October 31: Kyo Nishiyama (Aoyama Gakuin University and MIT), "Generalized Steinberg maps and exotic moment maps for symmetric pairs."

Let G be a reductive algebraic group. Steinberg established a map from the Weyl group to nilpotent G-orbits using moment maps on double flag varieties. In particular, in the case of the general linear group, he re-interpreted the Robinson-Schensted correspondence, which is combinatorial in its nature, in terms of the geometry of complete flags.

We generalize Steinberg's theory to the case of symmetric pairs (G, K), and obtained two different maps. They are called a "generalized Steinberg map" and an "exotic moment map".

We explain what are these maps in the case where $(G, K) = (\mathrm{GL}_{2n}, \mathrm{GL}_n \times \mathrm{GL}_n)$. Unlike Steinberg, we start from geometry and then deduce combinatorial algorithms to describe generalized Steinberg maps and exotic moment maps. This amounts to establish a generalization of RS correspondence and an amusing relative for signed Young diagrams.

This is an on-going joint work with Lucas Fresse (IECL, University of Lorraine).