

# Laboratory of Analysis and Applied Mathematics (LAMA)

UMR 8050 - UPEC/UPEM/CNRS

## Key words

Applied mathematics • Probability and statistics • Partial differential equations • Harmonic, multifractal and functional analysis • Differential geometry

The laboratory is based at the faculty of science and technology of the University of Paris-Est Créteil and the University Paris-Est Marne-la-Vallée. It is a member of the laboratory of excellence ("Labex") Bezout (modelling and algorithms: from discrete to continuous).

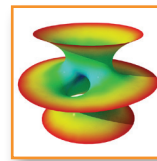
## Objectives and research topics

The research topics of the laboratory cover different areas of mathematical analysis, probability and statistics, with connections with the socioeconomic and industrial world through mathematical finance.

The laboratory is divided into 5 research groups working on the following topics:

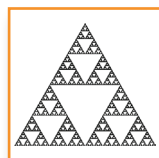
### ➤ High-dimensional analysis

- Geometric and functional inequalities and convexity
- Functional inequalities in probability
- Random matrices and operator theory



### ➤ Geometry and curvature

- Geometry analysis
- Discrete geometry
- Riemannian geometry and topology



### ➤ Harmonic analysis

- Multifractal analysis
- Applications to signal processing and image
- Dynamical systems and ergodic theory



### ➤ Probability and statistics

- Mathematical finance
- Statistical mechanics
- Numerical probabilities and stochastic processes

- Statistics

$$-\mu\Delta u + \nabla\Pi = f$$
$$\operatorname{div} u = 0$$

### ➤ Partial differential equations

- Numerical analysis and modelling
- Calculus of variations and elliptic equations
- Fluid mechanics equations
- Mathematical physics

LAMA

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