

PERSONAL INFORMATION

## Mauro Rosestolato

📍 Dipartimento di Matematica e Fisica “Ennio De Giorgi”

Ex Collegio Fiorini – Via per Arnesano – Lecce

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Nationality Italian

EDUCATION AND POSITIONS

From January 2019

### Ricercatore (RTDb)

Dipartimento di Matematica e Fisica “Ennio De Giorgi” – Università del Salento (Lecce, Italy)

February 2016 – April 2018

### Postdoctoral researcher

École Polytechnique (Palaiseau, France)

October 2011 – September 2015

### Assegnista di ricerca

LUISS “Guido Carli” (Rome, Italy)

October 2013–July 2014

### DAAD Scholarship's owner

Bergische Universität (Wuppertal, Germany)

2009–2011

### PhD in Mathematical Finance

Scuola Normale Superiore (Pisa, Italy)

Title of the thesis: *Topics in stochastic calculus in infinite dimension for financial applications*

Advisor: Fausto Gozzi

Referees: Francesco Russo (ENSTA ParisTech, Palaiseau, France), Huyên Pham (Université Paris Diderot, Paris, France)

Mark: 70/70 *cum laude*

2005–2008

### Master of Science in Mathematics

University of Padova (Italy)

Title of thesis: *Robustness of the Hobson-Rogers model*

Advisor: Tiziano Vargiolu

Mark: 110/110 *cum laude*

2001–2004

### Bachelor of Science in Mathematics

University of Padova (Italy)

Title of the thesis: *Representations of  $S_n$*

Advisor: Giovanna Carnovale

Mark: 110/110 *cum laude*

## RESEARCH INTERESTS

- Semigroup theory and applications to Markov transition semigroups
- PDEs in Hilbert spaces associated with financial models with delay
- Path-dependent partial differential equations
- Impulsive stochastic control for irreversible investments
- Stochastic optimal control in finite and infinite dimension via dynamic programming and viscosity solutions
- Stochastic dynamics with delay for applications to option pricing

## FUNDING

- 2015 Member of the project “PDE correlate a sistemi stocastici con ritardo” (financed by INdAM — Istituto di Nazionale Alta Matematica).  
Head: Federica Masiero (University of Milano Bicocca, Italy).
- 2014 Member of the project “Equazioni stocastiche con memoria e applicazioni” (financed by INdAM — Istituto Nazionale di Alta Matematica).  
Head: Salvatore Federico (University of Siena, Italy).

## AWARDS/SCHOLARSHIPS

- Winner of the YITP Research Prize associated with the *III Energy Finance Workshop 2018*.
- Winner of the YITP Research Prize associated with the *XVIII Workshop on Quantitative Finance 2017*.
- Scholarship offered by the German Academic Exchange Service (DAAD) for a visit at the University of Wuppertal (Germany; October 2013–July 2014).

## VISITING APPOINTMENTS

- October 2013 – July 2014 Visit to Bergische Universität (Wuppertal, Germany).
- October 2010 – February 2011 Exchange visit to École Normale Supérieure of Paris.
- September 2003 – March 2004 Erasmus visiting student at Université Pierre et Marie Curie, Paris.

## REFEREE ACTIVITY

- Applied Mathematics and Optimization
- Journal of Mathematical Economics
- Journal of Optimization Theory and Applications
- Mathematical Control and Related Fields
- Nonlinear Analysis Series A: Theory, Methods & Applications
- Optimal Control Applications and Methods
- SIAM Journal on Control and Optimization
- Systems & Control Letters
- Stochastics
- Stochastic Processes and their Applications
- Journal of Mathematical Analysis and Applications

## PUBLICATIONS

1. Z. Ren and M. Rosestolato, “Viscosity solutions of path-dependent PDEs with randomized time”, to appear in *SIAM Journal on Mathematical Analysis*.
2. S. Federico, M. Rosestolato, and E. Tacconi, “Irreversible investment with fixed adjustment costs: a stochastic impulse control approach”. *Mathematics and Financial Economics* (2019) 13:579–616.
3. S. Federico and M. Rosestolato, “ $C_0$ -sequentially equicontinuous semigroups on locally convex spaces”, to appear in *Kyoto Journal of Mathematics*, arXiv:1512.04589.
4. A. Cosso, S. Federico, F. Gozzi, M. Rosestolato, and N. Touzi, “Path-dependent equations and viscosity solutions in infinite dimension”. *The Annals of Probability* (2018) 46(1):126–174.
5. M. Rosestolato and A. Świech, “Partial regularity of viscosity solutions for a class of Kolmogorov equations arising from mathematical finance”. *J. Differential Equations* (2017) 262(3):1897–1930.
6. M. Rosestolato, T. Vargiolu, and G. Villani, “Robustness for path-dependent volatility models”. *Decisions in Economics and Finance* (2013) 36(2):137–167.
7. M. Rosestolato, “Path-dependent SDEs in Hilbert spaces”, to appear in *Frontiers in Stochastic Analysis — BSDEs, SPDEs and their Applications — Edinburgh, July 2017* (proceedings of the International Workshop on BSDEs and SPDEs), arXiv:1606.06321.

## SUBMITTED PAPERS

8. M. Rosestolato, “Functional Itô calculus in Hilbert spaces and application to path-dependent Kolmogorov equations”, arXiv:1606.06326.

## PREPRINTS

9. M. Rosestolato, “A note on stochastic Fubini’s theorem and stochastic convolution”, arXiv:1606.06340.

## WORKING PAPERS

10. M. Rosestolato, “Partial regularity for semilinear parabolic PDE’s in Hilbert spaces”.
11. A. Cosso, F. Gozzi, I. Kharroubi, H. Pham, M. Rosestolato, “Optimal control of path-dependent Mc Kean-Vlasov SDEs in infinite dimension”.

## TALKS

- “Irreversible investment with fixed adjustment costs: a stochastic impulse control approach”. *III Energy Finance Workshop*, Pescara (Italy), February 15–16, 2018.
- “Representation of path-dependent PDEs in Hilbert spaces: relationship between two notions of viscosity solution”. *International Conference on Stochastic Analysis, Stochastic Control, and Applications*, Hammamet (Tunisia), October 24–27, 2017.
- “Representation of path-dependent PDEs in Hilbert spaces: relationship between two notions of viscosity solution”. *International Workshop on BSDEs, SPDEs and their Applications*, Edinburgh (Scotland), July 3–7, 2017.
- “Partial regularity of viscosity solutions for a class of Kolmogorov equations arising from mathematical finance”. *XVIII WORKSHOP ON QUANTITATIVE FINANCE*, Milano (Italy), January 25–27, 2017.
- “Partial regularity of viscosity solutions for a class of Kolmogorov equations arising from mathematical finance”. *Séminaire Probabilités-Statistiques-Contrôle*, ENSTA, Palaiseau (France), June 13, 2016.
- “Path-dependent equations and viscosity solutions in infinite dimension”. *International Conference on Stochastic Analysis and Applications*, Hammamet (Tunisia), October 19–23, 2015.
- “An impulse control approach to irreversible investment with fixed costs”. *13<sup>th</sup> Viennese Workshop on Optimal Control and Dynamic Games*, Vienna (Austria), May 13–16, 2015.
- “Directional regularity for viscosity solutions of Kolmogorov equations arising in SDEs with delay”. *Oberseminar Stochastik*, Wuppertal (Germany), February 5, 2014.
- “Directional regularity for viscosity solutions of Kolmogorov equations arising in SDEs with delay”. *Meeting on path-dependent SDEs and related topics*, Pisa (Italy), January 21–22, 2014.
- “Differentiability of the semigroup associated to SDEs with delay and applications to finance”. *9<sup>th</sup> International Conference on “Large-Scale Scientific Computations”*, Sozopol (Bulgaria), June 3–7, 2013.
- “Market models with delay and differentiability with respect to the present state variable of the associated semigroup”. *Stochastic Analysis and Control*, Bedlewo (Poland), May 5–10, 2013.
- “Stock dynamics with infinite delay: pricing and hedging”. *12<sup>th</sup> Viennese Workshop on Optimal Control, Dynamic Games and Nonlinear Dynamics*, Vienna (Austria), May 30<sup>th</sup> – June 2<sup>nd</sup>, 2012.
- “Stock dynamics with delay: pricing and hedging” (poster session). *Workshop on Stochastic Analysis and Applications*, Lausanne (Switzerland), June 4–8, 2012.
- “Robustness for path-dependent volatility models”. *Seminario Dottorato*, Padova (Italy), April 6, 2011.
- “Robustness for path-dependent volatility models” (poster session). *Fifth General Conference on Advanced Mathematical Methods in Finance*, Bled (Slovenia), May 4–8, 2010.

## PARTICIPANT TO OTHER SCHOOLS, WORKSHOPS, AND CONFERENCES

- *Winter School on Stochastic PDEs and Mean-Field Games*, Bologna (Italy), January 14–16, 2019.
- *Mean-field games, energy and environment*, London (England), February 12–14, 2018.
- *XIX WORKSHOP ON QUANTITATIVE FINANCE*, Rome (Italy), January 24–26, 2018.
- *London-Paris Bachelier Workshop on Mathematical Finance 2017*, London (England), September 22–23, 2017.
- *Stochastic Partial Differential Equations and Applications — X*, Levico (Italy), May 30–June 4, 2016.
- *Stochastic Partial Differential Equations and Applications — IX*, Levico (Italy), January 6–11, 2014.
- *Italian-German training winterschool for stochastic modeling of financial crisis*, University of Wuppertal (Germany), December 9–16, 2013.
- *Probability and PDE's*, Pisa (Italy), Italy, May 20–24, 2013.
- *XXXV Convegno AMASES*, Pisa (Italy), September 15–17, 2011.
- *CIME 2011 — Hamilton-Jacobi equations: approximations, numerical analysis and applications*, Cetraro (Italy), August 29–September 3, 2011.
- *Summer School on Stochastic Control and Related PDEs*, Milano (Italy), June 27–July 1, 2011.
- *Seventh Seminar on Stochastic Analysis, Random Fields and Applications*, Ascona (Switzerland), May 23–27, 2011.
- *XII Workshop on Quantitative Finance*, Padova (Italy), January 27–28, 2011.
- *Workshop on Evolution and Market Behavior in Economics and Finance*, Pisa (Italy), October 2–3, 2009.
- *Spring School in Finance*, Bologna (Italy), May 21–22, 2009.
- *Scuola Matematica Interuniversitaria*, Perugia (Italy), July 28–August 28, 2008.

## SCIENTIFIC COLLABORATORS

Andrea Cosso (University of Bologna, Italy); Cristina Di Girolami (University of Le Mans); Salvatore Federico (University of Siena, Italy); Fausto Gozzi (LUISS “Guido Carli”, Rome, Italy); Idris Kharroubi (Sorbonne University); Huy n Pham (Universit  Paris Diderot); Zhenjie Ren (Universit  Paris Dauphine, Paris, France); Andrzej  wiech (Georgia Institute of Technology, Atlanta, USA); Elisa Tacconi (Bocconi University, Milano, Italy); Nizar Touzi ( cole Polytechnique, Palaiseau, France); Tiziano Vargiolu (University of Padova, Italy); Giovanna Villani (Caixabank, Barcelona, Spain).

## LANGUAGE SKILLS

Italian	mother tongue
English	professional working proficiency (C1)
French	effective operational proficiency (B2)
German	effective operational proficiency (B2)

## COMPUTER SKILLS

$\LaTeX$ ; Python; C/C++; JavaScript; MATLAB; Lisp; UNIX OSs.