COLLOQUIUM

DEPARTMENT OF MATHEMATICS AND STATISTICS
OAKLAND UNIVERSITY
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Bases in Cluster Algebras and their Geometries and Combinatorics

Abstract

Cluster Algebra is a new branch in mathematics which grows rapidly and has far-reaching implications in many fields including representation theory, geometry, combinatorics, mirror symmetry of string theory, statistical physics, etc. Lots of research of cluster algebras focuses on construction of their natural bases. Interesting geometric objects, including the quiver Grassmannians and Nakajima's graded quiver varieties, are used to construct some natural bases. Various combinatorial models are discovered in the study of bases, including snake diagrams and perfect matching, Dyck paths and compatible pairs, and in particular, a recent surprising construction of theta bases by Gross, Hacking, Keel and Kontsevich using techniques developed in the study of mirror symmetry of string theory. In this talk, I will discuss some recent advances in the study of these geometries and combinatorics.

Tuesday, November 17, 2015
3 – 4 PM
Room 135 Dodge Hall

(Refreshments at 2:30-3:00 PM in the kitchen area adjacent to 368 MSC)