8° SIES (Seminário Interinstitucional de estudantes de sistemas dinâmicos)

Segunda 28 de Agosto de 2023, UFF, bloco H, Sala 407.

14:15 - 15:00

Exponential mixing for Reparametrizations of the Geodesic flow in negative curvature (Matheus del Valle, IMPA)

We prove that smooth reparametrizations of the geodesic flow on a compact manifold with pinched negative curvature are almost-contact Anosov flows, i.e. not only they are not jointly integrable but they also satisfy Uniform non-integrability. As a consequence, we show that this implies exponential decay of correlations with respect to the SRB measure for every smooth reparametrization, giving a new class of Anosov flows that mixes exponentially with the SRB measure. This is joint work with Khadim War

15:15 - 16:00

Existence and uniqueness of equilibrium states for uniformly expanding maps (Lamartine Medeiros, UFRJ)

The objective of this work is to study the Ergodic Theory of expanding maps in compact metric spaces. This theory known as Thermodynamic Formalism, emerged from Statistical Mechanics, as part of the Ergodic Theory that studies the behavior of invariant measures with regular Jacobians, called equilibrium states.

In this presentation we will expose the main ideas of the proof of a Theorem, due to Ruelle, that guarantees the existence and uniqueness of equilibrium states for uniformly expanding and topologically exact maps. Furthermore, we will see that the only state of equilibrium coincides with the only measure that is absolutely continuous with respect to the Lebesgue measure.

16:00 - 16:20 Café

16:20 - 17:05

Historic Behavior of Reparametrized Linear Flows on the Torus (Caio Caetano, UFF)

We will present examples of topologically mixing flows on the torus obtained by reparameterizing linear flows with a finite number of fixed points (stopping points) whose Birkhoff averages diverge Lebesgue almost everywhere. One classical example known as Bowen's eye is the most well-known instance of what is now referred to as historic behavior. In our scenario, we investigate the occurrence of historic behavior or physical measure with a basin of full measure that can arise depending on the flow angle and the relative position of stopping points; However, historic behavior is the more abundant phenomenon from both topological and measure-theoretic perspective.