

Inelastic interaction of nearly equal solitons for the quartic gKdV equation

Professor Yvan Martel (Laboratoire de Mathématiques de Versailles)

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Abstract

We will describe rigorously the interaction of two solitons with nearly equal speeds for the quartic (gKdV) equation. By constructing an approximate solution of the problem, we prove that at the main order, the two solitons are preserved by the interaction and that for all time they are separated by a large distance, as in the case of the integrable KdV equation in this regime. However, unlike in the integrable case, we prove that the collision is inelastic.