Mathematics, Statistics, and Computer Science **@ UIC**

Geometry, Topology and Dynamics Seminar

Counting commensurability classes of hyperbolic manifolds

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Abstract: An interesting direction in the study of hyperbolic manifolds is counting questions. By a classical result of Wang, in dimension > 3 there are finitely many isometry classes of hyperbolic manifolds up to any finite volume V. More recently, Burger, Gelander, Lubotzky and Mozes showed that this number grows like V^V.

In this talk we focus on the number of commensurability classes of hyperbolic manifolds. Two manifolds are commensurable if they admit a common finite cover. We show that in dimension > 3 this number grows like V^V as well.

Since the number of arithmetic commensurability classes grows $\sim$ polynomially, our result implies that non-arithmetic manifolds account for "most'' commensurability classes.

We will explain the ideas involved in the proof, which include a mixture of arithmetic, hyperbolic geometry and some combinatorics.

This is a joint work with Tsachik Gelander.

Monday, October 3 at 3:00 PM in SEO 636