Determining the group velocity dispersion by field analysis for the LP0X, LP1X, and LP2X mode groups independently of the fiber length: applications to step-index fibers

By knowing the electric field distribution of a guided mode in an optical fiber, we are able to evaluate the group velocity dispersion in a weakly guiding step-index fiber for a pure mode in the LP0X, LP1X, and LP2X mode groups independently of the fiber length. We demonstrate the method numerically for all three mode groups.

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