Lie symmetry analysis for complex soliton solutions of coupled complex Short Pulse equation

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Abstract

The current work is devoted for operating the Lie symmetry approach, to coupled complex short pulse equation. The method reduces the coupled complex short pulse equation to a system of ordinary differential equations with the help of suitable similarity transformations. Consequently, these systems of nonlinear ordinary differential equations under each subalgeras are solved for traveling wave solutions. Further, with the help of similarity variable, similarity solutions and traveling wave solutions of nonlinear ordinary differential equation, complex soliton solutions of the coupled complex short pulse equation are obtained which are in form of sinh, cosh, sin and cos functions.

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