Papers)

N. Mohsenian, T.J. Delph and D.M. Bolle. "Analysis of Waveguiding Structures Employing Surface Magnetoplasmons by the Finite-Element Method (Short Papers)." 1987 Transactions on Microwave Theory and Techniques 35.4 (Apr. 1987 [T-MTT]): 464-468.

The dispersion relation and electromagnetic field distributions for a gyroelectrically loaded waveguiding structure are obtained utilizing finite-element techniques. The structure considered consists of two layers, one a dielectric and the other a semiconductor, bounded by two perfectly conducting planes. The finite-element solution for the lowest real branches in the dispersion spectrum was compared against a numerical solution of the exact dispersion equation, and excellent agreement was found between the two. The structure, exhibiting nonreciprocal behavior, provides a suitable canonical model for the design of circuit components such as circulators, isolators, and phase shifters.

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