

**Mês de:                   FEVEREIRO 2014**

**SEMINÁRIOS DE SISTEMAS DINÂMICOS**

(enquadrados no "5th One day meeting on Dynamical systems")

**Dia 10 de Fevereiro (segunda-feira), na Sala A2-25**

**às 14:30h:**

**ISOSPECTRAL TRANSFORMATIONS: a new approach to analysis of  
multidimensional systems and networks.**

**Leonid Bunimovich** (Georgia Tech)

**Abstract:**

It is always tempting, while analyzing evolution of a multicomponent system, to reduce its dimension. One need though to keep key properties of the original system while making such reduction.

I'll talk about recently emerged theory of isospectral transformations of matrices and networks which already allowed to advance some traditional areas of mathematics as estimation of matrices'/polynomials' spectra, global stability of dynamical networks, etc, and looks quite promising for analysis of real world networks.

The talk will be accessible to undergraduates with knowledge of basics of Linear algebra.

**às 16:00h:**

**Global observables and infinite mixing**

**Marco Lenci** (Universita' degli studi di Bologna)

**Abstract:**

Finding a satisfactory definition of mixing for dynamical systems preserving an infinite measure (in short, infinite mixing) is an important open problem. Virtually all the definitions that have been attempted so far use 'local observables', that is, functions that essentially only "see" finite portions of the phase space. We introduce the concept of 'global observable', a function that gauges a certain quantity throughout the phase space. This concept is based on the notion of infinite-volume average, which plays the role of the expected value of a global observable. Endowed with these notions, one can give a number of definitions of infinite mixing. These fall in two categories: global-global mixing, which expresses the "decorrelation" of two global observables, and global-local mixing, where a global and a local observable are considered instead. We then present very recent results about the infinite mixing of certain prototypical dynamical systems of different kinds.

Apoio:



**PEst-OE/MAT/UI0209/2013**

Local:

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