Lecture Title: Geometry of the Affine Closure of $T^*\text{(SL}_n/U)$

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 $so(8,C)$. Moreover, the quasi-classical Gelfand-Graev action constructed by Ginzburg and Kazhdan, can be identified with the restriction of the triality action on $so(8)$ to the closure of the minimal orbit.