Mathematical Physics Seminar

Wednesday, Mar 29 1:30 – 2:30pm, UNIV 217

Speaker: Philippe Di Francesco (UIUC Mathematics)

Title: Cluster Algebras, Networks and Integrability

Abstract: Cluster algebras are combinatorial models of discrete time evolution of abstract variables, attached to the nodes of an evolving quiver, and play crucial roles in the geometry of Teichmuller spaces, dimer statistical models, representation theory, and more. In this talk we concentrate on the so-called T-system cluster algebra and the related octahedron recurrence. We show how to explicitly solve such recurrences by means of flat connections thus displaying the hidden integrable nature of the models. This gives an alternative viewpoint on the Lax matrices of Coxeter-Toda quantum systems and their integrable structure.

(based on joint works with Rinat Kedem).