

## Cluster algebras and Nakajima's graded quiver varieties

Abstract: Nakajima's graded quiver varieties are complex algebraic varieties associated with quivers. They are introduced by Nakajima in the study of representations of universal enveloping algebras of Kac-Moody Lie algebras, and can be used to study cluster algebras. In the talk, I will explain how to precisely locate the supports of the triangular basis of skew-symmetric rank-2 quantum cluster algebras by applying the decomposition theorem to various morphisms related to quiver varieties, thus prove a conjecture proposed by Lee-Li-Rupel-Zelevinsky in 2014.