

1099-37-6

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Outer Billiards with Contraction.

The dynamics of polygonal outer billiard can be sometimes reduced to the dynamics of an interval exchange map. This happens, for example, when the polygon is a trapezoid. (D. Genin's thesis) We consider the outer billiard map outside polygons but now composed with linear contraction. While it is expected that all orbits are asymptotic to a periodic one for almost every choice of parameters, it turns out that in certain cases, the dynamics is conjugate to an injective piecewise contraction of the interval, which is a close relative of a nontransitive circle homeomorphism. From this analysis we conclude existence of an attracting Cantor set. (Received January 06, 2014)