



**Speaker:** Dylan Rupel  
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8/31/2015  
2:00 PM  
258 Hurley Hall

**Title:** Rank 2 Generalized Cluster Algebras

**Abstract:**

Cluster algebras have risen to prominence as the correct algebraic/combinatorial language for describing recursions which appear in various areas of mathematics including: Poisson geometry, Lie theory, and the representation theory of finite-dimensional algebras. Recently examples have emerged that suggest the study of a larger class of recursions which should fit into the same general framework and promise to become equally ubiquitous.

In this talk I will introduce these generalized cluster algebras in the rank 2 case and describe their basic algebraic structure. From here I will delve into the more intricate structure of the cluster variables, in particular their parametrization by  $g$ -vectors and a relationship to certain classical cluster algebras. Next I will describe the greedy basis of a rank 2 generalized cluster algebra, this is a basis of positive Laurent polynomials with many remarkable properties. Time permitted I will finish my talk with a conjectural categorification of the rank 2 generalized cluster algebras.