Analytic–Geometric Synergies: Harmonic Analysis and Convexity
Synergies analytiques et géométriques : analyse harmonique et convexité

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ALMUT BURCHARD, University of Toronto

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DMITRY FAIFMAN, Université de Montréal

FODOR FERENC, University of Szeged

RYAN GIBARA, Cape Breton University

PAUL HAGELSTEIN, Baylor University

Current developments in the theory of differentiation of integrals

We will provide an overview of current developments in the theory of differentiation of integrals. Particular emphasis will be placed on a recent result, extending prior work of Bateman and Katz, that provides a condition on directional maximal operators on $\mathbb{R}^2$ sufficient to ensure that they are unbounded on $L^p(\mathbb{R}^2)$ for $1 \leq p < \infty$. This recent work is joint with Blanca Radillo-Murguia and Alex Stokolos.

ALEX IOSEVICH, University of Rochester

DMITRY JACOBSON, McGill

Extremal metrics on graphs

We review several old and new results about extremal metrics for various graph functionals.

PAVLOS KALANTZOPOULOS, Waterloo University

LIANGBING LUO, York University

MARCU-ANTONE ORSONI, Université Laval

ANDRIY PRYMAK, University of Manitoba

SCOTT RODNEY, Cape Breton University

YANA TEPLITSKAYA, Paris-Saclay University
About maximal distance minimizers. Regularity and explicit examples

Consider a compact set $M \subset \mathbb{R}^d$ and $l > 0$. A maximal distance minimizer problem is to find a connected compact set Σ of the length (that is, one-dimensional Hausdorff measure $\mathcal{H}^1$) at most l that minimizes

$$\max_{y \in M} \mathsf{dist}(y, \Sigma),$$

where $dist$ stands for the Euclidean distance. In this talk, I will survey known results on maximal distance minimizers, including explicit examples (such as a circle, a rectangle, and a minimizer with an infinite number of corner points), as well as the regularity of their local structure (a finite number of branching points in the plane and at most three tangent rays at any point of a minimizer in any dimension). I will also discuss several open problems in this area.

DENIS VINOKUROV, Université de Montréal

ELISABETH WERNER, Case Western Reserve University