

1058-14-63

**Alexander Yong\***, Math Dept, 1409 W. Green Street, Urbana, IL 61801, and **Li Li**  
([11pku@math.uiuc.edu](mailto:11pku@math.uiuc.edu)), Math Dept., 1409 W. Green Street, Urbana, IL. *Some degenerations of Kazhdan-Lusztig ideals and multiplicities of Schubert varieties.*

We study Hilbert-Samuel multiplicity for points of Schubert varieties in the complete flag variety, by Groebner degenerations of the Kazhdan-Lusztig ideal. In the covexillary case, we give a positive combinatorial rule for multiplicity by establishing (with a Groebner basis) a reduced and equidimensional limit whose Stanley-Reisner simplicial complex is homeomorphic to a shellable ball or sphere. We show that multiplicity counts the number of facets of this complex. We also obtain a formula for the Hilbert series of the local ring. In particular, our work gives a multiplicity rule for Grassmannian Schubert varieties, providing alternative statements and proofs to formulae of [Lakshmibai-Weyman '90], [Rosenthal-Zelevinsky '01], [Krattenthaler '01], [Kreiman-Lakshmibai '04] and [Woo-Yong '09]. We suggest extensions of our methodology to the general case. (Received January 29, 2010)