1067-57-335 **Morwen Thistlethwaite** and **Anastasiia Tsvietkova*** (tsvietkova@math.utk.edu).

Investigating hyperbolic link complements. Preliminary report.

As a result of Thurston's Hyperbolization Theorem, many 3-manifolds have a hyperbolic metric or can be decomposed into pieces with hyperbolic metric (W. Thurston, 1978). In particular, Thurston demonstrated that every knot in S3 is a torus knot, a satellite knot or a hyperbolic knot and these three categories are mutually exclusive. It also follows from work of Menasco that an alternating link represented by a prime diagram is either hyperbolic or a (2,n)-torus link.

A new method for computing the hyperbolic structure of the complement of a hyperbolic link, based on ideal polygons bounding the regions of a diagram of the link rather than decomposition of the complement into ideal tetrahedra, was suggested by M. Thistlethwaite. Although the method is applicable to all hyperbolic links, it works particularly well for alternating (non-torus) links. The talk will introduce the basics of the method and its implementation. Original applications, such as investigating hyperbolic structure on specific link complements and a new algorithm for computation of hyperbolic volume, will be discussed. (Received August 23, 2010)