



Nonlinear partial differential equations: theory, numerics and applications

Rome, May 24 -26, 2023

a conference in memory of Maurizio Falcone

Program

Wednesday, May 24

Opening

- 09:15** Welcome address: Isabeau Birindelli (Roma Sapienza)
- 09.25-10.20:** Remembrances: I. Capuzzo Dolcetta, M. Emmer, S. Finzi Vita, U. Mosco
- 10.20-11.00:** Piermarco Cannarsa (University of Roma Tor Vergata)
Aubry-Mather theory for sub-Riemannian control systems.

Coffee break

- 11.30-12.10:** Hasnaa Zidani (University of Rouen)
Hamilton-Jacobi equations in some metric spaces.
- 12.10-12.50:** Antonio Siconolfi (University of Roma La Sapienza)
Homogenization of Hamilton-Jacobi equations on networks.

Lunch

- 14.00-14.40:** Simone Cacace (University of Roma La Sapienza)
Numerical solution of optimal control problems on stratified domains.
- 14.40-15.20:** Jean-Denis Durou (University of Toulouse)
Photographic 3D-reconstruction: A Tour.

Coffee Break

- 15.50-16.30:** Silvia Tozza (University of Bologna)
A trip into Image Processing with Maurizio.
- 16.30-17.10:** Luca Saluzzi (Imperial College, London)
A statistical POD approach for feedback boundary optimal control in fluid dynamics.
- 17.10-17.50:** Shigeaki Koike (Waseda University, Tokyo)
ABP maximum principle with upper contact sets.
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Thursday, May 25

- 09.40-10.20:** Fabiana Leoni (University of Roma La Sapienza)
Principal eigenvalues and related eigenfunctions for fully nonlinear equations in punctured balls.
- 10.20-11.00:** Diogo Gomes (Kaust)
Machine Learning architectures for price formation models with common noise.

Coffee Break

- 11.30-12.10:** Roberto Natalini (IAC-CNR, Roma)
Multiscale models of cell movements and their numerical approximation.

12.10-12.50: Pierre-Louis Lions (Collège de France, Paris)
Large random matrices and PDE's.

Lunch

14.00-14.40: Piero Marcati (Gran Sasso Science Institute)
Quantum fluids and their applications.

14.40-15.20: Andrea Davini (University of Roma La Sapienza)
On the vanishing discount approximation for compactly supported perturbations of periodic Hamiltonians.

Coffee Break

15.50-16.30: Athena Picarelli (University of Verona)
A semi-Lagrangian scheme for a Hamilton-Jacobi-Bellman equation arising in stochastic exit time control problems.

16.30-17.10: Alessandro Alla (University of Venezia)
Online identification and control of PDEs via Reinforcement Learning methods

Social Dinner

Friday, May 26

09.40-10.20: Giovanni Russo (University of Catania)
Semilagrangian-spectral methods for the Boltzmann equation of rarefied gas dynamics.

10.20-11.00: Emiliano Cristiani (IAC-CNR, Roma)
Detecting congestion and forecasting boundary conditions: How Machine Learning techniques can improve differential traffic models.

Coffee Break

11.30-12.10: Yves Achdou (University of Paris VII)
A short-term model for the oil industry addressing commercial storage.

12.10-12.50: Lars Gruene (University of Bayreuth)
Decaying sensitivity and separable optimal value functions.

Lunch

14.00-14.40: Adriano Festa (Politecnico Torino)
A system of of Hamilton-Jacobi equations characterizing geodesic centroidal tessellations.

14.40-15.20: Dante Kalise (Imperial College, London)
Learning high-dimensional feedback laws for collective dynamics control.

Coffee Break

15.50-16.30: Michele Palladino (University of l'Aquila)
Optimal Control and Reinforcement Learning.

16.30-17.10: Martino Bardi (Univesity of Padova)
PDE and control methods for global optimization in deep neural networks.

	Wednesday	Thursday	Friday
09:15	Welcome address		
09:40		Leoni	Russo
10:20	Cannarsa	Gomes	Cristiani
11:00 - 11:30	<i>coffee break</i>	<i>coffee break</i>	<i>coffee break</i>
11:30	Zidani	Natalini	Achdou
12:10	Siconolfi	Lions	Gruene
12:50 - 14:00	<i>lunch</i>	<i>lunch</i>	<i>lunch</i>
14:00	Cacace	Marcati	Festa
14:40	Drou	Davini	Kalise
15:20 - 15:50	<i>coffee break</i>	<i>coffee break</i>	<i>coffee break</i>
15:50	Tozza	Picarelli	Palladino
16:30	Saluzzi	Alla	Bardi
17:10	Koike		Closing