

Counting in polygonal billiards

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Counting the periodic trajectories of length at most T in a polygonal billiard goes back to Gauss (in the square, it is the famous Gauss circle problem). If the angles of the polygon are rational, several important results by Masur, Veech, Eskin-Masur, Eskin-Mirzakhani-Mohammadi give estimates on the number of periodic orbits when the length tends to infinity. One can also code the billiard trajectories and count the number of codes of a given length. I will explain the relation between these two problems and give very recent results obtained with Jayadev Athreya and Serge Troubetzkoy.

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