Title: Derived McKay correspondence for finite abelian group quotients.

Abstract: Let G be a finite subgroup of $SL(2, \mathbf{C})$. McKay found a correspondence between (1) the quiver consisting of irreducible representations of G that is defined using the tensor product with the natural representation and (2) the extended Dynkin diagram of exceptional curves on the minimal resolution Y of the quotient space $X = \mathbf{C}^2/G$. This phenomena is understood as an equivalence of derived categories between the quotient stack $\tilde{X} = [\mathbf{C}^2/G]$ and Y. Such equivalence is extended to the case of a finite subgroup of $SL(3, \mathbf{C})$ by Bridgeland-King-Reid.

In this talk we consider the case where G is a finite abelian subgroup of $GL(n, \mathbf{C})$. The quotient space $X = \mathbf{C}^n/G$ is a toric variety and there exists a toric terminalization $Y \to X$. We explain how to use the toric minimal model program to prove the following theorem; there exists a semi-orthogonal decomposition of the derived category of the quotient stack $\tilde{X} = [\mathbf{C}^n/G]$ into the derived category of Y and other derived categories of smaller dimensional quotient stacks.

The talk should be friendly to non-experts.