Seminário de Sistemas Dinâmicos

4 de Março - sala 6.2.33

14:30 - 15:30
Equilibrium States for Hyperbolic Potentials

Vanessa Ramos
(CMUP/Universidade Federal do Maranhão)

Abstract: Let $f : M \to M$ be a continuous map defined on a compact metric space M and let $\phi : M \to \mathbb{R}$ be a real continuous function. In this classical setting, we say that μ_ϕ is an equilibrium state associated to (f, ϕ), if μ_ϕ is an f-invariant probability measure characterized by the following variational principle:

$$P_f(\phi) = h_{\mu_\phi}(f) + \int \phi \, d\mu_\phi = \sup_{\mu \in \mathcal{M}_f(M)} \left\{ h_\mu(f) + \int \phi \, d\mu \right\}$$

where $P_f(\phi)$ denotes the topological pressure, $h_\mu(f)$ is the metric entropy and the supremum is taken over all f-invariants probabilities measures. Existence is a relatively soft property that can often be established via compactness arguments. Uniqueness is usually more subtle and requires a better understanding of the dynamics.
In this talk, we will show uniqueness of equilibrium states associated to local diffeomorphisms $f : M \to M$ and hyperbolic Hölder continuous functions $\phi : M \to \mathbb{R}$.

16:00 - 17:00
On equilibrium states for impulsive semiflows

Jaqueline Siqueira
(Cmup-Portugal , CNPq-Brazil)

Abstract:
Impulsive dynamical systems may be interpreted as suitable mathematical models of real world phenomena that display abrupt changes in their behavior, and are described by three objects: a continuous semiflow on a metric space X; a set D contained in X; where the flow experiments sudden perturbations; and an impulsive function I : D-> X; which determines the change on a trajectory each time it collides with the impulsive set D.
We consider impulsive semiflows defined on compact metric spaces and give suficient conditions, both on the semiflows and the potentials, for the existence and uniqueness of equilibrium states. We also generalize the classical notion of topological pressure to our setting of discontinuous semiflows and prove a variational principle. This is a joint work with José Ferreira Alves and Maria de Fátima de Carvalho.

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Local: Departamento de Matemática, C6 - Piso 2, sala 6.2.33