

Billiard Trajectories inside Cones

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The report discusses billiard trajectories inside an n -dimensional cone over a strictly convex closed manifold M . It is shown that if M is a C^3 -smooth manifold, then every trajectory has a finite number of reflections and, in this case, the billiard admits first integrals whose values uniquely determine all billiard trajectories. At the same time, there exists a C^2 -smooth manifold M and a billiard trajectory in the cone such that this trajectory has infinitely many reflections in finite time.

This work was supported by the Mathematical Center in Akademgorodok under agreement No. 075-15-2025-348 with the Ministry of Science and Higher Education of the Russian Federation.

References

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- [2] Mironov A. E., Yin S., *Billiard trajectories inside Cones*, *Regul. Chaot. Dyn.*, 2025, vol. 30, no. 4, pp. 688–710.