

Explicit N-Fold Darboux Transformations and Soliton Solutions for Nonlinear Derivative Schrödinger Equations

FAN En-Gui^{1,2}

¹ Institute of Mathematics, Fudan University, Shanghai 200433, China

² Department of Mathematics, Zhangjiakou Agricultural College, Zhangjiakou 075131, China
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Abstract: An explicit N-fold Darboux transformation for a coupled of derivative nonlinear Schrödinger equations is constructed with the help of a gauge transformation of spectral problems. As a reduction, the Darboux transformation for well-known Gerdjikov-Ivanov equation is further obtained, from which a general form of N-soliton solutions for Gerdjikov-Ivanov equation is given.

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Key words: derivative nonlinear Schrödinger equations, Gerdjikov-Ivanov equation, N-fold Darboux transformation, N-soliton solution

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