

Solving Integrable Broer-Kaup Equations in (2+1)-Dimensional Spaces via an Improved Variable Separation Approach

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Abstract: Starting from Backlund transformation and using Cole-Hopf transformation, we reduce the integrable Broer-Kaup equations in (2+1)-dimensional spaces to a simple linear evolution equation with two arbitrary functions of $\{x, t\}$ and $\{y, t\}$ in this paper. And we can obtain some new solutions of the original equations by investigating the simple nonlinear evolution equation, which include the solutions obtained by the variable separation approach.

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Key words: integrable Broer-Kaup equations in (2+1)-dimensional spaces, Backlund transformation, Cole-Hopf transformation, variable separation approach, coherent structures

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