

## The Application of Variable Coefficient Jacobian elliptic Function Method to Differential-Difference Equations

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**Abstract :** In modern nonlinear science and textile engineering, nonlinear differential-difference equations are often used to describe some nonlinear phenomena. In this paper, we extend the variable coefficient Jacobian elliptic function method, which was used to find new exact travelling wave solutions of nonlinear partial differential equations, to nonlinear differential-difference equations. As illustration, we derive two series of Jacobian elliptic function solutions of the discrete sine-Gordon equation.

**Keywords :** discrete sine-Gordon equation, variable coefficient Jacobian elliptic function method, exact solutions, equation

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