

From Lebesgue measure-preserving interval maps to parameterised family of pseudo-arc attractors

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Abstract

In this talk I will review recent progress in the study of topological and measure-theoretic properties of generic one-dimensional Lebesgue measure-preserving maps and discuss some implications of the results in higher dimensions. Namely, I will address several natural properties of generic continuous maps of the interval and circle which preserve the Lebesgue measure such as the structure of periodic points, mixing properties, shadowing properties, as well as crookedness. I will also show how to obtain analogous topological properties for generic maps from the closure of the set of interval maps with dense sets of periodic points. In the second part of the talk I will discuss how a parametrized family of these generic interval maps induces a family of pseudo-arc attractors in the plane varying continuously with the parameter and mention some surprising implications of this result. I will conclude the talk with some open questions related to this line of research. The talk is based on joint works with Piotr Oprocha (AGH Kraków), Jozef Bobok (Czech Technical University in Prague) and Serge Troubetzkoy (Aix-Marseille University).