October 26: Dmitriy Boyarchenko (University of Chicago), "Quantization of minimal resolutions of Kleinian singularities."

Let $X = C^2/\Gamma$ be a Kleinian singularity, where Γ is a finite subgroup of $SL_2(C)$. It is known that X admits a (unique) minimal resolution $Y \to X$. We construct a family of noncommutative deformations of Y, and prove that the category of coherent sheaves on each member of the family is equivalent to the category of finitely generated modules over a corresponding noncommutative deformation of the coordinate ring $C[X]$ of X. Thus certain smooth (noncommutative) quantizations of the affine variety X can simultaneously be viewed as quantizations of the non-affine variety Y.

Our construction uses results of Holland which describe noncommutative deformations of $C[X]$ in terms of quantum Hamiltonian reduction, the GIT construction of the minimal resolution Y of X due to Cassens-Slodowy, and the Z-algebra formalism used in a recent work of Gordon-Stafford.