

Cohomology of the elliptic Affine Springer Fibers and the rational Cherednik algebras

Alexei Oblomkov
University of Massachusetts

The Affine Springer Fibers from the title are homeomorphic to the compactified Jacobians $JC_{m,n}$ of curves $x^m = y^n$, $(m, n) = 1$. In elementary terms $JC_{m,n}$ is the space of subspaces $L \subset [[t]]$ of codimension $(m-1)(n-1)$ that are preserved by multiplication on t^m and t^n . Together with Zhiwei Yun we described an action of the spherical rational Cherednik algebra $eH_{m/n}(S_n)e$ on $H^*(JC_{m,n})$ and the ring structure of the cohomology. The ring structure is very similar to the ring structure of the finite dimensional Grassmanians, and in my talk I will discuss this analogy and connections with q, t Catalan numbers.