# MATTIA
MARTINI

## CONTACT INFO


**E-mail** mattia.martini@unice.fr

**Professional address** Parc Valrose, 06108 Nice, Cedex 2, France

**Website** https://sites.google.com/view/mattia-martini-math/

**ORCID** https://orcid.org/0000-0002-9326-3234


## EXPERIENCE

**POST-DOC RESEARCHER** Apr. 2023-present

***Université Côte d'Azur*** | *Nice, France*

(Laboratoire de Mathématiques J.A. Dieudonné)

- Mentor: Prof. François Delaure
- Member of ERC project ELISA

## EDUCATION

**PhD IN MATHEMATICAL SCIENCES** Oct. 2019-Mar. 2023

***Università degli Studi di Milano*** | *Milan, Italy*

- Thesis: Advances in stochastic analysis on spaces of measures: Kolmogorov equations related to stochastic filtering and mean field optimal stopping
- Supervisor: Prof. Marco Fuhrman

**MSc IN MATHEMATICAL ENGINEERING** Sep. 2017-Oct. 2019

***Politecnico di Milano*** | *Milan, Italy*

(110/110 cum laude)

- Thesis: Kolmogorov Equations on Space of Measures Associated to Stochastic Filtering Processes
- Supervisors: Prof. Sandro Salsa and Prof. Marco Fuhrman

**BSc IN MATHEMATICAL ENGINEERING** Sep. 2014-Sep. 2017

***Politecnico di Milano*** | *Milan, Italy*

(110/110)

- Thesis: Quantum bits and superdense coding
- Supervisor: Prof. Matteo Gregoratti

**High School Diploma** 2009-2014

***I.T.I.S Galileo Galileo*** | *San Secondo P.se, Italy*

(100/100 cum laude)

## PUBLICATIONS

**Preprints**

Delarue, F. and **M. Martini** (2024). "Fourier Galerkin approximation of mean field control problems". arXiv:2403.15642.

**M. Martini** (2022). "Kolmogorov equations on the space of probability measures associated to the nonlinear filtering equation: the viscosity approach". arXiv:2202.11072.

**Articles**

Cosso, A. and **M. Martini** (2023). "On smooth approximations in the Wasserstein space". *Electronic Communications in Probability* 28, 1–11.

Djehiche, B. and **M. Martini** (2023). "Time-inconsistent mean-field optimal stopping: A limit approach". *Journal of Mathematical Analysis and Applications* 528.1.

**M. Martini** (2023). "Kolmogorov equations on spaces of measures associated to nonlinear filtering processes". *Stochastic Processes and their Applications* 161, 385–423.

**M. Martini** and G. E. Sodini (2021). "Numerical Methods for a System of Coupled Cahn-Hilliard Equations". *Commun. Appl. Ind. Math.* 12, 1–12.

## GIVEN TALKS,SEMINARS AND POSTERS

**2nd AMS-UMI International Joint Meeting (upcoming)** — **2024**
*TBA - special session "Mean Field Games and related topics"*

**Fourth Italian Meeting on Probability and Mathematical Statistics (upcoming)** — **2024**
*Presentation of [Delarue, M. 24] - invited session "Stochastic optimal control of McKean-Vlasov equations"*

**Young Researchers in Stochastic Control and Games** — **2023**
*Presentation of [Delarue, M. 24] - invited talk*

**Séminaire de Probabilités et Statistique, LJAD** — **2023**
*Presentation of [M. 23] - seminar of the probability and statistics group*

**PGMO Days** — **2023**
*Presentation of [M. 23] - invited session "Mean field games and control"*

**A Random Walk in the Land of Stochastic Analysis and Numerical Probability** — **2023**
*Presentation of [M. 23] - poster*

**SPDEs, optimal control and mean field games** — **2023**
*Presentation of [M. 23] - poster*

**The 9th International Colloquium on BSDEs and Mean Field Systems** — **2022**
*Presentation of [M. 23] - contributed talk*

**Third Italian Meeting on Probability and Mathematical Statistics** — **2022**
*Presentation of [M. 23] - contributed session "New trends in stochastic control"*

**100 years UMI and First UMI meeting of PhD students** — **2022**
*Presentation of [M. 23] - contributed talk*

**Università degli Studi Milano-Bicocca, Seminars cycle "Insalate di Matematica"** — **2021**
*Backward Kolmogorov equations: a link between PDEs and SDEs*

**Trento-Wuppertal School on Stochastic Processes, Analysis and Semigroups** — **2021**
*Presentation of [M. 23] - contributed talk*

**Working group on Optimal Transport and Mean Field Games, Università degli Studi di Milano - Università degli Studi di Milano Bicocca - Politecnico di Milano** 2019
*Two lectures on differentiation in Wasserstein spaces*

## TEACHING

**Stochastic differential equations** 2022-2023
***Teaching assistant*** | *MSc Mathematical Engineering, Politecnico di Milano*

**Stochastic differential equations** 2021-2022
***Teaching assistant*** | *MSc Mathematical Engineering, Politecnico di Milano*

**Basics of Statistics** 2020-2021
***Teaching assistant*** | *BSc Biomedical Engineering, Politecnico di Milano*

**Stochastic differential equations** 2020-2021
***Teaching assistant*** | *MSc Mathematical Engineering, Politecnico di Milano*

**Probability and Statistics** 2019-2020
***Teaching assistant*** | *BSc Management Engineering, Politecnico di Milano*

## VISITING POSITIONS

**Università di Parma** February 2024
***1 Week*** | *Host: Dr. Alessandro Calvia*

**KTH, Stockholm** May 2022
***1 Week*** | *Host: Prof. Boualem Djehiche*

## CONFERENCES, WORKSHOPS AND SCHOOLS

**Mean-Field Interaction, Singular Kernels, and Approximation**
***Dec. 18 - 22, 2023*** | *Institut Henri Poincaré, Paris (conference)*

**Young Researchers in Stochastic Control and Games**
***Dec. 14 - 15, 2023*** | *Universität Bielefeld (workshop)*

**PGMO Days**
***Nov. 28 - 19, 2023*** | *EDF Lab Paris-Saclay (conference)*

**A Random Walk in the Land of Stochastic Analysis and Numerical Probability**
***Sept. 4 - 8, 2023*** | *CIRM Luminy (conference)*

**SPDEs, optimal control and mean field games**
***July 10 - 14, 2023*** | *Universität Bielefeld (workshop)*

**Summer School on Mean Field Models**
***June 12 - 16, 2023*** | *Centre Henri Lebesgue, Université de Rennes (school)*

**Two-day workshop on deterministic and stochastic control**
***September 6 - 7, 2022*** | *Politecnico di Milano (workshop)*

**9th International Colloquium on BSDEs and Mean Field Systems**
***June 27 - July 1, 2022*** | *IAE Savoie Mont Blanc, Annecy (conference)*

**Third Italian Meeting on Probability and Mathematical Statistics**
***June 13 - 16, 2022*** | *Università di Bologna (conference)*

**100 years UMI & First UMI meeting of PhD students**
***May 23 - 27, 2022*** | *Università di Padova (conference)*

**Stochastic Games and Martingale Optimal Transport**
***May 5 - 6, 2022*** | *Università degli Studi di Milano (workshop)*

**3rd Spring Colloquium on Probability and Finance**
***April 28 - 29, 2022*** | *Università di Padova, online (workshop)*

**Schrödinger Problem and Mean-field PDE Systems: Computational and Theoretical Advances**
*November 15 - 19, 2021* | *CIRM Luminy (conference)*

**Trento-Wuppertal School on Stochastic Processes, Analysis and Semigroups**
*August 30 - September 3, 2021* | *Università di Trento (school)*

**Stochastic games with partial and asymmetric information**
*July 6 - 7, 2021* | *Collegio Carlo Alberto, online (workshop)*

**Stochastic Processes and their Friends**
*March 18 - 19, 2021* | *University of Leeds, online (conference)*

**Mean field games in economics**
*September 7 - 8, 2022* | *LUISS University and Einaudi Institute for Economics and Finance, online (workshop)*

**13th European Summer School in Financial Mathematics**
*August 31 - September 4, 2022* | *University of Vienna (school)*

**Stochastic analysis brats**
*June 23 - 26, 2020* | *Università di Pisa, online (workshop)*

## ORGANIZATION

**Contributed session "Mean Field Games and Mean Field Control I"**
*4th Italian Meeting on Probability and Mathematical Statistics, 2024* | *Roma*

**Conference "Phd Days 2021"**
*December 14 - 17, 2021* | *Università degli Studi di Milano*

## SKILLS

**IT**

- **Operating systems**: Microsoft Windows, Linux-Unix, MacOS
- **Office**: LaTeX, Microsoft Office
- **Languages**: C++, C, MPI
- **Scientific programming**: Matlab, R, FreeFem

**Languages**

- Italian (native)
- English (Full professional proficiency)
- French (Basic)

## OTHERS

**Abilitations** Maître de conférences (26 - Mathématiques appliquées et applications des mathématiques)

**Referee activities** SICON, Stochastic Processes and Their Applications

**Part of research project**

- From 2023: member of the ERC project ELISA (Grant agreement No. 101054746), P.I. Prof. F. Delarue.

**Memberships**

- From 2022: Unione Matematica Italiana (UMI)
- From 2020: Indam, GNAMPA

**Scholarships**

- 2016 to 2018: Scholarship for the best off-site students
- 2015: Scholarship for the best freshmen of A.Y. 2014/2015

27/03/2024