

UNIVERSIDADE FEDERAL DE SÃO CARLOS
DEPARTAMENTO DE MATEMÁTICA

COLÓQUIOS DO DM-UFSCAR

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Falará sobre

Generic Topological Dynamics on the Cantor Space

We develop unifying graph theoretic techniques to study the dynamics and the structure of $\mathcal{H}(\{0, 1\}^{\mathbb{N}})$ and $\mathcal{C}(\{0, 1\}^{\mathbb{N}})$, the space of homeomorphisms and the space of continuous self-maps of the Cantor space, respectively. Using our methods, we give characterizations which determine when two homeomorphisms of the Cantor space are conjugate to each other. We also give a new characterization of the comeager conjugacy class of the space $\mathcal{H}(\{0, 1\}^{\mathbb{N}})$. The existence of this class was established by Kechris and Rosendal and a specific element of this class was described concretely by Akin, Glasner and Weiss. Our characterization readily implies many old and new dynamical properties of elements of this class. For example, we show that no element of this class has a Li-Yorke pair, implying the well known Glasner-Weiss result that there is a comeager subset of $\mathcal{H}(\{0, 1\}^{\mathbb{N}})$ each element of which has topological entropy zero. Our analogous investigation in $\mathcal{C}(\{0, 1\}^{\mathbb{N}})$ yields a surprising result: there is a comeager subset of $\mathcal{C}(\{0, 1\}^{\mathbb{N}})$ such that any two elements of this set are conjugate to each other by an element of $\mathcal{H}(\{0, 1\}^{\mathbb{N}})$. Our description of this class also yields many old and new results concerning dynamics of a comeager subset of $\mathcal{C}(\{0, 1\}^{\mathbb{N}})$. This is a joint work with U. B. Darji.

Main Reference

- N. C. Bernardes Jr. and U. B. Darji, Graph theoretic structure of maps of the Cantor space, *Advances in Mathematics* **231** (2012), 1655–1680.

Additional References

- E. Akin, E. Glasner and B. Weiss, Generically there is but one self homeomorphism of the Cantor set, *Trans. Amer. Math. Soc.* **360** (2008), 3613–3630.

- E. Glasner and B. Weiss, The topological Rohlin property and topological entropy, *Amer. J. Math.* **123** (2001), 1055–1070.

- A. S. Kechris and C. Rosendal, Turbulence, amalgamation, and generic automorphisms of homogeneous structures, *Proc. London Math. Soc.* **94** (2007), 302–350.

- M. Mazur, Weak shadowing for discrete dynamical systems on nonsmooth manifolds, *J. Math. Anal. Appl.* **281** (2003), 657–662.

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