Exact Solutions and Localized Excitations of Burgers System in (3+1) Dimensions

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With the help of a Cole-Hopf transformation, the nonlinear Burgers system in (3+1) dimensions is reduced to a linear system. Then by means of the linear superposition theorem, a general variable separation solution to the Burgers system is obtained. Finally, based on the derived solution, a new type of localized structure, i.e., a solitonic bubble is revealed and some evolutional properties of the novel localized structure are briefly discussed.

Key words: Cole-Hopf Transformation; (3+1)-Dimensional Burgers System; Solitonic Bubble; Evolutional Behaviour.

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