THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

SEMINAR ON PURE MATHEMATICS

Ultradiscrete solitary waves

by

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Abstract

In this talk, we begin with a very simple discrete dynamical system, the Takahashi-Satsuma box-ball system. This is described by particles moving in the integers (i.e., a rank 1 lattice) and an ultradiscrete version of the Korteweg-de Vries (KdV) equation. We explore its dynamics, in particular the existence of soliton behavior: chains of particles moving in clusters and keeping their sizes after interactions. We reinterpret this using a particular bracketing rule, and conclude with how this can be generalized using the theory of Kashiwara crystals.

Date : 9 March 2026 (Monday)
Time : 4:00p.m.-5:00p.m.
Venue : Room 1103 (Lift 19)

All are Welcome!