

THE WORLDWIDE CENTER OF MATHEMATICS

Cluster algebras via quivers with potentials



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Friday, September 11, 2009 Coffee, tea, cookies: 3:30pm Talk: 4-5pm

Abstract: Cluster algebras are commutative rings of a special kind making a surprising appearance in a variety of settings, including tilting theory, Poisson geometry, Teichmuller theory, representations of semisimple groups, etc. Their structure is governed by several piecewise-polynomial and rational recurrences on a regular tree. Although these recurrences are quite explicit and elementary, a direct proof of their conjectural properties seems to be hard to find. Jointly with Harm Derksen and Jerzy Weyman we find their representation-theoretic interpretation in terms of quivers with potentials, allowing us to prove most of the conjectures in question. I will try to provide a reasonably self-contained introduction to cluster algebras and quivers with potential.

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All attendees will need to sign a release form, as the lecture will be recorded for distribution on the Web.