

Cluster algebras and Nakajima categories.  
Alfredo Nájera

Abstrakt:

Cluster algebras are a particular kind of commutative rings. They were invented by Fomin and Zelevinsky in 2002 in order to provide a combinatorial framework for two important subjects: on the one hand the theory of total positivity in reductive algebraic groups, studied by Lusztig, and on the other hand the theory of canonical bases of quantum groups, studied by Kashiwara and Lusztig. In this talk I will illustrate with examples the origins of cluster algebras. Then I will discuss the additive categorification of cluster algebras and relate this construction with (a categorical version of) Nakajima's graded quiver varieties. This work is part of my PhD thesis directed by Bernhard Keller and Lauren Williams.