Integrable System Seminar

One- and Two-dimensional Toda Lattices and Their Applications: Part II

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Abstract

As a continuation of a series talk, I will report my joint work with Dr. Kenichi Maruno and Dr. Y. Ohta at Kobe University, Japan, based on two-dimensional Toda lattice (2DTL). First, I will show how the Hunter-Saxton equation can be derived from 2DTL through hodograph transformation. It follows that N-cuspon solutions are naturally obtained from N-soliton solutions of 2DTL. The Hunter-Saxton equation can be viewed as a short-wave limit of the Camassa-Holm equation. An integrable semi-discretization of the Hunter-Saxtion equation, as well as its N-cuspon solutions, are then constructed.

In the second part, I will show that the short pulse (SP) equation, along with its multi-loop, multi-breather solutions can be obtained from 2DTL. Furthermore, the integrable discretizations of the SP equation are constructed.

Date: **Monday, November 2, 2009**
Time: 3:00pm–4:00pm
Place: MAGC 1.410

For further information or for special accommodations, please contact Dr. Virgil Pierce via email at piercevu@utpa.edu.