

**Jessica S. Purcell**

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will speak on

**Cusp Volumes of Alternating Knots**

ABSTRACT: The complement of a knot in the 3-sphere is a 3-manifold. By work of Thurston, this 3-manifold often admits a hyperbolic structure. In fact, some of the earliest examples of hyperbolic 3-manifolds studied were complements of knots. In the 1980s, mathematicians began using software to visualize hyperbolic structures on knot complements, for large classes of examples. From that work, several conjectures arose on how the hyperbolic geometry of a knot relates to the original diagram. In this talk, we will discuss work on one such conjecture. Specifically, we will define the cusp volume of a knot, and show that for a hyperbolic alternating knot, the cusp volume can be bounded above and below in terms of the twist number of an alternating diagram. Moreover, these estimates can be made explicit. This is joint work with Marc Lackenby.

MONDAY, OCTOBER 28, 2013

LECTURE AT 4:00 PM

COFFEE, TEA, AND REFRESHMENTS FROM 3:40 PM

ROOM 617, WACHMAN HALL

DEPARTMENT OF MATHEMATICS