

Graduate Seminar in Mathematics

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Thursday, October 30, 2014
1:00 - 2:00 p.m., HH-3017

A brief Introduction to Riemannian Geometry

Abstract:

Riemannian geometry is an important topic in differential geometry concerned with the geometry of differentiable manifolds equipped with a metric. This allows one to describe the curvature of a manifold. The study of Riemannian manifolds had uncovered deep connections between curvature and topology (e.g. the Gauss-Bonnet theorem). In this talk I will give an elementary introduction to some of the basic ingredients in the theory: vector fields, the metric tensor, connections and geodesics, and finally, the curvature tensor. I will focus on the 'model' geometries which help one develop an intuitive understanding.