

# A New Riccati Equation Rational Expansion Method and Its Application

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A Riccati equation rational expansion (RERE) method is presented by a general ansatz, which is a direct and unified algebraic method for constructing multiple and more general travelling wave solutions of nonlinear partial differential equations. It can be implemented in a computer algebraic system. The proposed method is applied to consider the shallow long wave approximation equation and leads to a rich variety of exact solutions, including rational form solitary wave solutions, triangular periodic wave solutions and rational wave solutions.

*Key words:* Travelling Wave Solution; Riccati Equation Rational Expansion Method;  
Rational Form Solitary Wave Solutions.