Abstract

Oberwolfach Workshop:

Functional Inequalities:
Geometric Calculus meets Stochastic Analysis

Dates:

30 November - 05 December 2025   (Code: 2549)

Organizers:

Masha Gordina, Storrs
Jessica Lin, Montreal
Emanuel Milman, Haifa
Karl-Theodor Sturm, Bonn

The workshop focuses on research at the intersection of analysis, geometry and probability with a particular focus on functional inequalities, geometric calculus and stochastic processes in geometric settings. The topics include metric measure spaces, optimal transport and stochastic localization, hypoelliptic and infinite-dimensional evolutions, homogenization and hydro-dynamical limits, random media, random geometries, and spaces with anomalous scaling.

The workshop will help to identify new objectives as well as new directions for collaborations, in particular, bridging between discrete, fractal, and geodesic spaces; developing new applications for the stochastic localization method, clarifying its interactions with the optimal-transport based techniques, and in particular extending it to singular settings; finding connections between the quantitative analysis of homogenization and hydrodynamical limits.