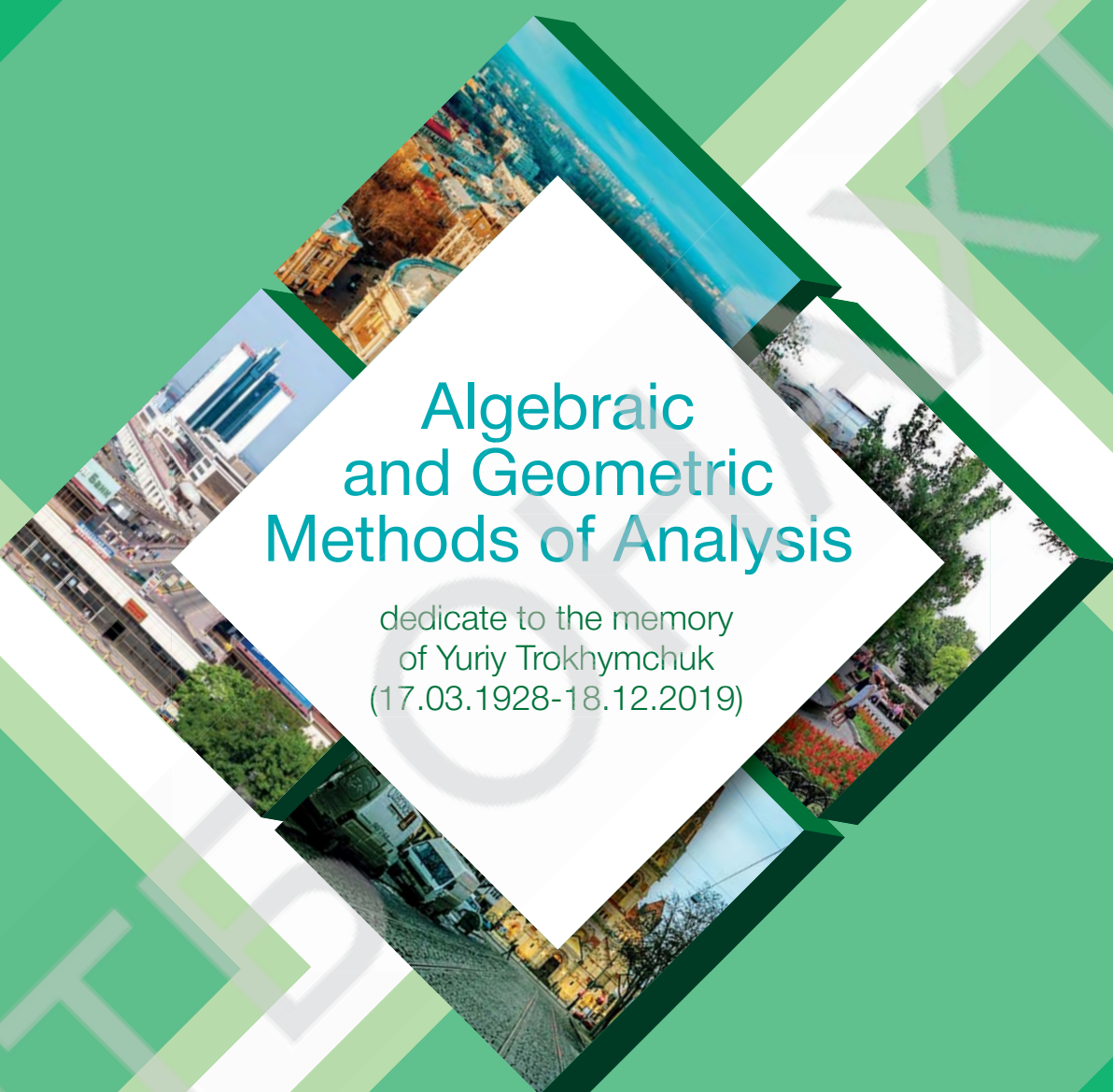


International
Online Conference



**Algebraic
and Geometric
Methods of Analysis**

dedicate to the memory
of Yuriy Trokhymchuk
(17.03.1928-18.12.2019)

May 25-28, 2021
Odesa, Ukraine

LIST OF TOPICS

- Topological methods in analysis
- Geometric problems of complex and mathematical analysis
- Algebraic methods in geometry
- Differential geometry in the whole
- Geometry and topology of differentiable manifolds
- General and algebraic topology
- Geometric and topological methods in natural sciences

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Uniform measures in Euclidean space

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A uniform measure in Euclidean space \mathbb{R}^d is a measure that assigns to each ball $B(x, r)$ with center x in the support of the measure, a mass dependent of r and independent of the choice of x .

For example any invariant measure of a subgroup of the isometry group of \mathbb{R}^d is uniform, and this sub-class of uniform measures are called homogeneous measures. There are known a few examples of non-homogeneous uniform measures, such as the volume measure of the "light cone" $\{x^2 + y^2 + z^2 = w^2\} \subset \mathbb{R}^4$.

The study of uniform measures in Euclidean space was initiated by David Preiss as the crucial ingredient of his 1987 proof of the Besicovitch conjecture [4], and one motivation for extending this study is to understand the structure of measures in general geometry. It is known (see [1]) that a uniform measure must be a multiple of the k -dimensional area measure restricted to a k -dimensional analytic variety, and the classification of k -dimensional uniform measures remains a difficult open problem, still open even in the plane (see also [2], [3]). I will present a classification [5] of 1-dimensional uniform measures in \mathbb{R}^d , and mention some open questions for more general dimensions. This is joint work with Paul Laurain, from Paris 7 University.

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