Pseudo-arc as attractor in the disk: topological and measure-theoretical aspects

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Pseudo-arc is besides the arc the only planar continuum (i.e. compact connected metric space) so that every of its proper subcontinua is homeomorphic to itself (Hoehn and Oversteegen, 2020). Its first description appeared in the literature about hundred years ago and due to many of its remarkable properties it is an object of much interest in several branches of mathematics. There are results indicating that pseudo-arc appears as a generic continuum in very general settings. For instance, Bing has proven that in any manifold $\mathcal{M}$ of dimension at least 2, the set of subcontinua homeomorphic to the pseudo-arc is a dense residual subset of the set of all subcontinua of $\mathcal{M}$ (equipped with the Vietoris topology). In this talk I will present a result which reveals that pseudo-arc is a generic object also in a certain measure theoretical setting; namely, I will show that the inverse limit of the generic Lebesgue measure preserving interval map is the pseudo-arc. Building on this result I will construct a family of planar homeomorphisms with attractors being the pseudo-arc with several interesting topological and measure-theoretical properties.