

**Misiurewicz, Michał**

**Embedding inverse limits of interval maps as attractors.** (English) Zbl 0587.58032

Fundam. Math. 125, 23-40 (1985).

Given a compact space  $X$  and  $T : X \rightarrow X$  continuous, the inverse limit of  $(X, T)$  is the compact space  $K = \{(t_n) \mid T(t_n) = t_{n-1}, n \geq 1\} \subset \prod_0^\infty X$  together with the homeomorphism  $\tau((t_n) = (T(t_n))$ . This dynamical system has the semidynamical system  $(X, T)$  as a factor and is the smallest such dynamical system. Also, an attractor for a homeomorphism  $f : M \rightarrow M$  of a compact space is a closed set  $C$  such that: (1) For some open set  $U \subset M$  with  $c|_s[f(U)] \subset U$ , we have  $C = \bigcap_{n=0}^\infty f^n(U)$ , (2)  $f|_C$  is topologically transitive. In this paper, the author shows that the inverse limit for the map  $x \rightarrow 4x(1-x)$  of  $[0,1]$  onto itself can be embedded as an attractor into a  $C^\infty$  diffeomorphism of any manifold of dimension at least 3 and into a homeomorphism of any manifold of dimension 2. The results seem to be specific to this particular example, but involve some detailed computation.

Reviewer: H.Keynes

**MSC:**

**37D45** Strange attractors, chaotic dynamics of systems with hyperbolic behavior

**28A75** Length, area, volume, other geometric measure theory

Cited in **2** Reviews  
Cited in **6** Documents

**Keywords:**

[inverse system](#); [dynamical system](#); [attractor](#)

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