

Mathematics Colloquium

When: Friday, September 11, 2:40-3:30pm

Where: Mathematics/Geology Building, Room MG 120

GROUPS AS GEOMETRIC OBJECTS

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A 3-manifold is a topological space that locally looks like \mathbb{R}^3 . An important example is the one we live in. What is the global nature of our universe? The first classification question concerning 3-manifolds is the Poincare Conjecture, a problem that has driven low dimensional topology for a century. In 2003, Grigori Perelman proved Thurston's Geometrization Conjecture, which provides a classification of 3-manifolds in terms of the eight 3-dimensional geometries, the most important one being hyperbolic geometry.

Geometric group theory studies analogies between 3-manifold groups and arbitrary discrete groups. Parts of Thurston's classification program can be carried over to groups and hyperbolic groups have emerged as objects of central interest.

In my talk I will explain what hyperbolic groups are and report on work done with one of my graduate students on the construction of hyperbolic virtual link groups.