

Seminário - Grupo Sistemas Dinâmicos

Data: 29/08/2018 quarta feira

Horário: 11:00

Local: IM-UFRJ, CT, sala C119

Palestrante: **Dominik Kwietniak** (Jagiellonian University in Krakow)

Título: **Borel complexity of normal numbers via generic points in subshifts with specification**

Resumo: We study the Borel complexity of sets of normal numbers in several numeration systems. Taking a dynamical point of view, we offer a unified treatment for continued fraction expansions and base b -expansions, and their various generalisations: generalised Luroth series expansions and beta-expansions. In fact, we consider subshifts over a countable alphabet generated by all possible expansions of numbers in $[0,1)$. Then normal numbers correspond to generic points of shift-invariant measures. It turns out that for these subshifts the set of generic points for a shift-invariant probability measure is precisely at the third level of the Borel hierarchy (it is a so called Π^0_3 -complete set, meaning that it is a countable intersection of F_σ -sets, but it is not possible to write it as a countable union of G_δ -sets). We also solve Sharkovsky--Sivak problem on Borel complexity of the basin of statistical attraction. The crucial dynamical feature we need is a feeble form of specification. All expansions named above generate subshifts with this property. Hence sets of normal numbers under consideration are Π^0_3 -complete. The talk is based on a joint work with: Dylan Airey, Steve Jackson, and Bill Mance.

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