2003 Vol.40 No.4 pp.385-389 DOI:

Folded Localized Excitations in a Generalized (2+1)-Dimensional Perturbed Nonlinear SchrÖdinger System

ZHENG Chun-Long,[1,2] ZHANG Jie-Fang,[2,3] and CHEN Li-Qun[2]

[1] Department of Physics, Zhejiang Lishui Normal College, Lishui 323000, China
[2] Shanghai Institute of Mathematics and Mechanics, Shanghai University, Shanghai 200072, China
[3] Institute of Nonlinear Physics, Zhejiang Normal University, Jinhua 321004, China
(Received: 2003-2-11; Revised:)

Abstract: Starting from a special Bäcklund transform and a variable separation approach, a quite general variable separation solution of the generalized (2+1)-dimensional perturbed nonlinear Schrödinger system is obtained. In addition to the single-valued localized coherent soliton excitations like dromions, breathers, instantons, peakons, and previously revealed chaotic localized solution, a new type of multi-valued (folded) localized excitation is derived by introducing some appropriate lower-dimensional multiple valued functions.

PACS: 03.65.Ge, 05.45.Yv
Key words: perturbed nonlinear Schrödinger equation, variable separation approach, foldon

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