

# Abstracts

## Characteristics of guided and leaky waves on multilayer thin-film structures with planar material gratings

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*H.Y.D. Yang. "Characteristics of guided and leaky waves on multilayer thin-film structures with planar material gratings." 1997 Transactions on Microwave Theory and Techniques 45.3 (Mar. 1997 [T-MTT]): 428-435.*

This paper presents the characteristics of guided (surface) waves and leaky waves on multilayer structures with planar implanted periodic dielectric blocks. A three-dimensional (3-D) integral-equation formulation in conjunction with the method of moments (MoM's) is used to find the propagation constants of the surface-wave and leaky-wave modes. The analysis deals with layered structures with irregular implants. Photonic band-gaps of both guided waves and leaky waves for rectangular air-implants are identified. Anisotropic properties of the surface waves and leaky waves are investigated. The design of leaky-wave antennas with the information of mode characteristics is discussed. The analysis is validated through the comparison with a low-frequency effective-medium approach and results for linear gratings.

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