



复旦大学数学科学学院 数学综合报告会

数学所综合报告

报告题目: Integrable systems with peakon, weak kink, and kink-peakon interactional solutions

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地点: 光华东主楼 1801

摘要: In this work, we study an integrable system with both quadratic and cubic nonlinearity.

This model is kind of a cubic generalization of the Camassa-Holm (CH) equation. The equation is shown integrable with its Lax pair, bi-Hamiltonian structure, and infinitely many conservation laws. In the case of no linear term, the peaked soliton (peakon) and multi-peakon solutions are presented. In particular, the two-peakon dynamical system is explicitly presented and their collisions are investigated in details. In some special case, the weak kink and kink-peakon interactional solutions are found. Significant difference from the CH equation is analyzed through a comparison. In the paper, we also study all possible smooth one-soliton solutions for the system.

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