

BEZRUKAVNIKOV'S LECTURES

ROMAN BEZRUKAVNIKOV

The lectures will be divided into two parts. The first one, more basic, will be delivered on Monday. The second part will be delivered on Friday and/or Saturday.

1st part.

- 1) Definition and examples of symplectic resolutions (cotangent bundles to flag varieties – this will be explained in more detail, Slodowy varieties, quiver varieties, resolutions of quotient singularities) and their quantizations.
- 2) General principle that fundamental group of an appropriate domain U in $K^0(\text{Coh}(X))$ should act on $D^b(\text{Coh}(X))$, compatible with the action by deck transformations on Bridgeland stability manifold, which is realized as the universal cover of U . This part will be brief and sketchy.
- 3) Braid groups, affine braid groups and Hecke algebras. Action of the affine braid group/categorical Hecke algebra on $D^b(\text{Coh}(T^*(G/B))$ and "finite" braid group/categorical Hecke algebra the derived category of its quantization. Applications: Soergel's description of category O , dimensions of support and action of w_0 .

2nd part. Here R.B. plans to talk about quantization in positive characteristic and how it can be used to construct the action and study its properties.