

The Structures and the Interactions of Soliton in two (2+1)-dimensional KdV-type Equations

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Z. Naturforsch. **59a**, 14 – 22 (2004); received September 10, 2003

Exact solutions in two (2+1)-dimensional KdV-type (Sawada-Kotera and Boussinesq) equations are presented by using the bilinear method. The N-breather solution, the solution to describe the interaction between a line soliton and a y -periodic soliton, and the solution to express the interaction between two y -periodic solitons are included in our results. Detailed behavior of interactions between a line soliton and a y -periodic soliton for the SK equation and between two y -periodic solitons for the BS equation are illustrated both analytically and graphically. For these two equations, we only discuss the repulsive interaction keeping the shapes of the soliton unchanged.

Key words: Interactions between two Solitons; Sawada-Kotera Equation; Boussinesq Equation.