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Restudy of Structures and Interactions of Solitons in (2+1)-Dimensional Nizhnik-Novikov-Veselov Equations

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Abstract: Some new structures and interactions of solitons for the (2+1)-dimensional Nizhnik-Novikov-Veselov equation are revealed with the help of the idea of the bilinear method and variable separation approach. The solutions to describe the interactions between two dromions, between a line soliton and a y-periodic soliton, and between two y-periodic solitons are included in our results. Detailed behaviors of interaction are illustrated both analytically and in graphically. Our analysis shows that the interaction properties between two solitons are related to the form of interaction constant. The form of interaction constant and the dispersion relationship are related to the form of the seed solution $\{u_0, v_0, w_0\}$ in Bäcklund transformation.

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