

# Numerical Methods for PDEs

Optimal Control, Games and Image Processing



**VENUE**  
 Dipartimento di Matematica  
 Aula Picone  
 SAPIENZA Università di Roma  
 Piazzale Aldo Moro, 2

**RESTAURANT**  
 Fondazione Pastificio Cerere  
 Via degli Ausoni, 7

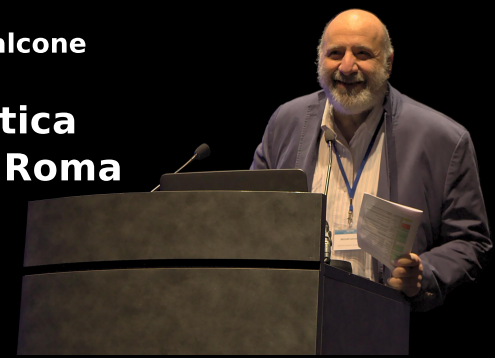
**HOTEL**  
 Hotel Laurentia  
 Largo degli Osci, 63

# Numerical Methods for PDEs

Optimal Control, Games and Image Processing

A conference on the occasion of the 60th birthday of Maurizio Falcone

Dipartimento di Matematica  
 SAPIENZA, Università di Roma  
 December 4-5, 2014



## Speakers

- Yves Achdou
- Martino Bardi
- Isabeau Birindelli
- Olivier Bokanowski
- Luca Bonaventura
- Fabio Camilli
- Italo Capuzzo Dolcetta
- Jean-Denis Durou
- Roberto Ferretti
- Stefano Finzi Vita
- Tiziana Giorgi
- Lars Grüne
- Nicola Guglielmi
- Franco Rampazzo
- Giovanni Russo
- Antonio Siconolfi
- Hasnaa Zidani

## Organizing Committee

- Ariela Briani
- Maya Briani
- Simone Cacace
- Elisabetta Carlini
- Emiliano Cristiani
- Alessandra Seghini

## Supported by

- SAPIENZA Università di Roma
- ROMA TRE Università degli Studi
- Gruppo Nazionale per il Calcolo Scientifico, INdAM
- Istituto per le Applicazioni del Calcolo "Mauro Picone", CNR

[www.mat.uniroma1.it/Maurizio60](http://www.mat.uniroma1.it/Maurizio60)



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# Numerical Methods for PDEs

## Optimal Control, Games and Image Processing

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of the 60th birthday of Maurizio Falcone

## Thursday, December 4

13:00 Registration

14:00 Italo Capuzzo Dolcetta

Semidiscrete and finite differences approximation of mean field games

14:25 Antonio Siconolfi

Weak KAM techniques for singularly perturbed control problems

14:50 Mini Break

15:05 M60 Stories

15:20 Franco Rampazzo

Costly asymptotic controllability (Si ad metam gratuitus non est accessus)

15:45 Nicola Guglielmi

Most unstable switching laws for switched linear systems

16:10 Olivier Bokanowski

A high order numerical method for a nonlinear diffusion+obstacle equation

16:35 Coffe Break

17:00 Giovanni Russo

Semi-Lagrangian schemes for kinetic equations

17:25 Jean-Denis Durou

Photometric Stereo: a photographic technique for 3D-scanning

17:50 Yves Achdou

Two-domains Hamilton-Jacobi equations with an oscillating interface: effective transmission conditions

18:15 Stefano Finzi Vita

Similarity solutions for the silo filling problem in granular matter theory: a numerical study

18:40 Maurizio Falcone

20:00 Dinner

## Friday, December 5

09:00 Hasnaa Zidani

Optimal control problems on generalized networks

09:25 Isabeau Birindelli

A variational approach to fully nonlinear operators

09:50 Tiziana Giorgi

Field-induced smectic phases in liquid crystals

10:15 Martino Bardi

A Dijkstra-type algorithm for dynamic games

10:40 Coffee Break

11:10 Roberto Mecca

A Different(ial) Approach to the Photometric Stereo Problem

11:25 Adriano Festa

Independent sub-domains reconstruction and parallel computing

11:40 Dante Kalise

Local optimization in semi-Lagrangian schemes for Hamilton-Jacobi equations

11:55 Alessandro Alla

On the coupling between MPC and DP methods for optimal control problems

12:10 Mini Break

12:25 Athena Picarelli

State-constrained stochastic optimal control problems via reachability approach

12:40 Silvia Tozza

A unified approach to Shape-from-Shading models for non-Lambertian surfaces

12:55 Smita Sahu

An efficient filtered scheme for some first order Hamilton-Jacobi-Bellman equations

13:10 Lunch

14:30 Luca Bonaventura

Local exponential methods for environmental fluid dynamics

14:55 Fabio Camilli

Eikonal equations on the Sierpinski gasket

15:20 Lars Grüne

Stabilization with discounted optimal control

15:45 Roberto Ferretti

Some issues in the semi-Lagrangian treatment of second-order balance laws

16:10 August!