

## Jacobian Elliptic Function Method and Solitary Wave Solutions for Hybrid Lattice Equation

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**Abstract:** In this paper, we have successfully extended the Jacobian elliptic function expansion approach to nonlinear differential-difference equations. The Hybrid lattice equation is chosen to illustrate this approach. As a consequence, twelve families of Jacobian elliptic function solutions with different parameters of the Hybrid lattice equation are obtained. When the modulus  $m \rightarrow 1$  or  $0$ , doubly-periodic solutions degenerate to solitonic solutions and trigonometric function solutions, respectively.

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**Key words:** extended Jacobian elliptic function expansion approach, hybrid lattice equation, Jacobian elliptic function solutions, solitonic solutions, trigonometric function solutions

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