

Hyperbolicity in dissipative polygonal billiards

João Lopes Dias¹

¹CEMAPRE-ISEG

Email: jldias@iseg.utl.pt

Resumo

We will discuss some analytical and numerical dynamical properties of polygonal billiards when the reflection law is given by a contraction of the angle.

Resumo

It is well known that polygonal billiards with the usual reflection law (the angle of reflection equals the angle of incidence) are not chaotic because their entropy is zero. In contrast, if one considers a contracting reflection law so that the ratio between the angle of reflection and the angle of incidence is equal to a positive constant less than one, then polygonal billiards exhibit chaotic properties.

In the first part of the talk, I will survey some classic results on polygonal billiards with the usual reflection law. In the second part of talk, I will present some recent results on chaotic properties of polygonal billiards with contracting reflection law.

(Joint with P. Duarte, J. P. Gaivao, J. Lopes Dias and D. Pinheiro.)