Abstracts

Rigorous, Full-Vectorial Source-Type Integral Equation Analysis of Circularly Curved Channel Waveguides

H.J.M. Bastiaansen, J.M. van der Keur and H. Blok. "Rigorous, Full-Vectorial Source-Type Integral Equation Analysis of Circularly Curved Channel Waveguides." 1995 Transactions on Microwave Theory and Techniques 43.2 (Feb. 1995 [T-MTT]): 401-409.

A source-type integral equation method is presented to determine the propagation constants, the radiation losses, and the electromagnetic field distributions of the discrete ("guided") modes in circularly curved, integrated optical channel waveguides embedded in a homogeneous background. The method can be extended to the case of a multilayered background, e.g. a ridge waveguide. The source-type integral equation forms an eigenvalue problem, where the electric field strength represents the eigenvector. This problem is solved numerically by applying the method of moments. Numerical results are presented for various rectangular channel waveguides situated in a homogeneous embedding and compared with those of other modeling methods.

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