Mostow strong rigidity and stable Borel conjecture

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007 Kemeny Hall, 4:00 pm
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Abstract

A natural problem is geometric topology concerns classification and rigidity properties of manifolds. A special case of a famous theorem of Mostow states that if two compact hyperbolic manifolds of dimension at least 3 have the same fundamental group, then they are isometric. In this case, the metric of a hyperbolic manifold of dimension at least 3 is completely determined by its homotopy type.

A manifold is called aspherical if all its higher homotopy groups are trivial. For example, a torus is an aspherical manifold. More generally, manifolds of nonpositively curvature are aspherical. An important conjecture of Borel says that if two closed aspherical manifolds are homotopic, then they are homeomorphic.

In this talk, we will discuss some variants and generalizations of the Mostow strong rigidity and some results on a stable version of the Borel conjecture.

This talk should be accessible to graduate students.