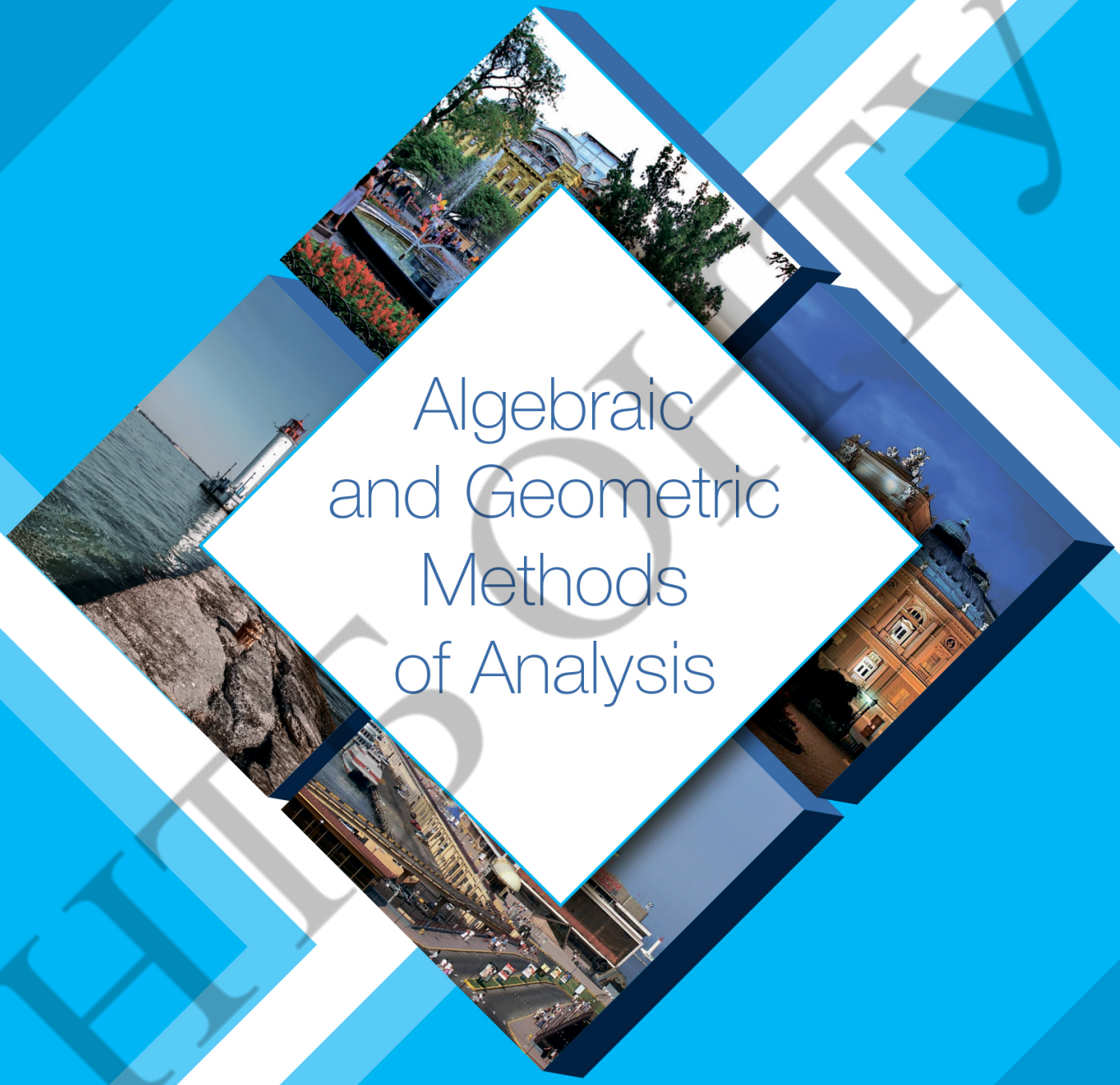
International
Scientific Conference



Algebraic and Geometric Methods of Analysis

27-30 May 2024
Odesa, Ukraine

ПРОЕКТ

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

Organizers

- Ministry of Education and Science of Ukraine
- Odesa National University of Technology, Ukraine
- Institute of Mathematics of the National Academy of Sciences of Ukraine
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that $m_{ij} = 0$ if $i > j$. Finally, we write $X > Y$ for subposets X, Y of a poset T if $x > y$ for any $x \in X, y \in Y$.

Theorem 1. *Let S be a positive poset and $\overline{S} = S \cup X$ be an extension of S with chained $X > S$. Then the incidence algebra $\mathcal{I}_k(\overline{S})$ is of infinite representation type if the length $l(X)$ of X is greater than 5.*

Theorem 2. *Let $\overline{S}$ be as in Theorem 1 but S is non-serial. Then the incidence algebra $\mathcal{I}_k(\overline{S})$ is of infinite representation type if*

(a) the width of S is equal to 2 and $l(X) > 4$;

(b) the width of S is equal to 3 and $l(X) > 1$.

In all statements the estimates are exact.

References

[1] V. M. Bondarenko, M. V. Styopochkina. (Min, max)-equivalence of partially ordered sets and the Tits quadratic form. *Collection of works of Inst. of Math. NAS Ukraine – Problems of Analysis and Algebra*, 2(3) : 18–58, 2005.

A theorem on hypercohomology groups and singular homology in field theory

Francisco Bulnes
(IINAMEI, Research Department in Mathematics and Engineering, TESCHA)
E-mail: francisco.bulnes@tesch.edu.mx

In this research we consider a theorem that relates the hypercohomology groups obtained with the spectrum through the its singular homology taking components $\mathbb{Z}_{tr}(k)$ and the A_1 -homotopy in the action of the symmetric $\mathrm{DM}_{Nis}^{eff,-}(k)$. Then we can characterize in a projective vector bundle the solutions of the field equations $\mathrm{d}da = 0$ on singularities.

References

[1] Bulnes, F., *Tensor Triangulated Category to Quantum Version of Motivic Cohomology on Étale Sheaves*, LJRS Volume 23 Issue 16.

[2] Prof. Dr. Francisco Bulnes, *Geometrical Motives Commutative Diagram to the derived category DQFT*, Int. J. Adv. Appl. Math. and Mech. 10(4) (2023) 17– 22.

[3] Bulnes F. Extended d–cohomology and integral transforms in derived geometry to QFT-equations solutions using Langlands correspondences. *Theoretical Mathematics and Applications*. 2017;7(2):51-62

Geometric and algebraic-topological structures in Schwartz distribution spaces for relativistic Quantum Mechanics

David Carfì
(Department of Physics, University of Messina, Italy)
E-mail: dcarfi@unime.it

The classic Hilbert space methods cannot be used for the definition and resolution of the free relativistic Schrödinger equation because the very fundamental solutions of this equation cannot be framed in a Hilbert or Banach space context. We can justify the necessity to use distribution theory, for many reasons. If we lock down ourselves in separable Hilbert space theory, we cannot

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