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# CURRICULUM VITAE

LUCIA CARAMELLINO

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## Contents

<b>1</b>	<b>Personal data</b>	<b>1</b>
<b>2</b>	<b>Research activity</b>	<b>1</b>
2.1	Publications . . . . .	1
2.2	Research interests . . . . .	4
2.3	Research periods abroad . . . . .	4
2.4	Conferences/workshops/seminars . . . . .	5
2.5	Other tasks . . . . .	6
<b>3</b>	<b>Teaching activity</b>	<b>7</b>
3.1	Courses . . . . .	7
3.2	Bachelor's and master's degree theses . . . . .	7
3.3	PhD students&theses . . . . .	8
3.4	Other tasks . . . . .	8
<b>4</b>	<b>Other activities</b>	<b>8</b>
4.1	Administrative duties . . . . .	8
4.2	Evaluation committees . . . . .	9
4.3	Organization of conferences/workshops/seminars . . . . .	10
4.4	Research funds coordination/participation . . . . .	10

# 1 Personal data

- Full professor of Probability (Professore di I fascia, ssd Mat/06: Calcolo delle Probabilità e Statistica Matematica) at the Department of Mathematics of the University of Rome “Tor Vergata”, since 30th December 2021.
- Address: Dipartimento di Matematica, Università di Roma “Tor Vergata”, Via della Ricerca Scientifica 1, I-00133, Roma, Italy.  
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e-mail: [caramell@mat.uniroma2.it](mailto:caramell@mat.uniroma2.it);  
webpage: <http://www.mat.uniroma2.it/~caramell>.
- Previously:
  - ▶ Associate professor of Probability (professore associato, ssd Mat/06: Calcolo delle Probabilità e Statistica Matematica), Università Tor Vergata, from 2001 to 2021;
  - ▶ Assistant professor of Probability (Ricercatore, ssd Mat/06: Calcolo delle Probabilità e Statistica Matematica), Department of Mathematics, Università Roma Tre, from 1995 to 2001;
  - ▶ PhD in Mathematics (dottorato di Ricerca in Matematica, settore: Analisi Matematica e Calcolo delle Probabilità), Università di Roma “Tor Vergata”, 1997.
  - ▶ Master’s degree in Mathematics with honors (Laurea in Matematica con lode), 1991, Università di Roma La Sapienza.

# 2 Research activity

## 2.1 Publications

### Published (or to appear) papers

1. L. CAMELLINO, G. GIORGIO, M. ROSSI (2023+) Convergence in Total Variation for nonlinear functionals of random hyperspherical harmonics. *Journal of Functional Analysis*, to appear; [arXiv:2206.02605](https://arxiv.org/abs/2206.02605).
2. V. BALLY, L. CAMELLINO, A. KOHATSU-HIGA (2024) Upper bounds for the derivatives of the density associated to solutions of stochastic differential equations with jumps. *Journal of Mathematical Analysis and Applications*, **531**; 30 pages.
3. V. BALLY, L. CAMELLINO, A. KOHATSU-HIGA (2022) Using moment approximations to study the density of jump driven SDEs. *Electronic Journal of Probability*, **27**, 1-21.
4. V. BALLY, L. CAMELLINO (2021) Transfer of regularity for Markov semigroups by using an interpolation technique. *Journal of Stochastic Analysis*, **2**, Article 13.
5. M. BRIANI, L. CAMELLINO, G. TERNZI (2021) Convergence rate of Markov chains and hybrid numerical schemes to jump-diffusions with application to the Bates model. *SIAM Journal of Numerical Analysis*, **59**, no. 1, 477–502.
6. V. BALLY, L. CAMELLINO, G. POLY (2020) Regularization lemmas and convergence in total variation. *Electronic Journal of Probability*, **25**, no. 74.

7. V. BALDI, L. CARAMELLINO, M. ROSSI (2020) Large deviations of conditioned diffusions and applications. *Stochastic Processes and their Applications*, **130**, 1289–1308.
8. M. BRIANI, L. CARAMELLINO, G. TERENCE, A. ZANETTE (2019) Numerical stability of a hybrid method for pricing options. *International Journal of Theoretical and Applied Finance*, **22**, 46 pages.
9. V. BALLY, L. CARAMELLINO (2019) Total variation distance between stochastic polynomials and invariance principles. *Annals of Probability*, **47**, 3762–3811.
10. V. BALLY, L. CARAMELLINO, P. PIGATO (2019) Tube estimates for diffusions under a local strong Hörmander condition. *Annales de l'Institut Henri Poincaré (B) Probability and Statistics*, **55**, 2320–2369.
11. V. BALLY, L. CARAMELLINO, G. POLY (2019) Non universality for the variance of the number of real roots of random trigonometric polynomials. *Probability Theory and Related Fields*, **174**(3-4), 887–927.
12. V. BALLY, L. CARAMELLINO, G. POLY (2018) Convergence in distribution norms in the CLT for non identical distributed random variables. *Electronic Journal of Probability*, **23**, no. 45.
13. V. BALLY, L. CARAMELLINO (2017) Regularity of Wiener functionals under a Hörmander type condition of order one. *Annals of Probability*, **45**, 1488–1511.
14. V. BALLY, L. CARAMELLINO (2017) Convergence and regularity of probability laws by using an interpolation method. *Annals of Probability*, **45**, 1110–1159.
15. M. BRIANI, L. CARAMELLINO, A. ZANETTE (2017) A hybrid tree-finite difference approach for the Heston model. *IMA Journal of Management Mathematics*, **28**, 467–500.
16. M. BRIANI, L. CARAMELLINO, A. ZANETTE (2017) A hybrid tree/finite-difference approach for Heston-Hull-White type models. *Journal of Computational Finance*, **21**, 1–45.
17. V. BALLY, L. CARAMELLINO, R. CONT (2016) *Stochastic integration by parts and functional Itô calculus*. Advanced Courses in Mathematics - CRM Barcelona, Birkhäuser.
18. V. BALLY, L. CARAMELLINO (2016) Asymptotic development in the CLT in total variation distance. *Bernoulli*, **22**, 2442–2485.
19. E. APPOLLONI, L. CARAMELLINO, A. ZANETTE (2015) A robust tree method for pricing American options with CIR stochastic interest rate. *IMA Journal of Management Mathematics*, **26**, 345–375.
20. P. BALDI, L. CARAMELLINO, M. ROSSI (2015) On sharp large deviations for the bridge of a general diffusion. C. Donati-Martin et al. (eds.), *In memoriam Marc Yor - Séminaire de Probabilités XLVII*, Lecture Notes in Mathematics 2317, 427–442.
21. L. CARAMELLINO, B. PACCHIAROTTI, S. SALVADEI (2015) Large deviation approaches for the numerical computation of the hitting probability for Gaussian processes. *Methodology and Computing in Applied Probability*, **17**, 383–401.
22. V. BALLY, L. CARAMELLINO (2014) On the distances between probability density functions. *Electronic Journal of Probability*, **19**, no. 110, 1–33.
23. V. BALLY, L. CARAMELLINO (2013) Positivity and lower bounds for the density of Wiener functionals. *Potential Analysis*, **39**, 141–168.
24. L. CARAMELLINO, A. ZANETTE (2011) Monte Carlo methods for pricing and hedging American options in high dimension. *Risk and Decision Analysis*, **2**, 207–220.

25. P. BALDI, L. CARAMELLINO (2011) General Freidlin-Wentzell large deviations and positive diffusions. *Statistics and Probability Letters*, **81**, 1218-1229.
26. V. BALLY, L. CARAMELLINO (2011) Riesz transform and integration by parts formulas for random variables. *Stochastic Processes and their Applications*, **121**, 1332-1355.
27. L. CARAMELLINO, B. PACCHIAROTTI (2008) Large deviation estimates of the crossing probability for pinned Gaussian processes. *Advances in Applied Probability*, **40**, 424-453.
28. V. BALLY, L. CARAMELLINO, A. ZANETTE (2006) A mixed PDE-Monte Carlo approach for the pricing of credit default swaps. *Decisions in Economics and Finance*, **29**, 121-137.
29. V. BALLY, L. CARAMELLINO, A. ZANETTE (2005) Pricing and hedging American options by Monte Carlo methods using a Malliavin calculus approach. *Monte Carlo Methods and Applications*, **11**, 97-133.
30. L. CARAMELLINO, B. PACCHIAROTTI (2002) Weak approximation of a Brownian motion killed on time-dependent barriers. *Monte Carlo Methods and Applications*, **8**, 221-237.
31. P. BALDI, L. CARAMELLINO (2002) Asymptotics of hitting probabilities for general one-dimensional diffusions. *Annals of Applied Probability*, **12**, 1071-1095.
32. L. CARAMELLINO, M.G. IOVINO (2002) An exit-probability-based approach for the valuation of defaultable securities. *Journal of Computational Finance*, **6**, 1-24.
33. L. CARAMELLINO, V. DI VINCENZO (2001) A law of the Iterated Logarithm for random walks on nilpotent Lie groups. *Bernoulli*, **7**, 605-628.
34. P. BALDI, L. CARAMELLINO, M. G. IOVINO (1999) Pricing general barrier options: a numerical approach using Sharp Large Deviations. *Mathematical Finance*, **9**, 293-322.
35. P. BALDI, L. CARAMELLINO, M. G. IOVINO (1999) Pricing complex barrier options with general features using sharp large deviation estimates. Monte Carlo and Quasi-Monte Carlo Methods 1998, H. Niederreiter-J. Spanier (Eds.), Springer, 149-162.
36. P. BALDI, L. CARAMELLINO (1999) Large and moderate deviations for random walks on nilpotent Lie groups. *Journal of Theoretical Probability*, **12**, 779-809.
37. L. CARAMELLINO, A. CLIMESCU-HAULICA, B. PACCHIAROTTI (1999) Diffusion approximations for random walks on nilpotent Lie groups. *Statistics and Probability Letters*, **41**, 363-377.
38. L. CARAMELLINO (1998) Strassen's law of the iterated logarithm for diffusion processes for small time. *Stochastic Processes and their Applications*, **74**, 1-19.
39. M. ABUNDO, P. BALDI, L. CARAMELLINO (1998) A diffusion approximation which models hierarchic interactions in cooperative biological systems. *Open Systems & Information Dynamics*, **5**, 1-23.
40. L. CARAMELLINO, F. SPIZZICHINO (1996) WBF property and stochastic monotonicity of the Markov process associated to Schur-constant survival functions. *Journal of Multivariate Analysis*, **56**, 153-163.
41. M. ABUNDO, L. CARAMELLINO (1995) Some remarks about a Markov chain which models cooperative biological systems. *Open Systems & Information Dynamics*, **3**, 325-343.
42. L. CARAMELLINO, F. SPIZZICHINO (1994) Dependence and ageing properties of lifetimes with Schur-constant survival function. *Probability in the Engineering and Informational Sciences*, **8**, 103-111.

## Other publications

- V. BALLY, L. CARAMELLINO, A. ZANETTE (2003) The Lions and Regnier Monte Carlo algorithm for the pricing of American options. Review paper for PREMIA (<http://www-rocq.inria.fr/mathfi/Premia/index.html>).
- L. CARAMELLINO (1997) *Proprietà asintotiche dei processi di diffusione e applicazioni*. Tesi di Dottorato in Matematica.

## 2.2 Research interests

Stochastic calculus, diffusion processes, Malliavin calculus, large deviations, numerical methods in Finance. More in details:

- Malliavin calculus:
  - regularization lemmas, with applications to invariance principles, to the convergence in total variation, to distances between random variables or probability density functions [1, 6, 9, 11, 12, 18, 22];
  - regularity, positivity and non-asymptotic bounds of the probability density function (for solutions of stochastic differential equations e.g.) [2, 3, 4, 10, 13, 14, 17, 23, 26];
  - applications to simulation and to numerical methods in Finance, for the computation of the sensitivities of European options and for the pricing and hedging of American options [24, 29].
- Efficient schemes for the numerical computation of expectations, via Monte Carlo methods or by mixing stochastic techniques (tree methods) and techniques from numerical analysis (numerical solutions of partial integro differential equations), with application to pricing problems in complex settings, for example stochastic volatility models; study of the stability and of the theoretical speed of convergence [5, 8, 15, 16, 19, 28].
- Large deviations and sharp large deviations estimates and applications: in particular exit probability of conditioned processes in small time [7, 20, 21, 25, 27, 30, 31, 34], with application to simulation and to numerical Monte Carlo methods in Finance for the pricing of barrier options or related options [34, 35, 32]. Also asymptotic behavior (Iterated Logarithm laws e.g.) of diffusion processes, possibly on algebraic structures [33, 36, 37, 38, 39, 41].
- Reliability [40, 42].

## 2.3 Research periods abroad

- Visiting at the INRIA, Paris, July 1999, March 2002.
- Visiting at the CERMICS, École des Ponts Paris-Tech, Paris, December 2002-January 2003.
- Starting from December 2003, on a regular basis (every year), various scientific collaboration assignments with the University Paris Est-Marne, with visiting professor positions at the Laboratoire d'Analyse et de Mathématiques.
- Visiting professor at the Laboratoire J.A. Dieudonné, Université de Nice Sophia-Antipolis, March 2019.
- Visiting professor at the Labex Bézout (Université Gustave Eiffel), July and September 2021; September and December 2023.

## 2.4 Conferences/workshops/seminars

- Noise: benefits and drawbacks in theory and applications, University of Torino, September 2022; invited talk *Convergence rate of a hybrid numerical scheme for pricing options*.
- Taming Uncertainty and Complexity in Economics and Finance, LUISS, Rome 2022; invited talk *Convergence rate of a hybrid numerical scheme for pricing options*.
- Conference on Random Nodal Sets, Rennes, 2019; invited talk *Regularization lemmas and convergence in total variation*.
- Recent Advances in Random Processes - A Conference in honor of Paolo Baldi's 70th birthday, Rome, 2018; *Convergence rate of Markov chains and hybrid numerical schemes to jump-diffusions with application to stochastic volatility models*.
- First Italian Meeting on Probability and Mathematical Statistics, Torino, 2017; invited talk *Total variation distance between stochastic polynomials and invariance principles*.
- XVI Workshop on Quantitative Finance, Parma, 2015; *A hybrid tree-finite difference method for the Heston model*.
- Workshop on Malliavin Calculus for Jump Processes, Université Paris Est-Marne, 2010; invited talk *Malliavin Greeks for complex Asian options in a jump diffusion setting*.
- Conference Stochastic Methods in Finance, Torino, 2008; *Large deviation estimates of the crossing probability for pinned Gaussian processes*.
- 6-th Congress of Romanian Mathematicians, Bucarest 2007, invited talk *Large deviations estimates of the crossing probability for small time and applications to Monte Carlo Methods in Finance*, session "Advanced Mathematical Methods for Finance".
- Conference Stochastic Processes and Applications, Bologna, 2003, *Pricing and hedging American options by Monte Carlo methods using a Malliavin calculus approach*.
- AMAM Conference, Nizza, 2003, invited talk *An exit-probability based approach to the pricing of barrier and defaultable derivatives*.
- Workshop on Mathematical Finance, Pisa, 2001, *Asymptotics of hitting probabilities for diffusions with applications to simulation*.
- Conference Monte Carlo 2000, Monte Carlo, 2000, *Asymptotics of hitting probabilities for diffusions with applications to simulation* (Sezione: Financial Mathematics, I).
- Workshop on Mathematical Finance, Pescara, 2000, *A unifying approach for the valuation of derivatives securities subject to default and interest rate risk*.
- Workshop on Numerical Methods in Finance, Venezia, 1999; *Pricing complex barrier options with general features using Sharp Large Deviation estimates*.
- Conference Stochastic Processes and Applications, Padova, 1998, *Large and moderate deviations for random walks on nilpotent groups*.
- Third International Conference on Monte Carlo and Quasi Monte Carlo Methods, Claremont (California, USA), 1998, *Pricing barrier options with general features: a Large Deviation approach*.

- Third Italian Conference on Mathematical Finance, Trent, 1997, poster session, *Pricing single and double barrier options via sharp large deviation techniques*.
- Convegno del Gruppo 40% Processi Stocastici e Calcolo Stocastico, Levico Terme (TN), 1994, poster session, *Exact asymptotics for small probabilities for diffusion processes*.
- Convegno Nazionale di Probabilità e Statistica Matematica, Milano, 1993, *Processi di guasto e proprietà di invecchiamento*.
- *Numerical option pricing under stochastic volatility*, talk, I Seminari del Centenario UMI, Università di Pescara, 2023.
- *Convergence rate of hybrid numerical schemes to jump-diffusions*, talk, Università dell'Aquila, 2020; CERMICS, Ecole des Ponts ParisTech, 2021.
- *Regularization lemmas and convergence in total variation*, talk, Pavia-Milano Seminar series on Probability and Mathematical Statistics, 2021.
- *Power series representations for European option prices under stochastic volatility models*, talk, Prometeia (Bologna), 2012, and Université Paris Est-Marne, 2011.
- *Malliavin Greeks for complex Asian options in a jump diffusion setting*, talk, QFinLab, Politecnico di Milano, 2011.
- *Regularity of probability laws using the Riesz transform and Sobolev spaces techniques*, talk, Department of Mathematics, Università di Roma La Sapienza, 2010.
- *Large deviations estimates of the crossing probability for pinned Gaussian processes*, talk, Department of Mathematics, Università di Roma "Tor Vergata", 2006.
- *A Malliavin-Monte Carlo method for American options*, talk, Università di Udine, 2003; Università di Roma La Sapienza and Università di Florence, 2002.
- *Numerical computation of barrier options by using large deviations techniques*, talk, Università Roma Tre; Università di Roma La Sapienza; IAC-CNR Rome; CERMICS-ENPC; Université Paris Est-Marne; 1998-1999.
- *Sharp large deviation estimates for the hitting time through a moving barrier and application to simulation*, talk, Università di Roma "Tor Vergata", 1996.
- *Processi di guasto e proprietà di invecchiamento*, talk, Università di Roma La Sapienza, 1994.

## 2.5 Other tasks

- Associate Editor of *Bernoulli*, since January 2022.
- Referee for national and international projects, for PhD theses, for postdoctoral fellowships and for journals on Probability and/or Mathematical Finance [Annales de l'Institut Henri Poincaré (B) Probabilités et Statistiques; Annali della Scuola Normale Superiore, Classe di Scienze; Annals of Applied Probability; Applied Mathematical Finance; Brazilian Journal of Probability and Statistics; Decisions in Economics and Finance; Journal of Computational Finance; Journal of Economic Dynamics and Control; IMA Journal of Management Mathematics; IMA Journal of Numerical Analysis; Mathematics and Financial Economics; Potential Analysis; Quantitative Finance; SIAM Journal on Financial Mathematics; SIAM Journal on Numerical Analysis; Stochastic Analysis and Applications; Statistics and Probability Letters; Stochastic Processes and their Applications].

## 3 Teaching activity

### 3.1 Courses

- For the degrees in Mathematics at Tor Vergata: from 2001, courses in probability and finance at various levels<sup>1</sup>. More precisely,
  - ▶ basic courses for the first-level degree (Probabilità e Statistica, Probabilità 1, Laboratorio di Calcolo 1: metodi Monte Carlo) and more advanced courses on probability and stochastic calculus for the master's degree (Complementi di Probabilità, Calcolo delle Probabilità 1 - II modulo, Calcolo delle Probabilità 2 - I modulo);
  - ▶ courses in finance, both for the first-level degree (Probabilità e Finanza) and for the master's degree (Metodi e Modelli dei Mercati Finanziari).
- For the Engineering school at Tor Vergata: a basic course in probability and statistics (Calcolo delle Probabilità e Statistica) and courses in finance (Ingegneria dei Modelli Economico Finanziari-I modulo, Financial Engineering).
- For the degrees in Mathematics at Roma Tre: from 1995 to 2002, courses in probability and statistics, teaching assistant in mathematical analysis.
- Other courses:
  - ▶ *Malliavin calculus and applications in finance*, PhD in Mathematics, Università di Roma "Tor Vergata", 2010;
  - ▶ *Probabilistic numerical methods for pricing options I. Malliavin methods for numerical problems in finance*, PhD in Mathematical Models and Methods in Engineering, Politecnico di Milano, 2010/2011;
  - ▶ *Malliavin Calculus and applications in finance*, Corso di Alta Formazione in Finanza Matematica, Department of Mathematics, Università di Bologna, 2007/2008.
  - ▶ *Large deviations estimates for the numerical evaluation of financial derivatives with Monte Carlo methods*, Summer School in Computational Finance, Università Ca' Foscari, Venice, 2000;
  - ▶ Courses on stochastic processes, Corso di Perfezionamento in Metodi e Modelli Matematici per l'Analisi e il Controllo dei Sistemi, Department of Systems Engineering, Università di Roma La Sapienza, 1998/1999, 1997/1998.
  - ▶ A course in mathematical models in finance, first level master's degree in Comunicazione della Scienza e della Tecnologia, Università di Roma "Tor Vergata", 2007/2008.

### 3.2 Bachelor's and master's degree theses

- Supervisor of a three-year degree thesis in Mathematics and of more than 35 master's degree (or four-year degree) theses in Mathematics or Mathematical Engineering (of which four winners of local competitions at Tor Vergata and one thesis winner of two national competitions), mainly as the only supervisor but also in collaboration with: Federico Aluigi, Giacomo Cicerani, Andrea Di Iura, Leonardo Ferro and Giulia Terenzi (Enel SpA), Maya Biani (IAC-CNR, Rome), Fred Espen Benth (University of Oslo), Claude Martini (Zeliade Systems, Paris), Francesco Borgosano (Ladbroke's plc, London), Giulia Di Nunno (University of Oslo).

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<sup>1</sup>Details are given at <http://www.mat.uniroma2.it/~caramell/didattica.htm>



### 3.3 PhD students&theses

- Current students (PhD in Mathematics, Tor Vergata): Giacomo Giorgio and Edoardo Lombardo (the latter in co-tutoring with the ENPC - École Nationale des Ponts et Chaussées, Paris).
- PhD theses:
  - ▶ Giulia Terenzi: *American options in complex financial models*, December 2018 (PhD in Mathematics, Tor Vergata, co-tutorship with the Université Paris-Est); co-supervisor Damien Lamberton. Now Data Scientist at Enel SpA.
  - ▶ Elisa Appolloni: *Efficient tree methods for option pricing*, February 2014 (PhD in Models for Economics and Finance, Università di Roma La Sapienza); co-supervisor Antonino Zanette, Università di Udine. Now Quantitative Analyst at XY SA.
  - ▶ Valerio Marchisio: *Malliavin representation formulas for Asian options in a jump-diffusion setting*, 2009 (PhD in Mathematics Tor Vergata). Now Senior Consultant - Head of Finance and Risk Management at Kriel s.r.l. and lecturer at LUISS University.

### 3.4 Other tasks

- Tutorship:
  - ▶ for students enrolled in the Curriculum of Excellence of the master's course in Pure and Applied Mathematics at Tor Vergata (D. Dell'Ara and G. Giorgio, 2018-2020; G. Salvadei, E. Scrima and A. Trasatti, 2020-2022; V. Altamura, 2022-2024).
  - ▶ for students enrolled in the first year of the three-years degree in Mathematics at Tor Vergata, from 2008.
- Organization of recruiting days or other similar meetings for graduates and undergraduates in Mathematics (and not) at Tor Vergata (e.g. with the companies: BIP - Business Integration Partners, January 2017, January and November 2018; Enel SpA, July 2018, March 2020).
- *LavorOrienta*, workshop with selected companies aimed at students and academic people, to learn about the skills required for a quick job placement, Department of Mathematics at Tor Vergata, May 2007.
- Dissemination seminar *Numeri e dollari: probabilità e finanza* held as part of the ScienzaOrienta event, School of Mathematics, Physics and Natural Sciences at Tor Vergata, aimed at high school students and teachers, editions 2014, 2012, 2011, 2010, 2007, 2004.
- Organization of the performance *L'aria che gioca. Una serata di matematica e musiche per strumenti ad ancia*, in collaboration with the University Roma Tre and the cultural association Controchiave, Teatro Palladium di Roma, May 2004.

## 4 Other activities

### 4.1 Administrative duties

- At the Università di Roma "Tor Vergata", Deputy Director of the Department of Mathematics, since 2021, and member of:

- ▶ Academic Senate, 2018–2021;
- ▶ Board of the PhD School in Mathematics, 2001–2007 and since 2019;
- ▶ Scientific Committee of the Department of Mathematics, since 2007;
- ▶ Teaching Committee of the Department of Mathematics, since 2018;
- ▶ Evaluation Committee for the Curriculum of Excellence of the master’s degree in Pure and Applied Mathematics, since 2018;
- ▶ Evaluation Committee for the curriculum of studies for students of the degrees in Mathematics, since 2005 (coordinator in the period 2012–2016);
- ▶ Board of the PhD School in Computer Science, Control and GeoInformation, 2012–2014;
- ▶ Web Committee of the degrees in Mathematics, 2005–2018.

## 4.2 Evaluation committees

- Member of recruiting committees (commissioni di concorso)
  - ▶ at the level of Full Professor: BI Norwegian Business School, 2022;
  - ▶ at the level of Associate Professor: Department of Mathematics, Università di Roma “Tor Vergata”, 2023; Department of Mathematics, Università di Padova, 2023; Department of Statistical Sciences, Università di Roma La Sapienza, 2019; Department of Mathematics, Università di Trento, 2006;
  - ▶ at the level of Assistant Professor (Ricercatore o Rtd-B): Department of Mathematics, Università di Pisa, 2022; Department of Computer Science, Università di Verona, 2021; Department of Mathematics, Università di Padova, 2017; Università della Calabria, 2007; Università di Pisa, 1999;
  - ▶ at the level of research grants (assegni di ricerca e/o Rtd-A): Department of Mathematics and Geoscience, Università di Trieste, 2022; Department of Economics, Università di Pescara, 2019; Department of Mathematics, Università di Roma “Tor Vergata”, 2019.
- Member of the final PhD exam
  - ▶ in Mathematics, University of Oslo, May 2021;
  - ▶ in Mathematics, Università di Roma “Tor Vergata”, December 2018;
  - ▶ in Mathematics, Università di Bari, March 2009;
  - ▶ in Applied Mathematics, Università di Padova, January 2005.
- Member of the further committees:
  - ▶ *Commissione di Ateneo per la valutazione ai fini dell’attribuzione degli scatti stipendiali triennali*, 2023;
  - ▶ admission to the PhD program in Mathematics at Tor Vergata, 2003, 2022, 2023;
  - ▶ Cuozzo Prize for young PhD graduates in Mathematics, 2013;
  - ▶ awards for master’s degree theses in Mathematics at Tor Vergata, 2018, 2019, 2020.

### 4.3 Organization of conferences/workshops/seminars

- (ongoing) *4th Italian Meeting on Probability and Mathematical Statistics*, 10-14 June 2024.
- *Recent Advances in Random Processes - A conference in honor of Paolo Baldi's 70th birthday*, 10-11 September 2018.
- *Stochastic methods in Mathematical Finance*, Dipartimento di Matematica, Università di Roma-La Sapienza, 15-17 September 2005.
- *Invito alla Finanza Matematica III* and *Lectures on Mathematical Finance III*, 13-14 June 2003, Università dell'Aquila.
- *Stochastic Processes, Stochastic Calculus and Applications*, 19-20 September 2002, Università di Roma La Sapienza.
- *Invito alla Finanza Matematica II* and *Lectures on Mathematical Finance II*, 7-8 June 2002, Università di Pescara.
- *Invito alla Finanza Matematica*, 31 May-1 June 2001, and *Lectures on Mathematical Finance*, 1-2 June 2001, Università Roma Tre.
- "Probability&Mathematical Statistics Seminars", Università di Roma "Tor Vergata", 2006/2007, 2005/2006.
- "Joint seminars on Probability and Mathematical Statistics, Università di Roma La Sapienza and Tor Vergata", 2002/2003, 2001/2002.
- Coordinator of seminars within the CNR research project "Mathematical Statistics and simulation in reliability and biological modeling ", 1994.

### 4.4 Research funds coordination/participation

- Funds ownership:
  - ▶ "Beyond Borders 2019" (competitive announcement), Tor Vergata;
  - ▶ INdAM-GNAMPA for the organization of the conference RARP 2018;
  - ▶ INdAM-GNAMPA for visiting professors, 2017;
  - ▶ of Tor Vergata University for the Probability group, since 2018;
  - ▶ of Tor Vergata University for visiting professors, 2013, 2022;
  - ▶ of Roma Tre University, 1998-2001.
  - ▶ CNR research grants for visiting periods abroad, 1999, 1998.
- Participation to national and international research projects, for example:
  - ▶ CNR project "Statistica Matematica e simulazione in affidabilità e modellistica biologica", 1994;
  - ▶ PRIN 1997 "Modelli stocastici; approssimazioni e maggiorazioni di processi"; PRIN 1999 "Approssimazione, simulazione e stima per processi stocastici"; PRIN 2001 "Processo stocastici, simulazione e filtraggio"; PRIN 2004 "Modellizzazione e simulazione in finanza e teoria del rischio"; PRIN 2006 "Modellizzazione e metodi numerici in finanza e teoria del rischio"; PRIN 2008 "Modellizzazione e metodi numerici in finanza";

- PREMIA project (<https://www.rocq.inria.fr/mathfi/Premia/>), funded by a consortium among the University Paris-Est Marne, the CERMICS of the École des Ponts-ParisTech, the INRIA Paris and several international (mainly French) banks, from 1998 to 2005 ;
- INdAM-GNAMPA 2020 project “Stime asintotiche: principi di invarianza e grandi deviazioni”, PI Barbara Pacchiarotti.
- Progetti Ricerca Scientifica di Ateneo 2021 (Tor Vergata) “Asymptotic Properties in Probability”, PI Michele Salvi.

Sincerely,

Lucia Caramellino

Roma, 17th November, 2023