Mês de: Fevereiro 2010

SEMINÁRIO DE SISTEMAS DINÂMICOS

1ST ONE DAY MEETING ON DYNAMICAL SYSTEMS

Dia 09 de Fevereiro (terça-feira), às **11h30,** na Sala B1-01
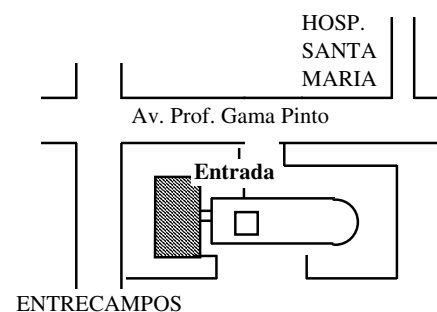
"Non-uniformly hyperbolic structures"

Katrin G. Gelfert

IMPA

Abstract: I will discuss some approaches to study dynamical systems that lack uniform hyperbolic behavior. Such approaches can be used, for example, to study level sets of points that are Lyapunov regular and have equal exponent. If the dynamical system is not uniformly hyperbolic, then the set of points with a small or zero Lyapunov exponent can be quite large or small (when measured e.g. in terms of fractal dimension or topological entropy). This is investigated by means of the thermodynamic formalism and a certain family of uniformly hyperbolic sub-systems that `exhaust' the non-uniformy hyperbolic system. Our scheme can be succesfully applied to primary examples of conformal dynamics such as parabolic or unimodal interval maps and rational maps on the Riemann sphere. However, principle techniques also extend to surface diffeomorphisms and certain flows in 3-dimensional manifolds.

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Entrada

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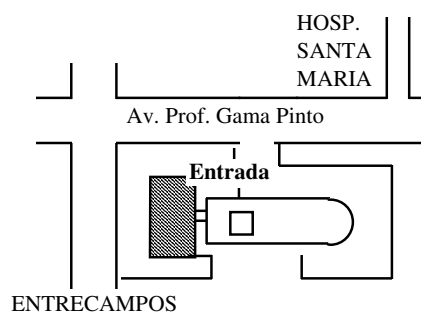
Dia 09 de Fevereiro (terça-feira), às 14h30, na Sala B1-01

"Lyapunov exponents for continuous maps"
César Silva

Universidade da Beira Interior

Abstract: We define n numbers that, for maps that are not necessarily differentiable, play the role of the values of the Lyapunov exponent . We then show that for a large family of repellers and of hyperbolic sets of differentiable maps, the values of the new exponent coincide with the classical ones. We also discuss the relation of the new Lyapunov exponents with the dimension theory of dynamical systems for invariant sets of continuous maps. Namely, we use the new exponents to establish an upper bound for the Hausdorff dimension of a class of invariant measures supported on nonconformal invariant sets for maps that are not necessarily differentiable.

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<u>Dia 09 de Fevereiro (terça-feira)</u>, às <u>16h30</u>, na Sala B1-01

""Robust cycles (homoclinic tangencies and heterodimensional cycles)

Lorenzo J. Díaz

PUC-Rio

Abstract: We discuss the generation of robust cycles for C^1-diffeomorphisms. We first prove that heterodimensional cycles (i.e., cycles associated to saddles having different indices -dimension of the unstable bundle) yield robust cycles (associated to non-trivial hyperbolic sets with different indices). Finally, we state sufficient conditions for the generation of robust homoclinic tangencies, i.e., non-transverse intersections between the invariant (stable and unstable) manifolds of hyperbolic sets. These conditions are related to the weak hyperbolicity (domination) of the system.

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