Abstracts

Radiation Modes and Step Discontinuities in Dielectric Rib Waveguide

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Dielectric rib waveguides are common transmission lines in integrated optics, with interesting possibilities for millimetrics. Guided modes of uniform lines have been extensively investigated. In actual circuits, discontinuities or bends produce radiation from the waveguide, that can not be explained by means of the guided modes alone and inclusion of the continuous spectrum is essential in understanding the physical effects that arise there. In this work, we introduce the continuum of the rib waveguide, a part of the spectrum that was not reported up to date. The theory is applied to the abrupt step discontinuity in the E-plane of the rib guide under LSE polarization and to the abrupt termination problem, including radiative effects never investigated before.

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