Abstracts

Degree of Polarization in Anisotropic Single-Mode Optical Fibers: Theory

J.-I. Sakai, S. Machida and T. Kimura. "Degree of Polarization in Anisotropic Single-Mode Optical Fibers: Theory." 1982 Transactions on Microwave Theory and Techniques 30.4 (Apr. 1982 [T-MTT] (Joint Special Issue on Optical Guided Wave Technology)): 334-341.

The degree of polarization for propagation waves in anisotropic single-mode fibers is formulated in terms of light source spectrum, incident polarization condition, and fiber parameters. The polarization degree deterioration is based on the incident wave split into two eigenpolarization modes inherent in the fiber. Since the two eigenpolarization modes have different group velocities from each other, the degree of polarization is degraded when both of the modes are excited. Polarization degree is preserved when only one of the eigenpolarization modes is excited. The degradation is determined by the mutual correlation function gamma, between the two modes, which depends on the light source spectra, fiber polarization dispersion, and fiber length.

❑ Return to main document.