

On the Lagrange and Markov Dynamical Spectra for Flows and Geodesic Flows.

Sergio Augusto Romãña Ibarra

Universidade Federal do Rio de Janeiro

Abstract

Let X be a complete vector field on the a surface M .

Given a continuous function $f: M \rightarrow \mathbb{R}$, we define the Lagrange dynamical spectra associated to (f, X) by

$$L(f, X) = \left\{ \limsup_{t \rightarrow \infty} f(X^t(x)) : x \in M \right\},$$

and the Markov Dynamical spectra associated to (f, X) by

$$M(f, X) = \left\{ \sup_{t \in \mathbb{R}} f(X^t(x)) : x \in M \right\}.$$

In a joint work with C. Moreira (Gugu) we show that for a typical non-compact surface of finite volume and negative curvature the Lagrange and Markov dynamical spectra associated to the geodesic flow have non-empty interior for a "large" set of the real functions on the the surface.

The techniques used in this word can be used to get similar results for geodesic flows of surfaces of non-positive curvature and rank 1, and for the Geometric Lorenz Attractor (this last result is a joint work with C. Moreira and M. Pacifico).