

# Algebra and Geometry Seminar

**Speaker:** Sasha Pevzner (University of Minnesota)

**Title:** Symmetric Group Fixed Quotients of Polynomial Rings.

**Abstract:** Let the symmetric group act on the polynomial ring  $S = k[x_1, \dots, x_n]$  via variable permutation. We consider the quotient module  $M$  which sets a monomial equal to all of its images under the action. This is a module over the ring of invariants  $R$ , with relatively little known about its structure. When using integer coefficients, we can embed  $M$  as an ideal inside the ring of symmetric polynomials. Doing so gives rise to a family of ideals - one for each  $n$ . Localizing the coefficient ring of  $S$  at a prime  $p$  reveals striking behavior in these ideals, which stay stable (in a sense) as  $n$  grows, but jump in complexity each time  $n$  equals a multiple of  $p$ . In this talk, we will discuss the construction of this family of ideals, as well as some results and conjectures on its structure.