Kempner Colloquium

The geometry and topology of Ricci solitons

Ovidiu Munteanu

Columbia University

Ricci solitons are special Riemannian manifolds that arise in the study of Ricci flow, more prominently in the singularity analysis of the flow. The classification of Ricci solitons in three dimensions has been central for the Hamilton-Perelman proof of the Poincare conjecture. In this talk I will survey some recent development in the study of Ricci solitons in arbitrary dimension. I will begin with a brief introduction to Ricci flow and the role of solitons in this theory. Then the talk will focus on the structure of Ricci solitons and will include topics such as curvature and volume growth control and the topology at infinity. Understanding the solutions of certain partial differential equations is an important instrument for our study.

January 25, 2011
4:00 p.m.
MATH 350