BI-CO MATHEMATICS COLLOQUIUM

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"Shape and size in hyperbolic space"

Monday, April 2, 2012

Talk at 4:00 – E309
Tea at 3:00 – KINSC Math Lounge, H208

Abstract: In Euclidean space, knowing the shape of a region is insufficient to determine its size. For example, it is a familiar fact that knowing the three angles of a Euclidean triangle is not enough information to determine the area of the triangle. In the hyperbolic plane, it turns out that knowing the three angles of a triangle is sufficient information to determine its area. A similar notion is true in higher dimensional hyperbolic space.

I will introduce the hyperbolic plane and hyperbolic 3-space and discuss the connections between shape and size. In particular, I will describe a result from my thesis that gives a connection between the combinatorics of a 3-dimensional hyperbolic polyhedron and its hyperbolic volume.

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