

Bernoulli property for hyperbolic billiards with nearly flat focusing boundaries

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Resumo/Abstract:

In this work, we show that hyperbolic billiards constructed originally by Bussolari-Lenci has the Bernoulli property. These billiards do not satisfy the standard Wojtkowski-Markarian-Donnay-Bunimovich technique for the hyperbolicity of focusing or mixed billiards in the plane, which requires the diameter of a billiard table to be of the same order as the largest ray of curvature along the focusing boundary. Our proof employs a locally ergodic theorem which says that under a few conditions, there exists a full measure set of the billiard phase space such that each of its points has a neighborhood contained, up to a zero measure set, in one Bernoulli component of the billiard map. Joint work with Roberto Markarian (University of the Republic, Uruguay).