World Academy of Science, Engineering and Technology
International Journal of Mathematical and Computational Sciences
Vol:14, No:12, 2020

Soliton Solutions of the Higher-Order Nonlinear Schrödinger Equation with Dispersion Effects

Authors : H. Triki, Y. Hamaizi, A. El-Akrmi

Abstract : We consider the higher order nonlinear Schrödinger equation model with fourth-order dispersion, cubic-quintic terms, and self-steepening. This equation governs the propagation of fem to second pulses in optical fibers. We present new bright and dark solitary wave type solutions for such a model under certain parametric conditions. This kind of solution may be useful to explain some physical phenomena related to wave propagation in a nonlinear optical fiber systems supporting high-order nonlinear and dispersive effects.

Keywords : nonlinear Schrödinger equation, high-order effects, soliton solution
Conference Title : ICSRD 2020 : International Conference on Scientific Research and Development
Conference Location : Chicago, United States
Conference Dates : December 12-13, 2020