

Integrability Test and Travelling-Wave Solutions of Higher-Order Shallow-Water Type Equations

Mercedes Maldonado^a, María Celeste Molinero^a,
Andrew Pickering^b, and Julia Prada^a

^a Departamento de Matemáticas, Universidad de Salamanca,
Plaza de la Merced 1, 37008 Salamanca, Spain

^b Departamento de Matemática Aplicada, Universidad Rey
Juan Carlos, C/ Tulipán s/n, 28933 Móstoles, Madrid, Spain

Reprint requests to A. P.; E-mail: andrew.pickering@urjc.es

Z. Naturforsch. **65a**, 353 – 356 (2010);
received March 5, 2009 / revised February 2, 2010

We apply the Weiss-Tabor-Carnevale (WTC) Painlevé test to members of a sequence of higher-order shallow-water type equations. We obtain the result that the equations considered are non-integrable, although compatibility conditions at real resonances are satisfied. We also construct travelling-wave solutions for these and related equations.

Key words: Integrability Tests; Shallow-Water Equations;
Exact Solutions.

MSC2000: 37K10, 35C05