



**Speaker:** Michael Gekhtman  
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Friday, April 11, 2014  
4:30 PM  
231 Hayes-Healy Hall

**Title:** Cluster Algebras are Everywhere

**Abstract:**

Cluster algebras are axiomatically defined commutative rings equipped with a distinguished set of generators (cluster variables) subdivided into overlapping subsets (clusters) of the same cardinality subject to some polynomial relations. They were initially introduced by S. Fomin and A. Zelevinsky in 2001 to study total positivity in semisimple algebraic groups. In recent years, it became evident that cluster algebras provide a unifying algebraic and combinatorial framework for a wide variety of phenomena in settings as diverse as quiver representations, category theory, quantum groups, Teichmüller theory, Poisson geometry, tropical geometry, polyhedral combinatorics, statistical physics models, discrete integrable systems, mirror symmetry, and string theory. I will present several examples that illustrate some of these connections.