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Wenjing Li* (wli@math.uga.edu). *Spiral Schubert varieties in type \tilde{A}_2* . Preliminary report.

The Bruhat order on affine Weyl groups arises from inclusions among Schubert varieties. There are integers q_x^w , defined using the Bruhat order, which have geometric significance but are hard to compute. In type \tilde{A}_2 , the Bruhat order is connected to the geometry of affine Weyl group acting on the plane. For spiral Schubert varieties, we discovered a characterization of Bruhat order in terms of the geometry of a triangle region in the plane. Using this we determine all the q_x^w and determine the set of rationally smooth points. This led to the proof of the lookup conjecture for spiral Schubert varieties $X(w(\ell))$. There are rational functions equivariant multiplicities which can detect both smoothness and rational smoothness and distinguish them. We have a precise conjecture about smooth points related to the geometry of a triangle region. (Received January 17, 2012)