

1021-55-228      **Allen Knutson\*** (allenk@math.ucsd.edu), CA , and **Ravi Vakil**. *Schubert calculus, matroids, and shifting*. Preliminary report.

In [Vakil, Annals 2006] one of us gave a purely geometric proof of a new rule for the cohomology product of Schubert classes on a Grassmannian. The new geometry involved was a collection of  $T$ -invariant subvarieties that interpolates between the intersection of a Schubert variety and an opposite Schubert variety, and individual Schubert varieties.

In fact these varieties can be completely described by their fixed point sets, which are automatically matroids, and the degenerations in [V] correspond to the “shifting” technique in extremal combinatorics. This gives new insight into the  $K$ -theoretic analogue of this rule. (Received September 06, 2006)