

Fractal billiards

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Abstract

Nowadays the mathematical billiard is a very popular field of mathematics. Newer and newer questions arise and researchers work enthusiastically to answer them. One of the most interesting and innovative idea is to define billiard orbits in fractals. We decided to take part in this adventure and now we present what we have learnt so far.

In this thesis, we provide an overview about the fields which are required to understand the results achieved in the topic of fractal billiards. Then we present these results and discuss some ideas related to this topic, namely, describing the number of singularities of a general flat surface by group theoretical notions and an attempt at defining the notion of fractal billiard using random reflections.