

121º EDAÍ
21 agosto de 2026



DMAT-PUC-Rio
Auditório del Castillo (RDC)



Palestra 1: 11h00 – 11h55

Rafael Potrie (CMAT e UDELAR Montevideo)
Partial hyperbolicity and ergodicity in dimension 3

I will explain recent joint work with Fenley which provides a complete topological classification of (chain)-transitive partially hyperbolic diffeomorphisms in dimension 3 in relation with Anosov flows and their self-orbit equivalences, completing a program proposed by Pujals and Bonatti-Wilkinson. As a consequence, we prove a conjecture of Hertz-Hertz-Ures about ergodicity of such systems: every volume preserving partially hyperbolic diffeomorphism in a 3-manifold which is not ergodic admits an su-torus. I will explain how this result relates to the problem of understanding intersection of transverse minimal foliations.

Pausa almoço

Palestra 2: 13h30 – 14h25

Pedro Duarte (Universidade de Lisboa)
Obstructions to the regularity of the Lyapunov exponents of random cocycles

Any probability measure μ on the group $GL(d, \mathbb{R})$ determines a random (locally constant) cocycle. Its first Lyapunov exponent describes the almost sure asymptotic growth rate of the norms of matrix products via

$$L_1(\mu) = \lim_{n \rightarrow \infty} \frac{1}{n} \log \|g_n \cdots g_1\|,$$

where $\{g_n\}_{n \geq 0}$ is an i.i.d. $GL(d, \mathbb{R})$ -valued process with distribution μ .

The continuity properties of $L_1(\mu)$ with respect to the weak-* topology or the Wasserstein metric on the space of probability measures have attracted considerable attention in recent decades. In 1989, Le Page proved a theorem which can be reformulated as follows: $L_1(\mu)$ is Hölder continuous in μ with respect to the Wasserstein metric, provided the following hypotheses hold:

1. there is a gap between the first and second Lyapunov exponents: $L_1(\mu) > L_2(\mu)$;
2. μ is quasi-irreducible, i.e. the restriction of the cocycle to any proper subspace of $\mathbb{R}^d$ invariant under the support of μ has a Lyapunov exponent strictly smaller than $L_1(\mu)$;
3. an exponential moment condition holds for some $\alpha > 0$: $\int \|g\|^\alpha d\mu(g) < \infty$.

For random cocycles generated by compactly supported measures, it has been known for some time that assumptions (1) and (2) are both essential.

This talk is based on a recent joint work with Graxinha, in which we show that hypothesis (3) is also essential for the validity of Le Page's theorem. The example we provide is an unbounded Schrödinger cocycle. The implications of our results for the lack of regularity of the Integrated Density of States of the underlying (unbounded) Schrödinger operator will also be discussed.

Palestra 3: 14h35 – 15h30
Manuel Stadlbauer (Universidade Federal do Rio de Janeiro)
Fluctuations of the drift

Let M be a compact manifold of negative curvature (or a convex-cocompact CAT(-1) manifold) and $N \rightarrow M$ be a cover such that the fundamental group of N is normal in the one of M . In this case, the cover is referred to as a Galois cover as the deck transformations form a group.

In this talk, we discuss the drift of the geodesic flow on N , provided that the group of deck transformations is Gromov hyperbolic. In this situation, it is well-known that the geodesic flow is totally dissipative, and, in particular, almost all geodesics escape to infinity. However, due to the rich structure of hyperbolic groups, it is possible to show that there exist $\mu, \sigma > 0$ such that, for almost every $\xi \in T^1(N)$ and any $\epsilon > 0$,

$$d(\pi(\xi), d(\pi(g_t(\xi))) = \mu t + \sigma W(t) + o(t^{1/4+\epsilon}),$$

where $\pi : T^1(N) \rightarrow N$ is the canonical projection, g_t is the geodesic flow and W is a standard Brownian.

The proof makes use of Martin boundary theory, a new Ruelle operator theorem and a 2D almost sure invariance principle.

This is joint work with Gil Astudillo.

Café

Palestra 4: 16h00 – 16h55
Ursula Hamestädt (Universität Bonn)
Algebraic properties of extensions of subshifts on countably many symbols

We consider a $GL(n, \mathbb{Z})$ -valued or $Sp(n, \mathbb{Z})$ -valued cocycle over a subshift on (at most) countably many symbols, equipped with an invariant equilibrium measure. Under some very mild algebraic assumption on the cocycle, we establish an equidistribution result for its mod p reduction and use it to study statistical properties of the generalized eigenvalues of the cocycle. This can for example be applied to flat vector bundles over a closed rank one manifold.

Confraternização: Local a determinar, 18h00 – ∞



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