

Series of Analytic Solutions for Burgers-KdV Equation

***Wei Liu, Jing Guo, Haotian Jiang, and Xinli Yan**

School of Science, Xi'an University of Architecture & Technology, Xi'an, China.

*Corresponding author: liuwei1030shy@126.com

Burgers equation and KdV equation are two important equations in fluid field. Burgers-KdV governing equation was proposed to study the inherent law in many fields. Burgers-KdV equation is changed into nonlinear ordinary differential equations based on travelling wave transformation. As a result, new three types of solitary wave solutions and two types of periodic wave solutions for Burgers-KdV equation are successfully derived by means of auxiliary equation, hyperbolic cotangent function expansion, hyperbolic tangent function expansion, cotangent function expansion and tangent function expansion solution methods. These methods can be used to solve other similar characteristic differential equation.

Keywords: Auxiliary equation method, Hyperbolic function expansion method, Trigonometric function expansion method, Travelling wave solutions