

Meeting: 999, Nashville, Tennessee, SS 10A, Special Session on Geometry of Hyperbolic Manifolds

999-57-168 **Jessica S. Purcell*** (jpurcell@math.utexas.edu), University of Texas at Austin, Department of Mathematics, 1 University Station/C1200, Austin, TX 78712. *Cusp Shapes of Hyperbolic Knot Complements and Dehn Filling.*

For every knot or link with hyperbolic complement, each cusp of the complement has a geometric shape given by the Euclidean similarity class of structures on horoball neighborhoods of the cusp. We give estimates on the geometric shapes of cusps of “complicated” links using only combinatorial information on a diagram of the link, namely, the number of twists and twist regions in a prime, twist-reduced diagram of the link. We use this to show that there are numbers N and M so that any hyperbolic knot having at least N twists in each of M twist regions has the property that every non-trivial Dehn filling is hyperbolic. (Received August 21, 2004)