

Geometry of Anosov flows and Rigidity (1/4)

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The geodesic flow on a manifold of negative sectional curvature is an archetypal example of an Anosov flow, a dynamical system under which every vector gets uniformly expanded or uniformly contracted. We will begin with an introduction to the geometry of these dynamical systems, including invariant manifolds, ergodicity, and various regularity questions.

We will then introduce flows that are compact group extensions of Anosov flows, discuss the associated “Brin group”, a sort of Galois group of the extension. We will then apply these techniques to explain a result jointly obtained with David Fisher and Ben Lowe, saying that if a compact negatively curved real-analytic Riemannian manifold has infinitely many totally geodesic hypersurfaces, then it must be of constant sectional curvature.

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