



Mês de: **Fevereiro 2010**

SEMINÁRIO DE ANÁLISE E EQUAÇÕES DIFERENCIAIS

Dia 04 de Fevereiro (terça-feira), às 15.30h, na Sala B3-01

“Geometric conditions for the regularity in some minimal time problem”

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Abstract:

Let H be a Hilbert space and let $F \subset H$ be closed, bounded and convex and $C \subset H$ be closed. We consider the problem of reaching C in minimum time subject to the (constant) dynamics $x' \in F$ and provide conditions guaranteeing existence and uniqueness of a point (denoted by $\pi_C^F(x)$ in C , which is the end point of an optimal trajectory starting at x . These conditions permit us to prove the continuity of the function $x \rightarrow \pi_C^F(x)$ in a suitable neighbourhood of C . Furthermore, under some supplementary assumptions we establish the local Lipschitz (or, more in general, Hölder) continuity of $x \rightarrow \pi_C^F(x)$ as well as the differentiability of the value function near the target set, and give an explicit formula for its derivative.

Then we generalize the above results by adding some nonlinear perturbation. This leads to the regularity of viscosity solutions of some kind of Hamilton-Jacobi equations.

Parcialmente suportado pela FCT ao abrigo do Financiamento Base

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