

# The Billiard on the regular polygon

Artur Ávila - IMPA

## Abstract:

We consider the behavior of trajectories for the billiard on a regular polygon. In three special cases which give rise to lattice tilings of the plane (the triangle, the square and the hexagon), the behavior of trajectories is very simple to analyze: they are either periodic or quasiperiodic. The other cases give rise to translation flows on non-arithmetic Veech surfaces, and we will show (by careful analysis of the effect of renormalization on eigenfunctions) that typically there are no (measurable) remains of quasiperiodicity. However, exceptional behavior can appear (with positive Hausdorff dimension) if the Veech group contains a Salem element. This is joint work with Vincent Delecroix.