

# New Types of Solitons with Fusion and Fission Properties in the (2+1)-Dimensional Generalized Broer-Kaup System

Chao-Qing Dai and Jun-Lang Chen

Department of Information Physics, School of Sciences, Zhejiang Forestry University,  
Lin'an 311300, People's Republic of China

Reprint requests to C.-Q. D.; E-mail: dcq424@126.com

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In this paper, by virtue of a special Painlevé-Bäcklund transformation and the linear superposition theorem, the general variable separation solution with an arbitrary number of variable separated functions of the generalized Broer-Kaup (GBK) system is obtained. Based on the general variable separation solution with some suitable variable separated functions, new types of the V-shaped soliton fusion and Y-shaped soliton fission are firstly investigated. – PACS numbers: 05.45.Yv, 02.30.Jr, 02.03.Ik

*Key words:* (2+1)-Dimensional GBK System; V-Shaped Soliton Fusion; Y-Shaped Soliton Fission.