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**Morwen Thistlethwaite** and **Anastasiia Tsvietkova\***, tsvietkova@math.utk.edu. *An alternative approach to hyperbolic structures on link complements.*

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  $S^3$  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. The talk will introduce the basics of the method. Some applications will be discussed, including a surprising rigidity property of certain tangles, a new numerical invariant for tangles, a number field that is an invariant of a hyperbolic link, and an algorithm for computing hyperbolic volume. (Received June 1, 2011)