Mês de: Fevereiro 2010

SEMINÁRIO DE SISTEMAS DINÂMICOS

Dia 03 de Fevereiro (quarta-feira), às 16h00, na Sala A2-25

"An asymptotic universal focal decomposition for non-isochronous
potentials"

Diogo Pinheiro

ISEG - Universidade Técnica de Lisboa

Abstract:

We study the dynamics of a family of mechanical systems that includes the pendulum at small neighbourhoods of the equilibrium but after long intervals of time so that the second order term of the period map can no longer be neglected. We characterize such dynamical behaviour through a renormalization scheme acting on the dynamics of this family of mechanical systems. The main theorem states that the asymptotic limit of this renormalization scheme is universal: it is the same for all the elements in the considered class of mechanical systems. As a consequence we obtain an universal asymptotic focal decomposition for this family of mechanical systems. Furthermore, we obtain that the asymptotic trajectories have a Hamiltonian character and compute the action of each element in this family of trajectories. We conclude with a description of the utility that the asymptotic universal focal decomposition may have in the computation of propagators in semiclassical physics. This is joint work with C. A. A. de Carvalho, M. M. Peixoto and A. A. Pinto.

Local:
COMPLEXO INTERDISCIPLINAR
Av. Prof. Gama Pinto, 2
1649-003 Lisboa

HOSP.
SANTA
MARIA

Av. Prof. Gama Pinto

Entrada

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