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New Exact Solutions of a Generalized Shallow Water Wave Equation

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(Submitted on 18 Feb 2010)

In this work an extended Jacobian elliptic function method is proposed and applied to the generalized shallow water wave equation. We systematically investigate to classify new exact travelling wave solutions expressible in terms of quasi-periodic elliptic integral function and doubly-periodic Jacobian elliptic functions. The derived new solutions include rational, periodic, singular and solitary wave solutions. An interesting comparison with the canonical procedure is provided. A detailed discussion is given about the physical viability of the singular solutions obtained through our procedure.

Comments:	8 pages, no figure
Subjects:	**Exactly Solvable and Integrable Systems (nlin.SI)**; Mathematical Physics (math-ph); Pattern Formation and Solitons (nlin.PS)
Cite as:	**arXiv:1002.3412v1** [nlin.SI]

Submission history

From: Asish Ganguly [view email]

[v1] Thu, 18 Feb 2010 00:54:44 GMT (13kb)

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