



# Colloquium

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## COTANGENT SCHUBERT CALCULUS

Friday, February 8th, 2019

3:00 p.m. in ES-143

(tea & coffee at 2:30 p.m. in ES-152)

ABSTRACT. Modern Schubert Calculus studies various intersection rings associated to flag manifolds. All these rings have several common features: they have a basis - the Schubert basis - indexed by a finite (permutation) group; the Schubert structure constants count points; the Schubert classes can be defined by equivariant localization; etc.. A question with roots in representation theory and microlocal analysis is whether there are good analogues of Schubert classes to study intersection rings of the cotangent bundle of a flag manifold. One answer is given in terms of the characteristic classes of singular subvarieties in the flag manifold, such as the Chern-Schwartz-MacPherson classes. For flag manifolds, these classes are equivalent to stable envelopes defined recently by Maulik and Okounkov. I will explain these ideas, and draw parallels with the Schubert Calculus situation. For instance, instead of counting points in three Schubert cycles, in the cotangent situation one takes the Euler characteristic of the intersection of three Schubert cycles.