

Integrable System Seminar

Geometry of Integrable Lattice Hierarchies

Dr. Virgil Pierce

Department of Mathematics
University of Texas-Pan American

Abstract

This presentation will be an introduction to (a subset of) the geometry of integrable systems. The main example will be the Toda lattice hierarchy, a classical integrable system which is given by a Lie-Poisson structure induced on the space of tri-diagonal symmetric matrices by the splitting of $\mathfrak{sl}(n)$ into skew-symmetric and lower triangular matrices. We will demonstrate that the geometry of these systems: leads to efficient proofs of integrability, gives useful expressions for explicit solutions of the systems, and that the connection of these equations to algebraic curves has led to combinatoric results with implications for the universality of Gaussian random matrix models.

Date: **Monday, September 21, 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.