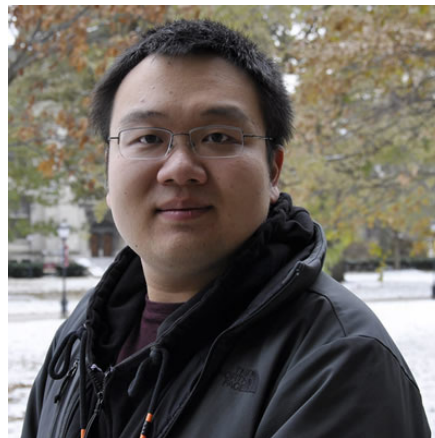


# ***ALGEBRAIC GEOMETRY AND COMMUTATIVE ALGEBRA SEMINAR***

**Speaker: Boming Jia**  
**University of Chicago**



**Date:** Tuesday, January 25, 2022

**Time:** 2:30 PM

**Location:** Zoom

**Zoom URL:** [notredame.zoom.us/j/97739336655?pwd=QmUxd3V2Rndyd0VFNlc0RFBxK0xPQT09](https://notredame.zoom.us/j/97739336655?pwd=QmUxd3V2Rndyd0VFNlc0RFBxK0xPQT09)

**Lecture Title:**

**Geometry of the Affine Closure of  $T^*(SL_n/U)$**

**Abstract**

In this talk, we will discuss geometric properties of the affine closure of the cotangent bundle  $T^*(G/U)$ . We will consider the case  $G = SL_n$ , and show that  $\overline{T^*(SL_n/U)}$  has symplectic singularity (in the sense of Beauville). A double quiver construction of this affine closure by Dancer, Kirwan, Swann will be explained. In particular, when  $n = 3$ , we can use this construction to show that this affine closure  $\overline{T^*(SL_3/U)}$  is isomorphic to the closure of the minimal nilpotent orbit in  $\mathfrak{so}(8, \mathbb{C})$ . Moreover, the quasi-classical Gelfand-Graev action constructed by Ginzburg and Kazhdan, can be identified with the restriction of the triality action on  $\mathfrak{so}(8)$  to the closure of the minimal orbit.