

Periodic Structures Based on the Symmetrical Lucas Function of the (2+1)-Dimensional Dispersive Long-Wave System

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By introducing the Lucas Riccati method and a linear variable separation method, new variable separation solutions with arbitrary functions are derived for a (2+1)-dimensional dispersive long-wave system. The main idea of this method is to express the solutions of this system as polynomials in the solution of the Riccati equation that satisfies the symmetrical Lucas functions. From the variable separation solution and by selecting appropriate functions, some novel Jacobian elliptic wave structures and periodic wave evolutionary behaviours are investigated.

Key words: Lucas Functions; Variable Separation Excitations; DLW System; Periodic Structure.

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