Applications of Jacobi Elliptic Function Expansion Method for Nonlinear Differential-Difference Equations

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Abstract: The Jacobi elliptic function expansion method is extended to derive the explicit periodic wave solutions for nonlinear differential-difference equations. Three well-known examples are chosen to illustrate the application of the Jacobi elliptic function expansion method. As a result, three types of periodic wave solutions including Jacobi elliptic sine function, Jacobi elliptic cosine function and the third elliptic function solutions are obtained. It is shown that the shock wave solutions and solitary wave solutions can be obtained at their limit condition.

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