



# Two-day workshop on Dynamical Systems

28th and 30th November 2018 - Luigi Stasi seminar room (Leonardo da Vinci Building)

## Wednesday, 28 November 2018 (14:00 - 16:30)

14:00 - 15:00 **Maria Jose Pacifico** (UFRJ, Rio de Janeiro)  
**Lagrange spectrum of Lorenz attractors**

We shall prove that the Lagrange spectrum of a geometric Lorenz attractor has non empty interior.

15:00 - 15:30 *break*

15:30 - 16:30 **Katrin Gelfert** (UFRJ, Rio de Janeiro)

**Weak\*, and in entropy, approximation of non-hyperbolic measures in partially hyperbolic diffeomorphisms**

We consider certain partially hyperbolic non-hyperbolic diffeomorphisms with one-dimensional central bundle and study how non-hyperbolic ergodic measure (i.e. with zero central exponent) can be approximated in the weak\* topology and in entropy by measures supported in basic sets with positive (negative) central Lyapunov exponent. Our method also allows to show how entropy changes "across" measures with central Lyapunov exponent close to zero. Besides the construction of ergodic theoretic skeletons, our arguments are mainly based on the existence of minimal strong foliations and the existence of blender-horseshoes. We also prove that any non-hyperbolic ergodic measure is in the intersection of the convex hulls of the measures with positive central exponent and with negative central exponent.

*This talk is based on joint work with L.J.Díaz, M.Rams, and B.Santiago.*

## Friday, 30 November 2018 (9:30 - 12:00)

9:30 - 10:30 **Lucia Simonelli** (ICTP)

**On Renormalization in Parabolic Dynamics**

We give an introduction to parabolic dynamics and the relevant properties that can be proved through renormalization techniques. We describe in detail the Heisenberg nilflow renormalized by a partially hyperbolic automorphism of the nilmanifold. Through this renormalization it can be shown that the spectrum of the transfer operator of the partially hyperbolic map gives information about the (parabolic) nilflow, in particular, estimates for the deviation of ergodic averages.

*This talk is based on joint work with Oliver Butterley.*

10:30 - 11:00 *break*

11:00 - 12:00 **Lorenzo J. Diaz** (PUC, Rio de Janeiro)

**Prescribed averages and construction of non-hyperbolic ergodic measures**

The setting is a transitive diffeomorphism and a continuous potential taking positive and negative values. We will discuss methods for constructing "interesting" orbits with prescribed averages for that potential and apply the results for the construction of nonhyperbolic ergodic measures.

**Everyone is welcome to attend**