



Soliton solutions of nonlinear diffusion-reaction-type equations with time-dependent coefficients accounting for long-range diffusion

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Résumé en anglais	<p>We investigate three variants of nonlinear diffusion-reaction equations with derivative-type and algebraic-type nonlinearities, short-range and long-range diffusion terms. In particular, the models with time-dependent coefficients required for the case of inhomogeneous media are studied. Such equations are relevant in a broad range of physical settings and biological problems. We employ the auxiliary equation method to derive a variety of new soliton-like solutions for these models. Parametric conditions for the existence of exact soliton solutions are given. The results demonstrate that the equations having time-varying coefficients reveal richness of explicit soliton solutions using the auxiliary equation method. These solutions may be of significant importance for the explanation of physical phenomena arising in dynamical systems described by diffusion-reaction class of equations with variable coefficients.</p>
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- [1] <http://okina.univ-angers.fr/publications?f%5Bauthor%5D=23980>
- [2] <http://okina.univ-angers.fr/herve.leblond/publications>
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