February 2: Alexei Oblomkov (MIT), "Symmetric spaces and orthogonal polynomials in the classical and quantum cases."

From the classical works on harmonic analysis we know that K-invariant functions on G/K (coming from K-spherical representations L_λ of G) being restricted to the maximal torus T give us basis $\{P_\lambda\}$ in the space of Weyl group invariant polynomials on T. Polynomials P_λ are proportional to the Jacobi polynomials with some special value of the parameters (which are essentially linear expression of the ranks of K and G).

In the talk I will explain how one can generalize this construction to get full three parameter family of Jacobi polynomials for the root system BC_n.

In the second half of the talk (which is based on a joint paper with J.V.Stokman) I will explain quantum version of the results from the first part of the talk. Quantum version of the construction yields full five parameter family of Macdonald-Koornwinder polynomials.