Abstracts

Development of Low- and High-Birefringence Optical Fibers

D.N. Payne, A.J. Barlow and J.J. Ramskov Hansen. "Development of Low- and High-Birefringence Optical Fibers." 1982 Transactions on Microwave Theory and Techniques 30.4 (Apr. 1982 [T-MTT] (Joint Special Issue on Optical Guided Wave Technology)): 323-334.

The polarization properties of single-mode optical fibers are easily modified by environmental factors. While this can be exploited in a number of fiber sensor devices, it can be troublesome in applications where a stable output polarization-state is required. Fibers with both low and high birefringence have been developed to enhance or diminish their environmental sensitivity, and recent progress in each area is reviewed. Low-birefringence fibers are described which are made by spinning the preform during the draw. In addition, developments in high-birefringence fibers which maintain a polarization state over long lengths are summarized. The effect on performance of external factors such as bends, transverse pressure, and twists is analyzed. Consideration is also given to polarization mode-dispersion as a potential limiting factor in ultrahigh bandwidth systems.

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