Solitons with Fusion and Fission Properties in the (2+1)-Dimensional Modified Dispersive Water-Wave System

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In this paper, by means of the general projective Riccati equation method (PREM), the variable separation solutions of the (2+1)-dimensional modified dispersive water-wave system are obtained. By further studying, we find that these variable separation solutions, which seem independent, actually depend on each other. Based on the special variable separation solution and choosing suitable functions p and q, soliton fusion and fission phenomena among peakons, compactons, dromions and semifoldons are firstly investigated. – PACS numbers: 05.45.Yv, 02.30.Jr, 02.03Ik

Key words: General Projective Riccati Equation Method; (2+1)-Dimensional MDWW System; Soliton Fusion; Soliton Fission.