Variable Separation Approach to Solve (2+1)-Dimensional Generalized Burgers System: Solitary Wave and Jacobi Periodic Wave Excitations

ZHENG Chun-Long

Department of Physics, Zhejiang Lishui Normal College, Lishui 323000, China
Shanghai Institute of Mathematics and Mechanics, Shanghai University, Shanghai 200072, China
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Abstract: By means of the standard truncated Painlev\'{e} expansion and a variable separation approach, a general variable separation solution of the generalized Burgers system is derived. In addition to the usual localized coherent soliton excitations like dromions, lumps, rings, breathers, instantons, oscillating soliton excitations, peakons, foldons, and previously revealed chaotic and fractal localized solutions, some new types of excitations --- compacton and Jacobi periodic wave solutions are obtained by introducing appropriate lower dimensional piecewise smooth functions and Jacobi elliptic functions.

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