PUBLICATION LIST

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(1) (with K. Khanin, J. Marklof, A. Plakhov) Exits for a semi-infinite tube, *submitted*

We construct (unbounded) planar domains which reverse the directions of most of incoming particles. The construction is based on the existence of certain limiting distributions for circle rotations, which is proved using the methods of Marklof [M1],[M2].

(2) (with P. Balint, I.P. Toth) Local ergodicity for systems with growth properties including multi-dimensional dispersing billiards , *Israel J. Math*, accepted (2007)

We generalize the original proof of the Fundamental Theorem by Sinai [S] and Bunimovich-Sinai [BS] to the case of multi-dimensional strictly dispersing billiards with piecewise C^3 boundary and prove (local) ergodicity under the sub-exponential complexity growth assumption.

(3) (with Ch. Fefferman) The Volume Near the Zeroes of a Smooth Function, *Revista Mat. Iberoamericana*, **23** (2007), no. 7, pp. 259–267,

We prove that if a smooth function never vanishes to infinite order, then the set of points within the distance δ from the zeroes of this function has volume $O(\delta)$.

(4) On the structure of the singularity manifolds of dispersing billiards, preprint, *math.DS/0505620*

This work contains the most important results of my PhD thesis. It studies the structure of singularity manifolds of multi-dimensional strictly dispersing billiards and proves (local) ergodicity of these billiards for generic finitely smooth scatterers using the methods developed in [ChS].

(5) On a relation between time averages and minimal attractors, *Russian Math. Surveys*, **54** (1999), no. 6, pp. 1233–1235

A minimal attractor of a dissipative system is a set, near which most of points spend most of the time. I show that if one considers time averages of continuous functions in sense distributions, then the supports of the time averages lie in the minimal attractor.

References

[BS] Bunimovich L.A., Sinai Ya.G., *On a fundamental theorem in the theory of dipersing billiards*, Math USSR Sbornik, **19** (1973), pp. 407–423

[ChS] Chernov, N.I., Sinai, Ya.G., *Ergodic Properties of Certain Systems of 2–D Discs and 3–D Balls.*, Russain Mathematical Surveys, **(3) 42** (1987), pp. 181–201.

[S] Sinai Ya.G., *Dynamical systems with elastic reflections*, Russian Mathematical Surveys **25** (1970), pp. 141–192.

[M1] Marklof, J. *Distribution modulo one and Ratner's theorem*, Lecture notes

[M2] Marklof, J. *The n-point correletions between values of a linear form*, Ergodic Theory and Dynamical Systems, **20** (2000), pp. 1127–1172,