

## Higher-Dimensional KdV Equations and Their Soliton Solutions

ZHANG Yu-Feng,<sup>1</sup> Tam Honwah,<sup>2</sup> and ZHAO Jing<sup>3</sup>

<sup>1</sup> School of Mathematics, Liaoning Normal University, Dalian 116029, China

<sup>2</sup> Department of Computer Science, Hong Kong Baptist University, Hong Kong, China

<sup>3</sup> Information School, Dalian University, Dalian 116622, China

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**Abstract:** A (2+1)-dimensional KdV equation is obtained by use of Hirota method, which possesses N-soliton solution, specially its exact two-soliton solution is presented. By employing a proper algebraic transformation and the Riccati equation, a type of bell-shape soliton solutions are produced via regarding the variable in the Riccati equation as the independent variable. Finally, we extend the above (2+1)-dimensional KdV equation into (3+1)-dimensional equation, the two-soliton solutions are given.

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Key words: bilinear operator, KdV equation, soliton equation

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