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# Variable-Coefficient Hyperbola Function Method and Its Application to (2+1)-Dimensional Variable-Coefficient Broer-Kaup System

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Abstract: Based on a new intermediate transformation, a variable-coefficient hyperbola function method is proposed. Being concise and straightforward, it is applied to the (2+1)-dimensional variable-coefficient Broer-Kaup system. As a result, several new families of exact soliton-like solutions are obtained, besides the travelling wave. When imposing some conditions on them, the new exact solitary wave solutions of the (2+1)-dimensional Broer-Kaup system are given. The method can be applied to other variable-coefficient nonlinear evolution equations in mathematical physics.

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