

1. LOCAL ERGODICITY

1.1. Semi-dispersing billiards.

1.1.1. Fundamental theorem.

Ya. G. Sinai and N.I. Chernov, *Ergodic properties of some systems of 2-D discs and 3-D spheres*, Usp. Mat. Nauk, **42**, 1987, 15. Fundamental thm.

A. Krámli, N. Simányi and D. Szász, *A “transversal” fundamental theorem for semi-dispersing billiards*, Commun. Math. Phys., **129**, 1990, 535–560.

1.1.2. Counterexample and algebraic case.

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1.2. Dispersing billiards.

P. Batchourine, *On the structure of singularity submanifolds of dispersing billiards*, preprint, <http://www.arxiv.org/ps/math.DS/0505620>. by assuming finite complexity

P. Batchourine and Ch. Fefferman, *The volume near the zeros of a smooth function*, Revista Mat. Iberoamericana, **23**, 2007, 259–267.

P. Bachurin, P. Bálint and I.P. Tóth, *Local ergodicity for systems with growth properties including multi-dimensional dispersing billiards*, Israel J. Math., 2007. by assuming subexponential complexity

2. ERGODICITY

2.1. Hard ball systems.

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A. Krámli, N. Simányi and D. Szász, *The K-Property of Three Billiard Balls*. Annals of Mathematics. 133 (1991), 37-72 K-property for SB, in particular, for HBS($N = 3, d \geq 2$).

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N. Simányi and D. Szász, *Hard ball systems are completely hyperbolic*, Annals of Mathematics, **149**, 1999, 35–96. $N, v \geq 2$, hyperbolicity for typical $m_1, \dots, m_N; R$

N. Simányi, *Proof of the ergodic hypothesis for typical hard ball systems*, *Annales H. Poincaré*, **5**, 2004, 203–233. $N, \nu \geq 2$, ergodicity for typical $m_1, \dots, m_N; R$

N. Simányi, *Conditional Proof of the Boltzmann-Sinai Ergodic Hypothesis*. *Inventiones Mathematicae*, Vol. 177, No. 2 (August, 2009), pp. 381–413. $N, \nu \geq 2$, ergodicity for typical $m_1, \dots, m_N; R$ by assuming the Chernov-Sinai ansatz.

2.2. Cylindrical billiards. D. Szász, *Ergodicity of classical billiard balls*, *Physica A.*, **194**, 1993, 86–92. Cylindric billiards and a conjecture for their being ergodic.

N. Simányi and D. Szász, *Non-integrability of cylindric billiards and transitive Lie-group actions*, *Ergodic Th. & Dynam. Sys.*, **20**, 2000, 593–610. Quantitative formulation of the conjecture of the previous work.

D. Szász, *Algebro-geometric methods for hard ball systems*, *Discrete and Continuous Dyn. Systems, Ser. A.* 22:427–443, 2008, a survey.

3. CORRELATION DECAY AND CLT

3.1. Correlation decay and CLT.

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L. S. Young, *Statistical properties of dynamical systems with some hyperbolicity*, *Annals of Math.*, (1998), 585–650. Young towers: method and applications, EDC.

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