BI-CO MATHEMATICS COLLOQUIUM

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"The Toda lattice in algebra and geometry"

Monday, March 24, 2014

Talk at 4:00 – H208
Tea at 3:30 – KINSC Math Lounge, H208

Abstract:
At the crossroads of algebra, geometry, and physics, the Toda lattice is a completely integrable system modeling a chain of particles with exponential nearest-neighbor interactions. While the physics model is the origin of the Toda lattice, this talk will focus on some fascinating connections discovered in recent years between the difference Toda lattice (a system of difference equations) and pure mathematics, namely algebra and geometry. We will explore a powerful algebraic framework for the Toda lattice involving the double affine Hecke algebra and then use this to construct important geometric invariants known as J-functions. The talk will focus on the rank-one case, since the objects are completely explicit in this setting.

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