

International
Scientific Conference



Algebraic
and Geometric
Methods
of Analysis

27-30 May 2024
Odesa, Ukraine

The purpose of this conference is to bring together researchers in geometry, topology, algebra, analysis and dynamical systems and to provide for them a forum to present their recent work to colleagues from different nationalities. This way we aim to stimulate discussion about the latest findings in geometrical and topological methods in analysis and to increase international collaboration.

The conference continues the traditional annual conference «Geometry in Odesa» holding from 2004, and hosted by Odesa National University of Technology (Odesa National Academy of Food Technologies till 2021). From 2017 the conference was renamed to «Algebraic and geometric methods of analysis» (AGMA).

The Conference languages: Ukrainian and English.

LIST OF TOPICS

- Algebraic methods in geometry
- Differential geometry in the large
- Geometry and topology of differentiable manifolds
- General and algebraic topology
- Dynamical systems and their applications
- Geometric and topological methods in natural sciences
- Geometric problems in mathematical analysis

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- Odesa National University of Technology, Ukraine
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- Kyiv Mathematical Society

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Open billiards, chaos and limit theorems

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Abstract: Chaos is one of the important subjects in the theory of dynamical systems. In 1958, Kolmogorov made a discovery regarding the statistical properties exhibited by certain chaotic dynamical systems.

I will talk about the relationship between chaotic billiard systems and their statistical properties. More precisely, I will show that

- (1) Poisson limit theorems can characterize chaotic behaviors of billiard systems
- (2) The convergence rates of Poisson limit theorems and Zeta-Functions have certain connections.

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On the inverse Poletsky inequality with a cotangent dilatation

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The following definitions are from [1]. A path γ in \mathbb{R}^n is a continuous mapping $\gamma : \Delta \rightarrow \mathbb{R}^n$ where Δ is an interval in \mathbb{R} . Its locus $\gamma(\Delta)$ is denoted by $|\gamma|$. Given a family Γ of paths γ in \mathbb{R}^n , a Borel function $\rho : \mathbb{R}^n \rightarrow [0, \infty]$ is called *admissible* for Γ , abbr. $\rho \in \text{adm } \Gamma$, if

$$\int_{\gamma} \rho(x) |dx| \geq 1$$

for each (locally rectifiable) $\gamma \in \Gamma$. Given $p \geq 1$, the p -modulus of Γ is defined by the relation

$$M_p(\Gamma) := \inf_{\rho \in \text{adm } \Gamma} \int_{\mathbb{R}^n} \rho^p(x) dm(x) \quad (1)$$

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