Variational Methods and Non-Smooth Geometric Structures with Applications

3-5 JUNE 2025

Bocconi University | Aula AS01 Via Röntgen 1, Milano

REGISTRATION REQUIRED

REGISTRATION FORM

The workshop brings together researchers exploring variational methods, optimal transport, non-smooth geometric structures and machine learning. In addition to theoretical aspects, it will cover applications to gradient flows, entropic transport, mean field models, singular limits, optimization, and data analysis, with a key focus on the role of non-Euclidean structures and convergence properties in large-scale models. By bridging analysis, geometry, numeric, and optimization, this event aims to foster interdisciplinary collaboration and advance new mathematical tools for emerging applications.

ORGANIZING COMMITTEE

Luigi Ambrosio Scuola Normale Superiore, Pisa
Ernesto De Vito University of Genoa
Giuseppe Savarè Bocconi University

PROGRAM

3 June 2025

1:30 pm	**Registration**
13:50 pm	**Opening**
14:00 pm	**A new look at distributional regression: Wassertein Sobolev functions and their numerical approximations** **Massimo Fornasier** Technical University of Munich
14:45 pm	**Numerical solution of eigenvalue Schrödinger problems using infinite-width two-layer networks** **Virginie Erlacher** CERMICS, ENPC
15:30 pm	**Coffe break**
16:00 pm	**Learning Multi-Index Models with Hyper-Kernel Ridge Regression** **Lorenzo Rosasco** University of Genoa
16:45 pm	**Learning from data via overparameterization** **Cesare Molinari** University of Genoa
17:30 pm	**Inexact JKO and proximal-gradient algorithms in the Wasserstein space: links and differences from the Hilbert case** **Emanuele Naldi** University of Genoa

Missione 4 • **Istruzione e Ricerca**

4 June 2025

09:00 am	**Sharp PDE estimates for random two-dimensional bipartite matching with power cost function**	
	Luigi Ambrosio Scuola Normale Superiore, Pisa	
09:45 am	**Hamilton-Jacobi equations on the space of probability measures**	
	Charles Bertucci CNRS-École Polytechnique, Paris	
10:30 am	**Coffe break**	
11:00 am	**Convergence of Stochastic Euler Schemes via Probability Vector Fields**	
	Giulia Cavagnari Politecnico di Milano	
11:45 am	**How quickly does the Gibbs sampler converge for log-concave distributions?**	
	Hugo Lavenant Bocconi University	
12:30 pm	**Lunch**	
2:30 pm	**A structured tour of optimization with finite differences**	
	Silvia Villa University of Genoa	
3:15 pm	**Hypercontractivity in Wasserstein gradient flows**	
	Edoardo Mainini University of Genoa	
4:00 pm	**Coffe break**	
4:30 pm	**Existence of gradient flows via trajectory-minimization in spaces of measures**	
	Filippo Riva Bocconi University	
5:15 pm	**The superposition principle for local 1-dimensional currents**	
	Federico Vitillaro Scuola Normale Superiore, Pisa	

5 June 2025

9:00 am	**Analysis of Annealed Sinkhorn's Algorithm for (Unbalanced) Optimal Transport**	
	Lénaïc Chizat EPFL	
9:45 am	**Flowing Datasets with Wasserstein over Wasserstein Gradient Flows**	
	Anna Korba ENSAE-CREST	
10:30 am	**Coffe break**	
11:00 am	**Non-parametric Learning of Stochastic Differential Equations with Non-asymptotic Fast Rates of Convergence**	
	Alessandro Rudi SDA Bocconi School of Management	
11:45 am	**Learning a bounded operator: misspecified setting**	
	Ernesto De Vito University of Genoa	
12:30 pm	**Closing**	

Missione 4 • **Istruzione e Ricerca**