

Propagation of W Shaped of Solitons in Fiber Bragg Gratings

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Abstract : We present solitary wave solutions for the perturbed nonlinear Schrodinger (PNLS) equation describing propagation of femtosecond light pulses through the fiber Bragg grating structure where the pulse dynamics is governed by the nonlinear-coupled mode (NLCM) equations. Using the multiple scale analysis, we reduce the NLCM equations into the perturbed nonlinear Schrodinger (PNLS) type equation. Unlike the reported solitary wave solutions of the PNLs equation, the novel ones can describe W shaped of solitons and their properties.

Keywords : fiber bragg grating, nonlinear-coupled mode equations, w shaped of solitons, PNLs

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