Abstracts

New Leaky Surface Waves in Anisotropic Metal-Diffused Optical Waveguides

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Propagation of guided waves in anisotropic metal-diffused optical waveguide is investigated. Two-dimensional guide-mode dispersion curves are computed and classified for a metal-diffused waveguide with arbitrary optic-axis orientation in various diffusion depth. It is found that a new leaky surface wave exists in the region where the refractive index is above the cutoff value, not below it. Typical values of decay constant are about 5 dB/cm for the wave propagating along X axis on 128° rotated Y-cut LiNbO/sub 3/, and 35 dB/cm for the wave propagating along the direction making an angle of 70° to X axis on Y-cut plane LiNbO/sub 3/. We were able to observe the leaky surface waves experimentally.

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