Half-optical-cycle damped solitons in quadratic nonlinear media

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Résumé en anglais	In this paper, Using a classical model of the radiation-matter interaction, we show that the propagation of (1 + 1) dimensional few-optical-cycle pulses in quadratic nonlinear media, taking moderate absorption into account, can be described by the Korteweg–de Vries-Burgers' (KdVB) equation without using the slowly varying envelope approximation. To fulfill this purpose we use the reductive perturbation method and consider the long-wave approximation, assuming that the characteristic frequency of the pulse is much lower than the resonance frequency of the atoms. We also study both analytical and numerical solution of the KdVB equation describing damped few-optical-cycle soliton propagation.
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