

[Loskutov, Alexander](#); [Ryabov, Alexei](#)

Particle dynamics in time-dependent stadium-like billiards. (English) [Zbl 1124.82310](#)
J. Stat. Phys. 108, No. 5-6, 995-1014 (2002).

Summary: Billiards in the form of a stadium with perturbed boundaries are considered. Investigations are primarily devoted to billiards having a near-rectangle form, but the results regarding the “classical” stadium with the boundary that consists of two semicircles and two parallel segments tangent to them, are also described. In the phase plane, areas corresponding to decrease and increase of the velocity of billiard particles are found. The average velocity of the particle ensemble as a function of the number of collisions with the boundary is obtained.

MSC:

[82C05](#) Classical dynamic and nonequilibrium statistical mechanics (general)
[37D50](#) Hyperbolic systems with singularities (billiards, etc.) (MSC2010)

Cited in **11** Documents

Keywords:

[Billiards](#); [chaos](#); [phase portraits](#); [Fermi acceleration](#)

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