Abstract

Moustafa Hussein Aly

On Soliton Transmission in Nonlinear Inhomogeneous Graded-Refractive Index Media

This paper investigates the soliton transmission of optical pulses in nonlinear inhomogeneous graded-refractive index fibers (biquadratic profile). Avoiding the lin~ar fashion approximation, the radial dependence of the field is treated. The obtained solutions are parametrically controlled in such a manner that both the light and dark solitons exist in both normal and anomalous dispersion regions. The controlling parameters affect the power required to achieve soliton propagation, the bit rate, and the group velocity.