

Representation Theory, Geometry & Combinatorics Seminar

Organizer(s): M. Haiman, K. Reshetikhin, D. Hill & J. Sussan

Monday, 1:00–3:00pm, 939 Evans

10/13/2008 **Xinwen Zhu**, UCB

Affine Demazure modules and T -fixed point subschemes in the affine Grassmannian

I will first construct a flat degeneration of spherical Schubert varieties, using the factorization structure of the affine Grassmannian discovered by Beilinson and Drinfeld. This flat family allows us to prove a theorem which relates the weight multiplicities of certain affine Demazure modules to the T -fixed pointed subschemes of spherical Schubert varieties. Then I will give two applications of this theorem: to study the smooth locus of the spherical varieties; and to reproduce the Frenkel-Kac-Segal isomorphism in the theory of vertex algebras. If time permits, I will indicate how affine Springer fibers can come into the picture.