1134-05-409 **Eugene Gorsky** and **Mikhail Mazin***, mmazin@math.ksu.edu, and **Monica Vazirani**.
Rational Slope Dyck Paths in the Non-Relatively Prime Case.

In the relatively prime case, the rational (n, m)-Dyck paths are in bijection with the (n, m)-invariant subsets of integers, considered up to shifts. This bijection provides a connection between rational Catalan combinatorics and the geometry of certain algebraic varieties. In particular, it allows one to reinterpret the dinv statistic as the dimension of the corresponding complex affine cell in an affine Springer fiber. The non-relatively prime case is more complicated. Although on the combinatorial side many things can be generalized, including the dinv statistic and even Shuffle conjecture (theorem), there is no known generalization of the geometric interpretation of the dinv statistic. In this talk, I will explain how one can extend the bijection between rational Dyck paths and the invariant subsets in Z to the non-relatively prime case. The natural obstacle is that the set of invariant subsets is not finite in the non-relatively prime case. One has to consider certain equivalence relation on the invariant subsets to make the bijection work. The hope is that this construction will lead to a geometric or representation theoretic interpretation of the dinv statistic in the non-relatively prime case. (Received September 12, 2017)