108º EDAÍ
29 novembro de 2024

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DMAT-PUC-Rio
Sala de Reuniões do Decanato do CTC
12 andar prêdio Leme

Palestra 1: 11h00 – 12h00
Minimality of strong foliations
Sylvain Crovisier (Paris-Saclay, França)

I will focus on the well-known class of (mixing) Anosov diffeomorphisms. It is known that each of these systems preserves a foliation which is invariant, expanded by the dynamics and which is minimal: any leaf is dense. Sometimes such systems preserve sub-foliations, whose properties are much less understood: I will discuss its minimality and its stability. The tools that are developed along the way give perspective to address larger classes of partially hyperbolic systems. This is a joint work with A. Avila, A. Eskin, R. Potrie, A. Wilkinson, Z. Zhang.

Pausa almoço: 12h00 – 14h15

Palestra 2: 14h15 – 15h15
Lyapunov Spectrum of volume preserving partially hyperbolic maps
Mauricio Poletti (UFC, Brasil)

Given an invariant measure and a diffeomorphism, the Lyapunov spectrum is said to be simple if for almost every point there is the maximal quantity of different exponents possible, (or equivalently the Oseledets decomposition is given by one dimensional spaces). K. Marin proved that conservative partially hyperbolic diffeomorphisms with two dimensional center (with some technical conditions) generically have two different center exponents. In this work we study the simplicity of the full Lyapunov spectrum of these maps. This is a joint work with K. Marin and D. Obata.

Palestra 3: 15h30 – 16h30
Partially hyperbolic diffeomorphisms acting quasi-isometric on the center
Santiago Martinchich (UDELAR, Uruguai)

A key tool in the study of partially hyperbolic diffeomorphisms is the presence of invariant foliations. Given an invariant foliation tangent to the center bundle, we say that the diffeomorphism acts quasi-isometrically on it if there exist two constants $r>0$ and $R>0$ such that any pair of points at center distance less than r stay at distance less than R for every positive and negative iterate. I will present the following classification result for 3-dimensional transitive partially hyperbolic diffeomorphisms acting quasi-isometrically on the center: modulo finite lift and iterates, the system is a skew-product (the center foliation is uniformly compact) or is a discretized Anosov flows. Work in progress with Marcielis Espitia and Rafael Potrie.

Café: 16h30 – 17h00

Palestra 4: 17h00 – 18h00
Towards computer-assisted proofs for stochastic dynamics in the quadratic family
Stefano Luzzatto (ICTP, Itália)

The quadratic family of one-dimensional maps contains an incredible richness of dynamical pheno-mena which depend in a very complex way on the parameter in the interval [1.4,2]. In the 1980s and 1990s some deep results were obtained by various people, which showed that the only two phenomena which occur for positive Lebesgue measure ets of parameters are: regular dynamics, where there exists a (unique) attracting periodic orbit, and stochastic dynamics, where there exists a (unique) invariant probability measure absolutely continuous with respect to Lebesgue. Moreover, the corresponding sets of parameters have very different topological structures: the set of regular parameters is open and dense in the parameter space whereas the set of stochastic parameters is nowhere dense (albeit of positive Lebesgue measure).

Even though regular and stochastic dynamics are completely different, it turns out to be extremely difficult to distinguish them in practice and to decide if any given parameter is regular or stochastic. It is also completely unknown what the actual measures of the two parameter sets, or if one is significantly greater than the other, nor are there any heuristics to argue in favour of one or the other.

I will give an overview of the results above, discuss the somewhat "philosophical" question about the difference between regular and stochastic dynamics, and present some work in progress towards a computer-assisted approach to estimating the measure of regular and stochastic dynamics.

Confraternização: Local a determinar, 18h30 – ∞

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