



**Speaker:** Eric Bucher  
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Monday, April 16, 2018

4:30 PM

258 Hurley Hall

**Title:** Upper cluster algebras and their connection to ground rings

**Abstract:**

Cluster algebras were first invented by Fomin and Zelevinsky in 2003 to study total positivity of certain canonical bases. Since their inception, applications to a wide variety of areas has been discovered, including: topology, number theory, representation theory, and mathematical physics. One of the most important and fascinating properties of cluster algebras is what is known as the Laurent phenomenon. This states that the cluster algebra is in fact a subalgebra of a certain Laurent ring. One can define the upper cluster algebra as an object that is closely tied to this Laurent phenomenon property. In many instances it turns out that the cluster algebra coincides with its upper cluster algebra. In this talk we will show some new results which illustrate that this question of "when does the upper cluster algebra coincide with the cluster algebra" is in fact very dependent on the choice of ground ring of the cluster algebra. This is joint work with John Machacek and Misha Shapiro.