Seminário de sistemas dinâmicos e estocásticos

IMECC - UNICAMP

Título: Topics in bilhares rigidity.

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Resumo:

These are dynamic systems in which a particle moves geodesically until it collides with the edges, changing direction according to the law of specular reflection. The behavior of these systems varies according to the geometry of the sides: it can be chaotic, like in dispersive bilhares (with strictly convex obstacles) and stadiums, or more regular, like in elliptical bilhares.

It is not the case that two dispersive bilhares, the convexity of two obstacles generate certain hyperbolicity in dynamics, or that approximate their behavior to two Anosov fluxes, particularly two geodesic fluxes in negative curvature. In this work, a collaboration in collaboration with Dr. Martin Leguil, from the Polytechnic School, we investigate that properties of spectral rigidity, common in Anosov geodesic fluxes, can also be found in Sinai noro data.

In other words, we are interested in understanding whether the set of compressions of the periodic orbits of a bilhar is sufficient to completely reveal its dynamics. In particular, we ask: are two bilhares sharing the same compressions of periodic orbits, so that their dynamics are really similar? But what is this, or what can we say about the geometry of its edges?