INDAM MEETING:

HYPERBOLIC DYNAMICAL SYSTEMS IN THE SCIENCES

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Dispersing billiards with cusps and tunnels

Two dimensional dispersing billiards with finite horizon and disjoint scatterers are among the best known examples of strongly chaotic dynamical systems. If, however, two scatterers of the configuration touch tangentially, forming a cusp, the billiard particle may experience arbitrary long sequences of successive collisions in the resulting region, which may slow down the convergence to equilibrium. The situation when the two scatterers do not actually touch, their distance is, however, some small ε, may be referred to as a billiard with a tunnel. In this talk I would like to summarize what is known about the statistical properties of dispersing billiards with cusps, and I am planning to describe some work in progress on dispersing billiards with tunnels.
(Joint work with N. Chernov and D. Dolgopyat)