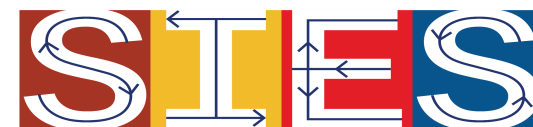


14° SIES (Seminário Interinstitucional de estudantes de sistemas dinâmicos)

Sexta 28 de Junho de 2024, Sala 236 - IMPA



14:15 - 15:00

Hölder Continuity of the Lyapunov Exponents of Random $GL(d)$ -Cocycles (Ana Cristina Barreto, IMPA)

A linear cocycle $F: GL_N(d) \times \mathbb{R}^d \rightarrow GL_N(d) \times \mathbb{R}^d$ with $F((g_j)_j; v) = ((g_{j+1})_j; g_0 v)$ associated with a random product of 2×2 invertible matrices under a probability distribution ν have two (possibly equal) Lyapunov exponents $\lambda_1 \geq \lambda_2$. When the first exponent is simple (i.e. $\lambda_1 > \lambda_2$) we can prove that those two exponents are pointwise Hölder continuous with respect to the probability measure ν . A natural question arises: Does this result generalize to higher dimensions? In this talk, we'll explore the concept of a stochastic dynamical system, define a random $GL(d)$ -cocycle and investigate the above-mentioned generalization. This is a work in progress with El Hadji Yaya Tall, Adriana Sánchez and Marcelo Viana.

15:15 - 16:00

Distributional chaos for convolution operators on the space $\mathcal{H}(\mathbb{C}^{\mathbb{N}})$ (João Araújo, UFRJ)

Let $\mathcal{H}(\mathbb{C}^{\mathbb{N}})$ be the space of all entire functions over $\mathbb{C}^{\mathbb{N}}$. We say that a continuous linear operator $L: \mathcal{H}(\mathbb{C}^{\mathbb{N}}) \rightarrow \mathcal{H}(\mathbb{C}^{\mathbb{N}})$ is a convolution operator if $L \circ T_a = T_a \circ L$, for each $a \in \mathbb{C}^{\mathbb{N}}$, where T_a is a translation operator. In this presentation, we will introduce the definition of distributional chaos for topological vector spaces. With this definition, we will prove that all convolution operators on the space $\mathcal{H}(\mathbb{C}^{\mathbb{N}})$ are distributionally chaotic. This work was a collaboration with Vinícius V. Fávaro.

16:20 - 17:05

Ergodicity of Nonpositively Curved Surfaces with genus at least two (Matheus Manso, IMPA)

A very well known result using standard tools in ergodic theory is the ergodicity of the geodesic flow on a negatively curved surface of finite volume. However, the problem of ergodicity in nonpositively curved surfaces has been challenging and only a few results are known assuming some extra geometric features. In this talk, exploring some new techniques which are based on the study of the geodesic current, we prove ergodicity in the setting on nonpositively curved surfaces with genus at least two. This is a joint work with Khadim War.