

New Solitary-Wave Solutions for the Generalized Reaction Duffing Model and their Dynamics

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We find new analytic solitary-wave solutions, having a nonzero background at infinity, of the generalized reaction Duffing model using the auxiliary function method. We study the dynamical properties of the solitary-waves by numerical simulations. It is shown that the solitary-waves can be stable or unstable depending on the coefficients of the model. We study the interaction dynamics by using the solitary-waves as initial profiles to show that the nonlinear terms may act as an effective driving force. – PACS numbers: 03.40.Kf, 02.30.Jr, 47.20.Ky, 52.35.Mw

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