

Bertrand Lods

Professor of Mathematical Analysis

PERSONAL INFORMATIONS

Date of Birth October, 24th 1974
Place of Birth Besançon (France)
Citizenship French
Marital Status Married, one child

PROFESSIONAL EXPERIENCE

- December 2021 – **Professor (Professore ordinario) of Mathematical Analysis**, *Dipartimento di Scienze Economico-Sociali e Matematico-Statistiche*, Università degli Studi di Torino, Italy.
- April 2021 – **Carlo Alberto Fellow**, *Collegio Carlo Alberto*, Turin, Italy.
- May 2015 – **Associate Professor (Professore associato) of Mathematical Analysis**, *Dipartimento di Scienze Economico-Sociali e Matematico-Statistiche*, Università degli Studi di Torino, Italy.
- December 2021
- May 2016 – **Carlo Alberto Affiliate**, *Collegio Carlo Alberto*, Turin, Italy.
- March 2021
- Oct. 2010 – April 2015 **Assistant Professor (Ricercatore Universitario confermato) of Mathematical Analysis**, *Dipartimento di Scienze Economico-Sociali e Matematico-Statistiche*, Università degli Studi di Torino, Italia.
Research Affiliate to the *Statistics Initiative*, *Collegio Carlo Alberto*.
- Sept. 2006 – Sept. 2010 **Assistant Professor (Maître de Conférence) in Applied Mathematics**, *Laboratoire de Mathématiques UMR 6620*, Université Blaise Pascal, Clermont Ferrand II, Aubière, France.
- March 2004 – March 2006 **Marie Curie Intra-European Fellowship**, *Politecnico di Torino (Italy)*, Dipartimento di Matematica within the EC 6th. Program **Improving Human Potential**, *Mathematical Methods toward the Modelling and Analysis of Tumour Dynamics*, (Contrat No. [MEIF-CT-2003-50092](#)).

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- Sept. 2003 – **HYKE Post-doctoral Fellowship**, *Università degli Studi di Pavia (Italy)*, Dipartimento di Matematica, within the European Research Training Network, **HYKE: HYperbolic and Kinetic Equations: Asymptotics, Numerics, Analysis**. Scientist in charge of the project: Prof. Giuseppe Toscani.
- Sept. 2002 – **Research and teaching assistant**, *Université de Franche-Comté*, Département de Mathématiques, Besançon, France.

VISITING POSITIONS

- Academic Year 2019-2020 **Université de Bourgogne-Franche-Comté**, *Laboratoire de Mathématiques et Applications*, France, one month stay (invited professor).
- Academic Year 2018-2019 **Hausdorff Institute of Mathematics, Bonn**, *Chair of one of the scientific groups participating to the Junior Trimester Program "Kinetic Theory"*, Germany, two weeks stay.
- Academic Year 2018-2019 **Ecole Normale Supérieure de Paris**, *Laboratoire de Mathématiques et Applications*, France, one month stay (invited professor).
- June 2016 **Universidad de Granada**, *Departamento de Matemática Aplicada*, Spain, one week stay.
- August 2015 **Pontifical Catholic University of Rio de Janeiro**, *Mathematics Department*, Rio de Janeiro, Brazil, two weeks stay.
- April 2014 **Université Blaise Pascal, Clermont Ferrand II**, *Laboratoire de Mathématiques*, France, one month stay (invited professor).
- December 2012 **Université Blaise Pascal, Clermont Ferrand II**, *Laboratoire de Mathématiques*, France, one week stay.
- December 2011 **Universidad de Granada**, *Departamento de Matemática Aplicada*, Spain, one week stay.
- November 2010 **Isaac Newton Institute for Mathematical Sciences, Cambridge, UK**, Participation to the Thematic Program "Partial Differential Equations in Kinetic Theories", one week stay.
- March - April 2009 **UCLA, Los Angeles, CA**, *Institute of Pure and Applied Mathematics (NSF Math. Institute)*, Core participant to the active program of research, "Quantum and Kinetic Transport: Analysis, Computations, and New Application".
- March - April 2006 **University of Kwazulu-Natal, Durban, South Africa**, School of Mathematical Sciences, two weeks stay.

GRANTS AND RESEARCH FUNDINGS

- 2020 I obtained the national scientific qualification for *Full Professor* in the Academic Recruitment Field 01/A3 (Mathematical Analysis).
- 2013 I obtained the national scientific qualification for *Full Professor* in the Academic Recruitment Field 01/A4 (Mathematical Physics).
- 2012 I obtained the national scientific qualification for *Associate Professor* in both the Academic Recruitment Field 01/A3 and 01/A4.

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- 2020-2021 Coordinator of the ESOMAS Dept. Research Project *Quantum kinetic equations, ambiguity aversion Quantum kinetic equations, ambiguity aversion, stochastic modeling and optimization*, Università degli studi di Torino. Research team: Tiziano DeAngelis, Marinaarena, Paolo Ghirardato, Elena Vigna.
- 2018-2019 Coordinator of the ESOMAS Dept. Research Project *Multivariate Lévy processes, stochastic control theory for time-inconsistent optimization problems, long-time behavior of kinetic equations*, Università degli studi di Torino. Research team: Marinaarena, Paolo Ghirardato, Elena Vigna.
- 2011–2014 Co-investigator of the research project **Model Uncertainty. Theory and Applications to Current Financial Issues** funded by Università degli studi di Torino & Compagnia San Paolo; project supervisor: Paolo Ghirardato.
- 2007–2011 I obtained, for a 4 years period, the French National award PEDR *Prime d'encadrement doctoral et de recherche* funded by the French Ministry of University and Research.
- March 2004 – March 2006 **Marie Curie Intra-European Fellowship**, Politecnico di Torino (Italy), Dipartimento di Matematica within the EC 6th. Program **Improving Human Potential**.
- Sept. 2003 – March 2004 **HYKE Post-doctoral Fellowship**, Università degli Studi di Pavia (Italy), Dipartimento di Matematica, within the European Research Training Network **HYKE: HYperbolic and Kinetic Equations: Asymptotics, Numerics, Analysis**.

EDUCATIONAL BACKGROUND

- Oct. 1998 - July 2002 **Ph.D student and teaching activities**, *Université de Franche-Comté, Besançon, France*, Title of the thesis: *Spectral theory of kinetic equations*, advisor: Professor M. Mokhtar-Kharroubi.
- 1997-1998 **Master in Mathematics and applications**, *Université de Franche-Comté*, Master thesis: *Linear Kinetic Equations with unbounded cross-sections*, supervisor: Prof. M. Mokhtar-Kharroubi.

AREAS OF RESEARCH INTEREST

- **Kinetic theory:** *Granular gases dynamics*: linear and nonlinear Boltzmann equation, Landau-Fermi-Dirac equation; *Coagulation and fragmentation problems*: Becker-Döring equation, Smoluchowski's equation; *Neutron transport equations*: Boundary conditions, qualitative analysis.
- **Functional inequalities:** Spectral gap estimates, entropy/entropy dissipation estimates.
- **Evolution equations:** *Strongly continuous semigroups of operators*: generation, perturbation, asymptotic behaviour; Spectral theory of non self-adjoint operators.

PUBLICATIONS

Published papers

- [55] R. J. ALONSO, V. BAGLAND, L. DESVILLETES & B. LODS, *About the Landau-Fermi-Dirac equation for moderately soft potentials*, **Archive for Rational Mechanics and Analysis**, to appear, 2022.
- [54] R. J. ALONSO, B. LODS, & I. TRISTANI, *From Boltzmann equation for granular gases to a modified Navier-Stokes-Fourier system*, **Journal of Statistical Physics**, to appear, 2022.
- [53] B. LODS & M. MOKHTAR-KHARROUBI, *On eventual compactness of collisionless kinetic semi-groups with velocities bounded away from zero*, **Journal of Evolution Equations**, Vol. 22, article 25, 2022.
- [52] R. J. ALONSO, V. BAGLAND, L. DESVILLETES & B. LODS, *About the use of entropy production for the Landau-Fermi-Dirac equation*, **Journal of Statistical Physics**, Vol. 183, article 10, 2021.
- [51] R. J. ALONSO, V. BAGLAND, & B. LODS, *Long time dynamics for the Landau-Fermi-Dirac equation with hard potentials*, **Journal of Differential Equations**, Vol. 270, 596–663, 2021.
- [50] J. A. CAÑIZO, B. LODS, & S. THROM, *Contractivity for Smoluchowski's coagulation equation with solvable kernels*, **Bulletin of the London Mathematical Society**, Vol. 53, 248–258, 2021.
- [49] A. NOTA, B. LODS & F. PEZZOTTI, *A Kac model for kinetic annihilation*, **Journal of Nonlinear Science**, Vol. 30, 1455-1501, 2020.
- [48] B. LODS, M. MOKHTAR-KHARROUBI & R. RUDNICKI, *Invariant density and time asymptotics for collisionless kinetic equations with partly diffuse boundary operators*, **Annales Institut Henri Poincaré, Analyse Nonlinéaire**, Vol. 37, 877–923, 2020.
- [47] R. J. ALONSO, V. BAGLAND, & B. LODS, *Convergence to self-similarity for ballistic annihilation dynamics*, **Journal de Mathématiques Pures et Appliquées**, Vol. 138, 88–163, 2020.
- [46] A. NOTA, R. WINTER, & B. LODS, *Kinetic description of a Rayleigh Gas with annihilation*, **Journal of Statistical Physics**, Vol 176, 1434–462, 2019.
- [45] R. J. ALONSO, V. BAGLAND, & B. LODS, *Uniform estimates on the Fisher information for solutions to Boltzmann and Landau equations*, **Kinetic and Related Models**, Vol. 12, 1163–1183, 2019.
- [44] L. ARLOTTI & B. LODS, *An L^p -approach to the well-posedness of transport equations associated to a regular field - Part II*, **Mediterranean Journal of Mathematics**, Vol 16: 152, 2019.
- [43] L. ARLOTTI & B. LODS, *An L^p -approach to the well-posedness of transport equations associated to a regular field - Part I*, **Mediterranean Journal of Mathematics**, Vol 16: 145, 2019.
- [42] J. A. CAÑIZO, A. EINAV & B. LODS, *Uniform Moment Propagation for the Becker-Döring Equations*, **Proceedings of the Royal Society of Edinburgh, section A**, Vol 149, 995–1015, 2019.
- [41] R. J. ALONSO, V. BAGLAND, Y. CHENG & B. LODS, *One dimensional dissipative Boltzmann equation: measure solutions, cooling rate and self-similar profile*, **SIAM Journal of Mathematical Analysis**, Vol. 50, 1278–1321, 2018.

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- [40] J. A. CAÑIZO, A. EINAV & B. LODS, *On the Rate of Convergence to Equilibrium for the Linear Boltzmann Equation with Soft Potentials*, **Journal of Mathematical Analysis and Applications**, Vol. 462, 801–839, 2018.
- [39] B. LODS & M. MOKHTAR-KHARROUBI, *Convergence to equilibrium for linear spatially homogeneous Boltzmann equation with hard and soft potentials: a semigroup approach in L^1 -spaces*, **Mathematical Methods in Applied Sciences**, Vol. 40, 6527–6555, 2017.
- [38] J. A. CAÑIZO, A. EINAV & B. LODS, *Trend to equilibrium for the Becker-Döring equations: an analogue of Cercignani’s conjecture*, **Analysis & PDE**, Vol. 10, 1663–1708, 2017.
- [37] J. A. CAÑIZO & B. LODS, *Exponential trend to equilibrium for the inelastic Boltzmann equation driven by a particle bath*, **Nonlinearity**, Vol. 29, 1687–1716, 2016.
- [36] M. BISI, J. A. CAÑIZO & B. LODS, *Entropy dissipation estimates for the linear Boltzmann operator*, **Journal of Functional Analysis**, Vol. 269, 1028–1069, 2015.
- [35] V. BAGLAND & B. LODS, *Uniqueness of the self-similar profile for a kinetic annihilation model*, **J. Differential Equations**, Vol. 259, 7012–7059, 2015.
- [34] B. LODS & G. PISTONE, *Information geometry formalism for the spatially homogeneous Boltzmann equation*, **Entropy**, Vol. 17 4323–4363, 2015.
- [33] R. J. ALONSO, & B. LODS, *Boltzmann model for viscoelastic particles: asymptotic behavior, pointwise lower bounds and regularity*, **Communications in Mathematical Physics**, Vol. 331, 554–591, 2014.
- [32] L. ARLOTTI, & B. LODS, *Transport semigroup associated to positive boundary conditions of unit norm: a Dyson-Phillips approach*, to appear in **Discrete and Continuous Dynamical Systems, Series B**, 2014.
- [31] L. ARLOTTI, B. LODS & M. MOKHTAR-KHARROUBI, *Non-autonomous Honesty theory in abstract state spaces with applications to linear kinetic equations*, **Communications on Pure and Applied Analysis**, Vol. 13, 729–771, 2014.
- [30] J. A. CAÑIZO & B. LODS, *Exponential convergence to equilibrium for the Becker-Döring equations*, **Journal of Differential Equations**, Vol. 255, 905–950, 2013.
- [29] R. J. ALONSO & B. LODS, *Uniqueness and regularity of steady states of the Boltzmann equation for viscoelastic hard-spheres driven by a thermal bath*, **Communications in Mathematical Sciences**, Vol. 11, 807–862, 2013.
- [28] V. BAGLAND & B. LODS, *Existence of self-similar profile for a kinetic annihilation model*, **Journal of Differential Equations**, Vol. 254, 3023–3080, 2013.
- [27] R. J. ALONSO & B. LODS, *Two proofs of Haff’s law for dissipative gases: the use of entropy and the weakly inelastic regime*, **Journal of Mathematical Analysis and Applications**, Vol. 397, 260–275, 2013.
- [26] M. BISI, J. A. CAÑIZO & B. LODS, *Uniqueness in the weakly inelastic regime of the equilibrium state to the Boltzmann equation driven by a particle bath*, **SIAM Journal of Mathematical Analysis**, Vol. 43, 2640–2674, 2011.

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- [25] L. ARLOTTI, B. LODS & M. MOKHTAR-KHARROUBI, *On perturbed substochastic semigroups in abstract state spaces*, **Zeitschrift für Analysis und ihre Anwendungen**, Vol. 30, 457–495, 2011.
- [24] L. ARLOTTI, J. BANASIAK & B. LODS, *On general transport equations with abstract boundary conditions. The case of divergence free force field*, **Mediterranean Journal of Mathematics**, Vol. 8, 1–35, 2011.
- [23] R. J. ALONSO & B. LODS, *Free cooling and high-energy tails of granular gases with variable restitution coefficient*, **SIAM Journal of Mathematical Analysis**, Vol. 42, No. 6, pp. 2499–2538, 2010.
- [22] B. LODS, *Variational characterizations of the effective multiplication factor of a nuclear reactor core*, **Kinetic and Related Models**, Vol. 2, 307–331, 2009.
- [21] L. ARLOTTI, J. BANASIAK & B. LODS, *A new approach to transport equations associated to a regular field: trace results and well-posedness*, **Mediterranean Journal of Mathematics**, Vol. 6, 367–402, 2009.
- [20] B. LODS, M. MOKHTAR-KHARROUBI & M. SBIHI, *Spectral properties of general advection operators and weighted translation semigroups*, **Communications on Pure and Applied Analysis**, Vol. 8, 1469–1492, 2009.
- [19] K. LATRACH & B. LODS, *Spectral analysis of transport equations with bounce-back boundary conditions*, **Mathematical Methods in Applied Sciences**, Vol. 32, 1325–1344, 2009.
- [18] M. BISI, J. A. CARRILLO & B. LODS, *Equilibrium solution to the inelastic Boltzmann equation driven by a particle bath*, **Journal of Statistical Physics**, Vol. 133, 841–870, 2008.
- [17] B. LODS, C. MOUHOT & G. TOSCANI, *Relaxation rate, diffusion approximation and Fick's law for inelastic scattering Boltzmann models*, **Kinetic and Related Models**, Vol. 1, 223–248, 2008.
- [16] K. LATRACH, B. LODS & M. MOKHTAR-KHARROUBI, *Weak spectral mapping theorems for C_0 -groups associated to transport equations in slab geometry*, **Journal of Mathematical Analysis and Applications**, Vol. 342, 1038–1051, 2008.
- [15] E. DE ANGELIS & B. LODS, *On the kinetic theory for active particles: A model for tumor-immune system competition*, **Mathematical and Computer Modelling**, Vol. 47, 196–209, 2008.
- [14] B. LODS, *On the spectrum of mono-energetic absorption operator with Maxwell boundary conditions. A unified treatment*, **Transport Theory and Statistical Physics**, Vol. 37, 1–37, 2008.
- [13] L. ARLOTTI & B. LODS, *Integral representation of the linear Boltzmann operator for granular gas dynamics with applications*, **Journal of Statistical Physics**, Vol. 129, 517–536, 2007.
- [12] L. ARLOTTI, J. BANASIAK & B. LODS, *On transport equations driven by a non divergence-free force field*, **Mathematical Methods in Applied Sciences**, Vol. 30, 2155–2177, 2007.
- [11] B. LODS & M. SBIHI, *Stability of the essential spectrum for 2D-transport models with Maxwell boundary conditions*, **Mathematical Methods in Applied Sciences**, Vol. 29, 499–523, 2006.
- [10] B. LODS, *On the linear Boltzmann equation for dissipative hard spheres*, Proceedings of the International Workshop "Modelling and numerics of kinetic dissipative systems: cooling,

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clustering, and pattern formation". Editors L. Pareschi, G. Russo, G. Toscani, Nova Science, New York, 2006.

- [9] C. CATTANI, A. CIANCIO & B. LODS, *On a mathematical model of immune competition*, **Applied Mathematics Letter**, Vol. 19, 678–683, 2006.
- [8] L. ARLOTTI & B. LODS, *Substochastic semigroups for transport equations with conservative boundary conditions*, **Journal of Evolution Equations**, Vol. 5, 485–508, 2005.
- [7] B. LODS, *Semigroup generation properties of streaming operators with non-contractive boundary conditions*, **Mathematical and Computer Modelling**, Vol. 42, 1141–1162, 2005.
- [6] B. LODS & G. TOSCANI, *Long time behavior of non-autonomous Fokker-Planck equations and the cooling of granular gases*, **Ukrainian Mathematical Journal**, Vol. 57, 778–789, 2005.
- [5] B. LODS & G. TOSCANI, *The linear dissipative Boltzmann equation for hard spheres*, **Journal of Statistical Physics**, Vol. 117, 635–664, 2004.
- [4] B. LODS, *On linear kinetic equations involving unbounded cross-sections*, **Mathematical Methods in Applied Sciences**, Vol. 27, 1049–1075, 2004.
- [3] B. LODS & M. MOKHTAR-KHARROUBI, *On the theory of a growing cell population with zero minimum cycle length*, **Journal of Mathematical Analysis and Applications**, Vol. 266, 70–99, 2002.
- [2] B. LODS, *A generation theorem for kinetic equations with non-contractive boundary operators*, **Comptes Rendus de l'Académie des Sciences**, Paris, Vol. 335, Serie I, 655–660, 2002.
- [1] K. LATRACH & B. LODS, *Regularity and time asymptotic behaviour of solutions to transport equations*, **Transport Theory and Statistical Physics**, Vol. 30, no 7, 617–639, 2001.

Submitted papers

- [P1] R. J. ALONSO, B. LODS, & I. TRISTANI, *Fluid dynamic limit of Boltzmann equation for granular hard spheres in a nearly elastic regime*, submitted for publication, 2021.
- [P3] B. LODS, & M. MOKHTAR-KHARROUBI, *Convergence Rate To Equilibrium For Collisionless Transport Equations With Diffuse Boundary Operators: A New Tauberian Approach*, submitted for publication, 2021.
- [P3] B. LODS, & M. MOKHTAR-KHARROUBI, *Quantitative tauberian approach to collisionless transport equations with diffuse boundary operators*, submitted for publication, 2020.

Book

- [1] N. BELLOMO, B. LODS, R. REVELLI & L. RIDOLFI, *Generalized collocation methods for nonlinear problems in applied sciences*, Birkhäuser, Boston, 2007.

CONFERENCE PRESENTATIONS AND SEMINARS

INVITED TALKS

- March 2020 **Thematic school "Quantification of Asymptotic behavior of Semigroups and Applications"**, Besançon, France (Cancelled due to Covid-19 outbreak).
- January 2020 **Workshop on PDEs: Modelling, Analysis and Numerical Simulation**, PDE-MANS 2020, Granada, Spain.
- December 2019 **VIII edition of the Particle Systems and PDE's Meeting**, Lisbon, Portugal (Cancelled for personal reasons).
- November 2019 **INdAM Workshop "Recent advances in kinetic equations and applications"**, INdAM, Roma, Italy.
- July 2019 **Junior Trimester in Kinetic Theory**, Hausdorff Institute of Mathematics, Bonn, Germany.
- October 2018 **Recent Trends in Kinetic Modelling and Related Fields**, Workshop, Politecnico di Torino, Italy.
- December 2017 **Partial differential equations and semi-groups**, Workshop, Besançon, France.
- December 2017 **Classical and Quantum Mechanical Models of Many-Particle Systems**, Workshop, Oberwolfach, Germany.
- June 2017 **Workshop on PDEs: Modelling, Analysis and Numerical Simulation**, PDE-MANS 2017, Granada, Spain.
- June 2016 **8th Summer School "Methods and Models in Kinetic Theory"**, Porto Ercole, Italy – 2hours mini-course.
- September 2015 **Recent advances in kinetic equations and applications**, Workshop, Parma, Italy.
- August 2015 **International Conference on Current Trends in Analysis and PDEs**, IPAM, Rio de Janeiro, Brazil.
- March 2015 **Evolution equations: theory and applications**, Workshop, Besançon, France.
- September 2014 **Workshop on PDEs: Modelling, Analysis and Numerical Simulation**, PDE-MANS 2014, Granada, Spain.
- July 2014 **10th AIMS Conference on Dynamical Systems, Differential Equations and Applications**, Madrid, Spain; Special session: "Kinetic Models - Analysis, Computation, and Applications"
- July 2014 **10th AIMS Conference on Dynamical Systems, Differential Equations and Applications**, Madrid, Spain; Special session: "Kinetic Equations: Theory and Applications".
- December 2013 **Classical and Quantum Mechanical Models of Many-Particle Systems**, Workshop, Oberwolfach, Germany.
- June 2010 **Emerging Topics in Dynamical Systems and Partial Differential Equations DSPDEs'10**, Barcelona, Spain.
- February 2009 **Conference: Kinetic equations and applications**, poster session, CIRM, Marseille, France.
- October 2007 **Journées EDP Rhône-Alpes-Auvergne**.
- October 2007 **Workshop "Boltzmann 2007"**, IHP, Paris.

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- November 2005 **Teoria Cinetica e Meccanica dei Continui II**, Ferrara.
- July 2005 **19th International Conference on Transport Theory**, Budapest (Hungary).
- June 2004 **Workshop "Modelling and numerics of kinetic dissipative systems: cooling, clustering, and pattern formation"**, Lipari (Italia).
- April 2004 **Second annual meeting of the HYKE network "Around HYperbolic and Kinetic Equations 2"**, ENS, Paris.
- July 2001 **17th International Conference on Transport theory**, (poster session) Imperial College, London.
- November 1999 Troisièmes rencontres du troisième cycle de Bordeaux.

SEMINARS

- April 2022 Webinar Kinetic and fluid equations for collective behavior, French-Korean International Research Laboratory in Mathematics, Bordeaux, France (scheduled)
- April 2021 Analysis and PDE seminar, Durham University, UK (online webinar)
- April 2021 Séminaire ANR Salve, Ecole Polytechnique, Paris, France (online webinar)
- February 2020 Séminaire "Equations aux dérivées partielles", Université de Franche-Comté, Besançon.
- October 2016 Séminaire Mathématiques Appliquées de Clermont–Ferrand (Université Blaise Pascal).
- April 2014 Séminaire des Doctorants, Laboratoire de Mathématiques, (Université Blaise Pascal).
- February 2014 Séminaire Mathématiques Appliquées de Clermont–Ferrand (Université Blaise Pascal).
- February 2012 Séminaire "Equations aux dérivées partielles", Besançon.
- July 2009 Dipartimento di Statistica e Matematica Applicata, Università di Torino, Collegio Carlo Alberto.
- April 2009 Core participants seminar, IPAM, UCLA, Los Angeles.
- January 2008 Seminario del Dipartimento di Ingegneria Civile, Università degli Studi di Udine.
- March 2006 Mathematics Seminar of the University of KwaZulu-Natal.
- January 2006 Séminaire de Mathématiques Appliquées de Clermont–Ferrand (Université Blaise Pascal).
- March 2004 Seminario di Matematica Applicata, Università degli Studi di Pavia.
- March 2004 Séminaire d'Analyse de Besançon.
- June 2002 Séminaire d'Analyse de Besançon.
- July 2001 **17th International Conference on Transport theory**, (poster session) Imperial College, London.
- November 2000 Séminaire d'Analyse de Besançon.

CONFERENCE ORGANISATION

- 2022 Co-organizer of the Summer School **"Methods and Models in Kinetic Theory"**, June 2022, Pesaró, Italy.

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- 2021 Co-organizer of the Winter School “**Methods and Models in Kinetic Theory – Winter prelude**”, February 2021, Online Meeting, Collegio Carlo Alberto, Turin, Italy.
- 2020 Co-organizer of the Summer School “**Methods and Models in Kinetic Theory**”, June 2020, Porto Ercole, Italy (Cancelled after the Covid-19 outbreak).
- 2015 Co-organizer and member of the scientific committee of the one-week Workshop **Spectral theory and kinetic equations**, April 2015, Besançon, France

LOCAL ADMINISTRATIVE DUTIES

- 2021– Chair of the Admissions Committee, Laurea Magistrale (Ms.C) in Stochastics and Data Science, University of Turin.
- 2016–2021 Member of the Admissions Committee, Laurea Magistrale (Ms.C) in Stochastics and Data Science, University of Turin.
- 2016–2021 Member of the Students Mobility Committee, Laurea Magistrale (MS.C) in Stochastics and Data Science, University of Turin.
- 2012–2015 Member of the Research Committee, Department ESOMAS, University of Turin.
- 2007–2010 Member of the Research Committee, Department of Mathematics, University Blaise Pascal, Clermont-Ferrand.
- 2007–2010 Applied Mathematics Seminar Series coordinator, Department of Mathematics, University Blaise Pascal, Clermont-Ferrand.

OTHER RESEARCH ACTIVITIES

- 2017-2020 **Co-advisor** of the PhD Thesis of Rafael Sanabria Villalobos, PUC Rio de Janeiro, Brazil.
- 2020 **PhD referee** of the manuscript by Armand Bernou, LPSM Sorbonne Université, under the supervision of N. Fournier and S. Mischler.
- 2019 **PhD referee** of the manuscript by Théophile Dolmaire, Université Paris-Diderot, under the supervision of L. Desvillettes and I. Gallagher.
- 2005– I acted as a referee for research papers in the following international journals: *Journal of the American Mathematical Society*, *Communications in Mathematical Physics*, *Journal of Nonlinear Science*, *Annales de l'Institut Henri Poincaré – Analyse nonlinéaire*, *Journal of Differential Equations*, *SIAM Journal of Mathematical Analysis*, *Journal of Functional Analysis*, *Nonlinear Analysis*, *Journal of Statistical Physics*, *Journal of Evolution Equations*, *Mathematical Methods and Models in Applied Sciences*, *Kinetic and Related Models*, *Annali dell'Univeristà di Parma*, *Nonlinearity*, *Discrete and Continuous Dynamical Systems A*, *Annales Henri Poincaré*, *Journal of Mathematical Analysis and Applications*, *Mathematics Engineering*, *Afrika Matematica*, *Annali dell'Univeristà di Ferrara*, *Lecture Notes in Mathematics*, *Mathematical Methods in Applied Sciences*, *Acta Applicandae Mathematicae*, *Transport Theory and Statistical Physics*, *Journal of Mathematical Physics*, *Annales Mathématiques Blaise Pascal*.
- 2016– Reviewer for *Mathematical Reviews/MathSciNet*.
- 2015– Member of the American Mathematical Society (AMS) and of the European Mathematical Society (EMS).

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- 2010–2014 Member of the European Mathematical Society (EMS). Member of the Italian Mathematical Society (UMI) and the Italian Applied and Industrial Mathematics Society (SIMAI).
- 2006–2014 Member of the French Mathematical Society (SMF) and the Applied and Industrial Mathematics Society (SMAI).
- 2005–2010 Member of the French Italian GDRE **GREFI-MEFI**, CNRS-INdAM, Coordinator: P. Picco (Univ. de Provence, Aix-Marseille I)
- 2002–2006 Member of the "Research Training Network" **HYperbolic and Kinetic Equations: Asymptotics, Numeric, Analysis**, founded by the UE within the EC 6th. Program Improving Human Potential (Contrat No. HPRN-CT-2002-00252). Coordinator: N. Mauser (Uni Wien, Austria).

TEACHING ACTIVITY

- Academic year **Università degli studi di Torino and Collegio Carlo Alberto.**
2021-2022
- *Mathematics for Finance* (24h), Laurea Magistrale in Quantitative Finance and Insurance, Università degli studi di Torino;
 - *Analysis, Course B* (72h), Laurea Magistrale in Stochastics and Data Science, Università degli studi di Torino;
 - *Matematica per l'economia II* (24h) Laurea Triennale in Economia, secondo anno, Università degli studi di Torino;
 - *Measure Theory* (20h), Allievi Honors Program e Master in Economics, Collegio Carlo Alberto.
- Academic year **Università degli studi di Torino and Collegio Carlo Alberto.**
2020-2021
- *Mathematics for Finance* (40h), Laurea Magistrale in Quantitative Finance and Insurance, Università degli studi di Torino;
 - *Analysis, Course B* (72h), Laurea Magistrale in Stochastics and Data Science, Università degli studi di Torino;
 - *Measure and Integration theory* (16h), pre-corso Laurea Magistrale in Stochastics and Data Science, Università degli studi di Torino;
- Academic year **Università degli studi di Torino and Collegio Carlo Alberto.**
2019-2020
- *Mathematics for Finance* (40h), Laurea Magistrale in Quantitative Finance and Insurance, Università degli studi di Torino;
 - *Analysis, Course B* (72h), Laurea Magistrale in Stochastics and Data Science, Università degli studi di Torino;
 - *Measure and Integration theory* (16h), pre-corso Laurea Magistrale in Stochastics and Data Science, Università degli studi di Torino;
 - *Measure Theory* (20h), Allievi Honors Program e Master in Economics, Collegio Carlo Alberto.

- Academic year **Università degli studi di Torino and Collegio Carlo Alberto.**
 2018-2019
- *Mathematics for Finance* (40h), Laurea Magistrale in Quantitative Finance and Insurance, Università degli studi di Torino;
 - *Analysis, Course B* (72h), Laurea Magistrale in Stochastics and Data Science, Università degli studi di Torino;
 - *Measure and Integration theory* (16h), pre-corso Laurea Magistrale in Stochastics and Data Science, Università degli studi di Torino;
 - *Measure Theory* (20h) and *Intermediate mathematics* (16h), Allievi Honors Program e Master in Economics, Collegio Carlo Alberto.
- Academic year **Università degli studi di Torino and Collegio Carlo Alberto.**
 2017-2018
- *Mathematics for Finance* (40h), Laurea Magistrale in Quantitative Finance and Insurance, Università degli studi di Torino;
 - *Analysis, Course B* (72h), Laurea Magistrale in Stochastics and Data Science, Università degli studi di Torino;
 - *Measure and Integration theory* (16h), pre-corso Laurea Magistrale in Stochastics and Data Science, Università degli studi di Torino;
 - *Measure Theory* (20h), Allievi Honors Program e Master in Economics, Collegio Carlo Alberto.
- Academic year **Università degli studi di Torino and Collegio Carlo Alberto.**
 2016-2017
- *Mathematics for Finance* (48h), Laurea Magistrale in Quantitative Finance and Insurance, Università degli studi di Torino;
 - *Analysis, Course B* (72h), Laurea Magistrale in Stochastics and Data Science, Università degli studi di Torino;
 - *Measure Theory* (20h) and *Optimisation for Economics* (30h), Allievi Honors Program e Master in Economics, Collegio Carlo Alberto.
- Academic year **Università degli studi di Torino and Collegio Carlo Alberto.**
 2015-2016
- *Mathematics for Finance* (36h), Laurea Magistrale in Quantitative Finance and Insurance, Università degli studi di Torino;
 - *Analysis, Course B* (72h), Laurea Magistrale in Stochastics and Data Science, Università degli studi di Torino;
 - *Matematica Finanziaria* (21h) Laurea Triennale in Economia e Commercio, secondo anno, Università degli studi di Torino;
 - *Measure Theory* (20h) and *Optimisation for Economics* (30h), Allievi Honors Program e Master in Economics, Collegio Carlo Alberto.
- Academic year **Università degli studi di Torino and Collegio Carlo Alberto.**
 2014-2015
- *Mathematics for Finance* (36h), Laurea Magistrale in Quantitative Finance and Insurance, Università degli studi di Torino;
 - *Matematica Generale* (21h) Laurea Triennale in Economia e Commercio, primo anno, Università degli studi di Torino;
 - *Matematica Finanziaria* (42h) Laurea Triennale in Economia e Commercio, secondo anno, Università degli studi di Torino;
 - *Optimisation for Economics* (30h), Allievi Honors Program e Master in Economics, Collegio Carlo Alberto.

- Academic year **Università degli studi di Torino and Collegio Carlo Alberto.**
 2013-2014
- *Mathematics for Finance* (36h), Laurea Magistrale in Quantitative Finance and Insurance, Università degli studi di Torino;
 - *Matematica Generale* (21h) Laurea Triennale in Economia e Commercio, primo anno, Università degli studi di Torino;
 - *Intermediate mathematics* (10h), Allievi Honors Program, Collegio Carlo Alberto.
- Academic year **Università degli studi di Torino and Collegio Carlo Alberto.**
 2012-2013
- *Mathematics for Finance* (42h), Laurea Magistrale in Quantitative Finance and Insurance, Università degli studi di Torino;
 - *Matematica Generale* (21h) Laurea Triennale in Economia e Commercio, primo anno, Università degli studi di Torino.
- Academic year **Università degli studi di Torino and Collegio Carlo Alberto.**
 2011-2012
- *Mathematics for Finance* (42h), Laurea Magistrale in Quantitative Finance and Insurance, Università degli studi di Torino;
 - *Statistica* (42h) Laurea Triennale in Economia e Commercio, primo anno, Università degli studi di Torino;
 - *Stochastic Processes* (20h), *Vilfredo Pareto Doctorate in Economics (Collegio Carlo Alberto, Università degli Studi di Torino)*.
- Academic year **Università degli studi di Torino and Collegio Carlo Alberto.**
 2010-2011
- *Mathematics for Finance* (42h), Laurea Magistrale in Quantitative Finance and Insurance, Università degli studi di Torino;
 - *Statistica* (42h) Laurea Triennale in Economia e Commercio, primo anno;
 - *Probabilistic Methods For Finance* (20h), Master in Finance, Collegio Carlo Alberto.
- Academic year **Université Blaise Pascal, Clermont-Ferrand (France).**
 2009-2010
- *Functional Analysis* (50h), Master of Mathematics 1;
 - *Mathematics for physical sciences: Laplace and Fourier transform, Complex analysis*, (60h) Bachelor Degree in Physics, third year;
 - *Differential and integral calculus*, (30h) Bachelor Degree in Physics, first year;
 - *Differential and integral calculus* (60h), Bachelor Degree in Science, first year.
- Academic year **Université Blaise Pascal, Clermont-Ferrand (France).**
 2008-2009
- *Mathematics for physical sciences: Laplace and Fourier transform, Complex analysis*, (60h) Bachelor Degree in Physics, third year;
 - *Differential and integral calculus*, (30h) Bachelor Degree in Physics, first year;
 - *Calculus 1* (60h), Bachelor Degree in Science, first year.
 - *Tutoring* for the preparation to French Teacher's national competition (30h).
- Academic year **Université Blaise Pascal, Clermont-Ferrand (France).**
 2007-2008
- *Measure and Integration* (30h), Bachelor Degree in Mathematics, third year.
 - *Mathematics for physical sciences: Laplace and Fourier transform, Complex analysis*, (30h) Exercises – Bachelor Degree in Physics, third year;
 - *Differential and integral calculus*, (30h) Bachelor Degree in Physics, first year;
 - *Calculus 1* (37.5h), Bachelor Degree in Science, first year.
 - *Elementary mathematics* (25h), Bachelor Degree in Science, second year – Exercises;
 - *Formal calculus (with Maple)* (18h) Bachelor Degree in Mathematics, third year.

Dipartimento di Scienze Economico-Sociali e Matematico-Statistiche,
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- Academic year **Université Blaise Pascal**, Clermont-Ferrand (France).
2006-2007
- *Mathematics for physical sciences: Laplace and Fourier transform, Complex analysis*, (30h) Exercises – Bachelor Degree in Physics, third year;
 - *Calculus 1* (75h), Bachelor Degree in Science, first year.
 - *Elementary mathematics* (75h), Bachelor Degree in Science, second year – Exercises;
 - *Formal calculus (with Maple)* (18h) Bachelor Degree in Mathematics, third year.
 - *Scientific Methodology* (25h), Bachelor Degree in Science, first year.
- Academic year **Politecnico di Torino**: *Differential and integral calculus* (52h), Exercises, 2nd year of Bachelor Degree in automotive engineering.
2005-2006
- Academic year **Université de Franche-Comté**, Besançon (France).
2002-2003
- *Mathematical Analysis, Calculus 1* (54 h), Bachelor Degree in Biology, first year – Exercises;
 - *Differential calculus*, (40.5h), Bachelor Degree in Physics, third year – Exercises;
 - *Mathematical Analysis, Calculus 1*, (15h), Bachelor Degree in Mathematics, first year – Exercises.
- Academic year **Université de Franche-Comté**, Besançon (France).
2001-2002
- *Mathematical Analysis, Calculus 1* (27 h), Bachelor Degree in Biology, first year – Exercises;
 - *Mathematical Analysis, Calculus 1*, (40.5h), Bachelor Degree in Mathematics, first year;
 - *Mathematical Analysis, Calculus 1*, (15h), Bachelor Degree in Mathematics, first year – Exercises.
- Academic year **Université de Franche-Comté**, Besançon (France).
2000-2001
- *Mathematical Analysis, Calculus 1* (27 h), Bachelor Degree in Biology, first year – Exercises;
 - *Mathematical Analysis, Calculus 1*, (40.5h), Bachelor Degree in Mathematics, first year;
 - *Mathematical Analysis, Calculus 1*, (15h), Bachelor Degree in Mathematics, first year – Exercises.
- Academic year **Université de Franche-Comté**, Besançon (France).
1999-2000
- *Mathematical Analysis, Calculus 1* (27 h), Bachelor Degree in Biology, first year – Exercises;
 - *Formal calculus (with Maple)* (56h), Bachelor Degree in Mathematics, first year.
- Academic year **Université de Franche-Comté**, Besançon (France).
1998-1999
- *Mathematical Analysis, Calculus 1*, (15h), Bachelor Degree in Mathematics, first year – Exercises.
 - *Mathematical Analysis, Calculus 1* (30 h), Bachelor Degree in Biology, first year – Exercises;
 - *Formal calculus (with Maple)* (32h), Bachelor Degree in Mathematics, first year.

UPDATED

April 9th, 2022

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