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Evolution Property of Multisoliton Excitations for a Higher-Dimensional Coupled Burgers System

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Abstract: By means of the standard truncated Painlevé expansion and a special Bäcklund transformation, the higher-dimensional coupled Burgers system (HDCB) is reduced to a linear equation, and an exact multisoliton excitation is derived. The evolution properties of the multisoliton excitation are investigated and some novel features or interesting behaviors are revealed. The results show that after interactions for dromion-dromion, solitoff-solitoff, and solitoff-dromion, they are combined with some new types of localized structures, which are similar to classic particles with completely nonelastic behaviors.

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