2004 Vol.41 No.6 pp.821-828 DOI:

New Exact Travelling Wave Solutions to Hirota Equation and (1+1)-Dimensional Dispersive Long Wave Equation

WANG Qi,[1,4] CHEN Yong,[2,3,4] LI Biao,[1,4] and ZHANG Hong-Qing[1,4]

[1] Department of Applied Mathematics, Dalian University of Technology, Dalian 116024, China
[2] Department of Physics, Ningbo University, Ningbo 315211, China
[3] Department of Physics, Shanghai Jiao Tong University, Shanghai 200030, China
[4] Key Laboratory of Mathematics and Mechanization, the Chinese Academy of Sciences, Beijing 100080, China
(Received: 2003-9-2; Revised: 2003-11-18)

Abstract: Based on the computerized symbolic Maple, we study two important nonlinear evolution equations, i.e., the Hirota equation and the (1+1)-dimensional dispersive long wave equation by use of a direct and unified algebraic method named the general projective Riccati equation method to find more exact solutions to nonlinear differential equations. The method is more powerful than most of the existing tanh method. New and more general form solutions are obtained. The properties of the new formal solitary wave solutions are shown by some figures.

PACS: 03.40.kf
Key words: projective Riccati equation method, (1+1)-dimensional dispersive long wave equation, Hirota equation