March 4, 2015: Alexei Oblomkov (UMass Amherst), *Cohomology of the homogeneous Hitchin fibers and representation theory of Cherednik algebras.*

The talk is based on joint work with Z. Yun. I will explain a geometric construction of the action of the rational Cherednik algebra on the cohomology of the homogeneous Hitchin fiber for the Hitchin system on the weighted projective line. The perverse and cohomological filtrations on the cohomology have a natural representation theoretic interpretation which will be explained. In the type A case, the ring structure of the cohomology will be presented. I will also state the conjecture (due to the speaker, Gorsky, Shende and Rassmusen) that relates representations of the Cherednik algebra to knot homologies of torus knots.