Abstracts

Coupling Between an Abruptly Terminated Optical Fiber and a Dielectric Planar Waveguide

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The coupling between an optical fiber and a dielectric planar waveguide is analyzed when both guides are terminated abruptly and are facing each other. Mixed spectrum eigenwave representations of fields are employed inside the waveguides while Fourier integrals are utilized to describe the field in the space between the two guides. A coupled system of integral equations is derived by satisfying the boundary conditions on the terminal planes of both waveguides. A weak guidance approximation is assumed to facilitate the analysis. Numerical results are presented for several coupling geometries. Misalignment losses and coupling optimization phenomena are investigated.

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