Exact Traveling Wave Solutions for the Modified Kawahara Equation

Ahmed Elgarayhi

Theoretical Physics Research Group, Department of Physics, Faculty of Science, Mansoura University, Mansoura 35516, Egypt

Reprint requests to Prof. A. E.; King Saud University, Al-Qassem Branch, College of Science, P.O. Box 237, Bureidah 81999, KSA. E-mail: elgarayhi@yahoo.com

Z. Naturforsch. **60a**, 139 – 144 (2005); received October 21, 2004

The mapping method is used with the aid of the symbolic computation system Mathematica for constructing exact solutions of the modified Kawahara equation. By this method the modified Kawahara equation is investigated and new exact traveling wave solutions are obtained. The solutions obtained in this paper include Jacobi elliptic solutions, combined Jacobi elliptic solutions, solitary wave solutions, periodic wave solutions, trigonometric solutions and rational solutions.

Key words: Modified Kawahara Equation; Periodic Wave Solution; Mapping Method; Jacobi Elliptic Functions.