1037-05-5   **Mark Shimozono***, Virginia Polytech Inst. & State University, Department of Mathematics, 460 McBryde Hall, Blacksburg, VA 24061. *Schubert calculus for the affine Grassmannian.*

Classical Schubert calculus is a branch of enumerative algebraic geometry concerned with counting subspaces satisfying certain intersection conditions. The modern viewpoint is to recast such problems in the cohomology of homogeneous spaces such as the Grassmannian and the flag variety.

I will discuss several approaches to the Schubert calculus of the affine Grassmannian, which is the simplest infinite-dimensional Kac-Moody homogeneous space. Some unexpected applications include the quantum Schubert calculus of finite-dimensional homogeneous spaces (by a theorem of Dale Peterson), and conjecturally the theory of Macdonald polynomials for special linear groups. (Received August 08, 2007)