Abstracts

Techniques and Formulations for Mode Coupling of Multimode Optical Fibers

K. Tatekura, K. Itoh and T. Matsumoto. "Techniques and Formulations for Mode Coupling of Multimode Optical Fibers." 1978 Transactions on Microwave Theory and Techniques 26.7 (Jul. 1978 [T-MTT]): 487-493.

Mode coupling, caused by random variations of core index or random irregularities of the fiber wall, influences the transmission characteristics of multimode optical fibers in a complicated way. The effects of mode coupling in multimode optical fibers have been reported using coupled power equations or power flow equations, and the good agreement between theoretical and experimental results provides further evidence that the power flow equation is a useful description of the power distribution in a multimode optical fiber. From these situations, it would be useful to develop general means to analyze power flow equations. In this paper, a means applicable to any coupling mechanism for treating the effects of mode coupling is given together with formal solutions.

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