

Dr. Mattia Zanella

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Personal

Born on July 29th, 1987 in Ferrara (Italy).

Italian Citizen.

Education

- **PhD in Mathematics**, University of Ferrara.
Thesis: "Boltzmann-type and mean-field modeling of social dynamics: numerics, control, uncertainty quantification", advisor Prof. Lorenzo Pareschi.
Final grade: Approved cum laude.
PhD defense: April 4th, 2017.
- **Doctor Europaeus**, University of Ferrara.
- **Laurea Magistrale** in Mathematics, University of Milano, 2012.
Final grade: 110/110 cum laude.

Academic Positions

- **Assistant Professor** (tenure-track) in Mathematical Physics (SSD MAT/07) since November 2019
Ricercatore a Tempo Determinato di Tipo B
University of Pavia, Department of Mathematics
Via A. Ferrata, 27100, Pavia (Italy)
- **Assistant Professor** in Mathematical Physics (SSD MAT/07) August 2018 - October 2019
Ricercatore a Tempo Determinato di Tipo A
Politecnico di Torino, Department of Mathematical Sciences "G. L. Lagrange"
Corso Duca degli Abruzzi 24, 10129, Torino (Italy)
- **Postdoctoral Fellow** 2017-2018
Politecnico di Torino, Department of Mathematical Sciences "G. L. Lagrange"
Corso Duca degli Abruzzi 24, 10129, Torino (Italy)
Funding agency: Compagnia di San Paolo.
- **Research Assistant** 2012-2013
University of Milano, Department of Mathematics
Via Saldini 50, 20133, Milano (Italy)

Qualifications

National Scientific Qualification (ASN - Abilitazione Scientifica Nazionale) as Associate Professor in Mathematical Physics

Validity: July 13th, 2018 – July 13th, 2024

Awards

- "PhD Anile Prize 2018" of the Associazione Angelo Marcello Anile.
- "Nicolò Copernico Award 2018" for young PhD fellows distinguished for innovative thesis in sciences and technologies.
- SIAM Travel Award 2017
- SIAM Travel Award 2015

Visiting periods

- Hausdorff Research Institute for Mathematics, Research Program *Kinetic Theory*, May–August 2019.
- Institut Mittag–Leffler, Research Program *Mathematical Biology*, October 2018 (1 week).
- RWTH Aachen University (Prof. Michael Herty), November 2017 (1 week).
- University of Sussex (Prof. Bertram Duering), October 2017 (1 week).
- RWTH Aachen University (Prof. Michael Herty), May 2017 (2 weeks).
- Imperial College (Prof. José Antonio Carrillo), February–March 2016 (1 month).
- Institut Mittag–Leffler, Research Program *Interactions between Partial Differential Equations & Functional Inequalities*, October 2016 (1 week).
- RWTH Aachen University (Prof. Michael Herty), June 2015 (1 month).
- University of Wisconsin–Madison (Prof. Shi Jin), February–May 2015 (3 months)

Grants

- INdAM GNCS Research Project *Metodi numerici per problemi di controllo multiscala e applicazioni*, 2018. (Participant)
- DAAD–MIUR Joint Mobility Program 2017–2018 (Participant)
- INdAM GNCS Grant for Young Researchers 2017 *Uncertainty quantification and control for nonlinear nonlocal PDEs for aggregation–diffusion problems* (Principal investigator)
- INdAM GNCS Research Project *Metodi numerici per la quantificazione dell'incertezza in equazioni iperboliche e cinetiche*, 2017 (Participant)
- 5x1000 Research Grant for Young Researchers 2015 (Principal investigator)

Publications

Submitted

- S5. L. Preziosi, G. Toscani, M. Zanella. Control of tumour growth distributions through kinetic methods. Preprint arXiv:2006.06249, 2020.
- S4. G. Albi, L. Pareschi, M. Zanella. Relaxing lockdown measures in epidemic outbreaks using selective socio-economic containment with uncertainty. Preprint medRxiv, DOI:10.1101/2020.05.12.20099721v1, 2020.
- S3. G. Albi, L. Pareschi, M. Zanella. Control with uncertain data of socially structured compartmental epidemic models. Preprint arXiv:2004.13067, 2020.
- S2. L. Pareschi, M. Zanella. Monte Carlo stochastic Galerkin methods for the Boltzmann equation with uncertainties: space-homogeneous case. Preprint arXiv:2003.06716, 2020.
- S1. N. Loy, M. Zanella. Structure preserving schemes for nonlinear Fokker-Planck equations with anisotropic diffusion. Preprint arXiv:1905.02970, 2019.

Journal Articles

- 22. B. Piccoli, A. Tosin, M. Zanella. Model-based assessment of the impact of driver-assist vehicles using kinetic theory. *Zeitschrift für Angewandte Mathematik und Physik*, to appear. Preprint arXiv:1911.04911, 2019.
- 21. G. Dimarco, L. Pareschi, G. Toscani, M. Zanella. Wealth distribution under the spread of infectious diseases. *Physical Review E*, 102: 022303, 2020. DOI: 10.1103/PhysRevE.102.022303.
- 20. G. Toscani, A. Tosin, M. Zanella. Kinetic modelling of multiple interactions in socio-economic systems. *Networks & Heterogeneous Media*, to appear. Preprint arXiv:1910.13843, 2019.
- 19. A. Tosin, M. Zanella. Uncertainty damping in kinetic traffic models by driver-assist controls. *Mathematical Control & Related Fields*, to appear. Preprint arXiv:1904.00257, 2019.
- 18. J. A. Carrillo, M. Zanella. Monte Carlo gPC methods for diffusive kinetic flocking models with uncertainties. *Vietnam Journal of Mathematics*, 47(4): 931-954, 2019. DOI: 10.1007/s10013-019-00374-2
- 17. M. Zanella. Structure preserving stochastic Galerkin methods for Fokker-Planck equations with background interactions. *Mathematics and Computers in Simulation*, 168:28-47, 2020. DOI:10.1016/j.matcom.2019.07.012.
- 16. G. Toscani, A. Tosin, M. Zanella. Multiple-interaction kinetic modelling of a virtual-item gambling economy. *Physical Review E*, 100(1):012308, 2019. DOI: 10.1103/PhysRevE.100.012308.
- 15. L. Pareschi, G. Toscani, A. Tosin, M. Zanella. Hydrodynamic models of preference formation in multi-agent societies. *Journal of Nonlinear Science*, 29(6):2761-2796, 2019. DOI: 10.1007/s00332-019-09558-z

14. A. Tosin, M. Zanella. Kinetic-controlled hydrodynamics for traffic models with driver-assist vehicles. *SIAM Journal on Multiscale Modeling & Simulation*, 17(2):716-749, 2019.
DOI:10.1137/18M1203766
13. G. Albi, L. Pareschi, M. Zanella. Boltzmann games in heterogeneous consensus dynamics. *Journal of Statistical Physics*, 175(1):97-125, 2019.
DOI:10.1007/s10955-019-02246-y
12. J. A. Carrillo, L. Pareschi, M. Zanella. Particle based gPC methods for mean-field models of swarming with uncertainty. *Communications in Computational Physics*, 25(2):508-531, 2019.
DOI:10.4208/cicp.0A-2017-0244
11. M. Herty, A. Tosin, G. Visconti, M. Zanella. Hybrid stochastic kinetic description of two-dimensional traffic dynamics. *SIAM Journal on Applied Mathematics*, 78(5):2737-2762, 2018.
DOI:10.1137/17M1155909
10. G. Toscani, A. Tosin, M. Zanella. Opinion modeling on social media and marketing aspects. *Physical Review E*, 98(2):022315, 2018.
DOI:10.1103/PhysRevE.98.022315
9. A. Tosin, M. Zanella. Boltzmann-type models with uncertain binary interactions. *Communications in Mathematical Sciences*, 16(4):962-984, 2018.
DOI:10.4310/CMS.2018.v16.n4.a3
8. L. Pareschi, M. Zanella. Structure preserving schemes for nonlinear Fokker-Planck equations and applications. *Journal of Scientific Computing*, 74(3):1575-1600, 2018.
DOI:10.1007/s10915-017-0510-z
7. P. Vellucci, M. Zanella. Microscopic modeling and analysis of collective decision-making: equality bias leads suboptimal solutions. *Annali dell'Università di Ferrara – Sezione VII Scienze Matematiche*, 64(1):185-207, 2018.
DOI:10.1007/s11565-017-0280-4
6. M. Herty, M. Zanella. Performance bounds for the mean-field limit of constrained dynamics. *Discrete and Continuous Dynamical Systems – Series A*, 37(4):2023-2043, 2017.
DOI:10.3934/dcds.2017086
5. L. Pareschi, P. Vellucci, M. Zanella. Kinetic models of collective decision-making in the presence of equality bias. *Physica A: Statistical Mechanics and its Applications*, 467:201-217, 2017.
DOI:10.1016/j.physa.2016.10.003
4. G. Albi, L. Pareschi, M. Zanella. Opinion dynamics over complex networks: kinetic modelling and numerical methods. *Kinetic and Related Models*, 10(1):1-32, 2017.
DOI:10.3934/krm.2017001
3. D. Morale, M. Zanella, V. Capasso, W. Jaeger. Stochastic modelling and simulation of ion transport through channels. *SIAM Journal on Multiscale Modeling & Simulation*, vol. 14(1):113-137, 2016.
DOI:10.1137/15M1010907
2. G. Albi, L. Pareschi, M. Zanella. Uncertainty Quantification in control problems for flocking models. *Mathematical Problems in Engineering*, vol. 2015, 14 pp., 2015.
DOI:10.1155/2015/850124
1. G. Albi, L. Pareschi, M. Zanella. Boltzmann-type control of opinion consensus through leaders, *Philosophical Transactions of the Royal Society A: Mathematical Physical and Engineering Sciences*, 372(2028), 2014.
DOI:10.1098/rsta.2014.0138

Book Chapters

4. M. Herty, A. Tosin, G. Visconti, M. Zanella. Reconstruction of traffic speed distributions from kinetic models with uncertainties. In *Mathematical descriptions of traffic flow: micro, macro and kinetic models*, Eds. G. Puppo, A. Tosin, SEMA-SIMAI Springer Series, to appear.
Preprint arXiv:1912.03706, 2019.
3. A. Tosin, M. Zanella. Boltzmann-type description with cutoff of Follow-the-Leader traffic models. In *Trails in Kinetic Theory: Foundational Aspects and Numerical Methods*, Eds. G. Albi, S. Merino-Aceituno, A. Nota, M. Zanella, SEMA-SIMAI Springer Series, to appear.
Preprint arXiv:1912.07417.
2. G. Dimarco, L. Pareschi, M. Zanella. Uncertainty quantification for kinetic models in socio-economic and life sciences. In *Uncertainty Quantification for Hyperbolic and Kinetic Equations*, S. Jin, L. Pareschi Eds., SEMA SIMAI Springer Series, vol. 14, pp. 151-191, 2017.
DOI:10.1007/978-3-319-67110-9_5
1. G. Albi, L. Pareschi, G. Toscani, M. Zanella. Recent advances in opinion modeling: control and social influence. In *Active Particles Volume 1. Advances in Theory, Models and Applications*, N. Bellomo, P. Degond, and E. Tadmor Eds., Birkhäuser–Springer, pp. 49-98, 2017.
DOI:10.1007/978-3-319-49996-3_2

Proceedings

3. A. Tosin, M. Zanella. Control strategies for road risk mitigation in kinetic traffic modelling. *IFAC-PapersOnLine*, 51(9):67-72, 2018.
DOI:10.1016/j.ifacol.2018.07.012
2. L. Pareschi, M. Zanella. Structure preserving schemes for mean-field equations of collective behavior. In: Klingenberg C., Westdickenberg M. (eds) *Theory, Numerics and Applications of Hyperbolic Problems II. HYP 2016*. Springer Proceedings in Mathematics & Statistics, vol 237, pp. 405-421, Springer, Cham.
DOI:10.1007/978-3-319-91548-7_31
1. G. Albi, L. Pareschi, M. Zanella. On the optimal control of opinion dynamics on evolving networks. In *System Modeling and Optimization. CSMO 2015. IFIP Advances in Information and Communication Technology*, L. Bociu, J. A. Désidéri, A. Habbal Eds., vol. 494, Springer, Cham.
DOI:10.1007/978-3-319-55795-3_4

Interdisciplinary collaborations

3. J. Dibble, A. Prelorendjos, O. Romice, M. Zanella, E. Strano, M. Pagel, S. Porta. On the origin of spaces: Morphometric foundations of urban form evolution. *Environment and Planning B: Urban Analytics and City Science*, 46(4): 707-730, 2019.
DOI:10.1177/2399808317725075
2. J. Dibble, A. Prelorendjos, O. Romice, M. Zanella, E. Strano, M. Pagel, S. Porta. Urban morphometrics: Towards a science of urban evolution. *City as Organism: New Visions for Urban Life*, 2, pp. 1143-1154. Proceedings of the 22nd International Seminar on Urban Form, Rome.
1. A. Venerandi, M. Zanella, O. Romice, J. Dibble, S. Porta. Form and urban change – An urban morphometric study of five gentrified neighbourhoods in London. *Environment and Planning B: Urban Analytics and City Science*, 44(6): 1056-1076, 2017.
DOI:10.1177/0265813516658031.

Popularization papers

- A. Tosin, M. Zanella. La popolarità delle opinioni. *MaddMath - MaddSpot*, June 2018 (in Italian).
- G. Albi, M. Zanella. Manuale per un leader: strategie di controllo dell'opinione pubblica. *Gli Stati Generali*, May 2015 (in Italian).

Communications

Forthcoming talks

- FT1. November 2020 - Workshop "Control Methods in Hyperbolic Partial Differential Equations", MF Oberwolfach, Germany.

Talks

39. May 2020 - Invited talk *Uncertainty quantification and control for emerging phenomena* - Electronic Spring Workshop "PhD in Computational Mathematics and Decision Sciences", University of Pavia, Italy.
38. December 2019 - Invited talk *Uncertainty quantification and control for collective phenomena* - Workshop "Emergent phenomena - from Kinetic Models to Social Hydrodynamics", part of the thematic program on "Quantum and Kinetic Problems: Modeling, Analysis, Numerics and Applications", Institute for Mathematical Sciences, National University of Singapore, Singapore.
37. November 2019 - Seminar *Uncertainty damping in the macroscopic forecast of vehicular traffic flow* - Laboratory SmartData@Polito, Politecnico di Torino, Italy.
36. September 2019 - Invited talk *Kinetic-controlled hydrodynamics* - XXI Congresso UMI (Unione Matematica Italiana), Section 8: "Fisica Matematica", University of Pavia, Italy.
35. September 2019 - Invited talk *Uncertainty damping in kinetic traffic models* - XXI Congresso UMI (Unione Matematica Italiana), Section 9: "Modelli e Applicazioni", University of Pavia, Italy.
34. July 2019 - Invited talk *Uncertainty damping in kinetic traffic modelling by driver-assist controls* - International Congress on Industrial and Applied Mathematics (ICIAM2019), MS "Mathematical descriptions of traffic flow: micro, macro and kinetic models for a complex phenomenon", Valencia, Spain.
33. July 2019 - Invited talk *Kinetic-controlled hydrodynamics* - International Congress on Industrial and Applied Mathematics (ICIAM2019), MS "Novel concepts in model-driven optimization and control of agent-based systems", Valencia, Spain.
32. June 2019 - Invited talk *Structure preserving gPC methods for kinetic equations with uncertainties* - 28th Biennial Numerical Analysis Conference, MS "Computational methods for model driven optimization and control under uncertainty", University of Strathclyde, Glasgow, UK.
31. May 2019 - Invited talk *Monte Carlo gPC methods for kinetic equations with uncertainties* - Workshop "Asymptotic methods and numerical approximations of multi-scale evolutions problems, and uncertainty quantification", ENS Rennes, France.
30. March 2019 - Invited talk *Uncertainty damping in kinetic models of collective phenomena* - Workshop "Control Theory and Applications", Gran Sasso Science Institute (GSSI), L'Aquila, Italy.
29. February 2019 - Invited talk *Kinetic-controlled hydrodynamics* - Workshop "Numerical methods for multiscale control problems and applications" University of Verona, Italy.

28. December 2018 - Invited talk *Uncertainty quantification for kinetic equations of collective behavior* - Workshop "Innovative Trends in the Numerical Analysis and Simulation of Kinetic Equations", Mathematisches Forschungsinstitut Oberwolfach, Germany.
27. November 2018 - Invited lecture *Uncertainty Quantification for kinetic equations of collective behavior* - Autumn School "From Interacting Particle Systems to Kinetic Equations: Modelling, Control & Numerical Methods", University of Verona, Italy.
26. October 2018 - Contributed talk *Control strategies for road risk mitigation in kinetic and hydrodynamic traffic modelling* - Conference Kinetic and Transport Equations: Mathematical Advances and Applications, University of Parma, Parma, Italy.
25. October 2018 - Invited talk *Control strategies for road risk mitigation in kinetic and hydrodynamic traffic modelling* - Workshop Problems in discrete dynamics: from biochemical systems to rare events, networks, clustering and related topics - IV Edition, Arcidosso, Italy.
24. September 2018 - Invited talk *Stochastic Galerkin methods for kinetic equations of collective behavior* - Joint Meeting UMI-SIMAI-PTM, Session "Advances in Kinetic Theory", Wrocław, Poland.
23. July 2018 - Invited talk *Boltzmann games in heterogeneous consensus dynamics* - 28th IFIP TC7 Conference 2018, MS "Inverse problems and optimal control approaches in socio-economic applications", University of Duisburg-Essen, Germany.
22. July 2018 - Invited talk *Control strategies for road risk mitigation in kinetic and hydrodynamic traffic modelling* - 28th IFIP TC7 Conference 2018, MS "Modeling and optimization of networked systems", University of Duisburg-Essen, Germany.
21. May 2018 - Invited talk *Stochastic Galerkin methods for kinetic equations of collective behavior* - Workshop Kinetic Theory for Control, Games and Uncertainty, RWTH Aachen University, Aachen, Germany.
20. February 2018 - Invited talk *Uncertainty quantification for kinetic and mean-field equations* - Convegno Nazionale GNCS 2018, Montecatini Terme, Italy.
19. December 2017 - Department seminar *Uncertainty quantification and optimal control problems for multiagent systems* - Department of Mathematical Sciences G. L. Lagrange, Politecnico di Torino, Italy.
18. December 2017 - Invited talk *Opinion dynamics over kinetic networks* - SIAM Conference on Analysis of Partial Differential Equations, Baltimore, USA.
17. November 2017 - Invited talk *Hybrid stochastic kinetic description of 2D traffic dynamic* - The Finite Volume Schemes and Traffic Modeling in Besançon, Université Franche-Comte, Besançon, France.
16. November 2017 - Department seminar *Hybrid stochastic kinetic description of 2D traffic dynamics* - Department of Mathematics IGPM, RWTH Aachen University, Germany.
15. October 2017 - Department seminar *Uncertainty quantification for kinetic and mean-field equations* - Department of Mathematics, University of Sussex, Brighton, UK.
14. October 2017 - Invited talk *Opinion dynamics over kinetic networks* - Workshop Problems in discrete dynamics: from biochemical systems to rare events, networks, clustering and related topics - III Edition, Arcidosso, Italy.
13. September 2017 - Contributed talk *Uncertainty quantification for mean-field equations in social sciences* - XVII Italian Meeting on Hyperbolic Equations, University of Pavia, Pavia, Italy.
12. June 2017 - Invited talk *Opinion dynamics over kinetic networks* - 27th Biennial Numerical Analysis Conference, University of Strathclyde, UK.

11. May 2017 - Contributed talk *Structure preserving methods for mean-field equations with random inputs* - Warwick EPSRC Symposium: Emerging PDE models in Socio-Economic Sciences, University of Warwick, UK.
10. May 2017 - Department seminar *Structure preserving methods for mean-field equations with random inputs* - Department of Mathematics, RWTH Aachen University, Aachen, Germany.
9. April 2017 - Invited lecture *Structure preserving methods for mean-field equations with random inputs* - School on Uncertainty Quantification for Hyperbolic Equations and Related Topics, GSSI, L'Aquila, Italy.
8. March 2017 - Invited talk *Uncertainty quantification for kinetic equations in socio-economic sciences* - SIAM CS&E 2017 Conference, Atlanta, USA.
7. July 2016 - Contributed talk *Uncertainty quantification for kinetic models of collective behavior* - Summer School UQ for Applied Problems, Basque Center for Applied Mathematics (BCAM), Bilbao, Spain.
6. January 2016 - Invited talk *Modeling and control of opinion dynamics on networks* - International Workshop Kinetic Theory and Multiscale Phenomena: Modelling, Analysis and New Applications, Stellenbosch, South Africa.
5. December 2015 - Department Seminar *Stochastic multiscale modelling of ion transport across membranes* - Department of Mathematics, Politecnico di Milano, Milano, Italy.
4. June 2015 - Invited talk *Mean-field and Boltzmann control of socio-economic systems* - 27th IFIP TC7 Conference 2015, Sophia-Antipolis, France.
3. June 2015 - Department seminar *Uncertainty quantification in control problems for flocking models* - Department of Mathematics, RWTH Aachen University, Aachen, Germany.
2. March 2015 - Department seminar *Uncertainty quantification in control problems for flocking models* - Department of Mathematics, University of Wisconsin-Madison, Madison, USA.
1. March 2015 - Invited talk *Uncertainty quantification in control problems for flocking models* - SIAM CS&E 2015 Conference, Salt Lake City, USA.

Organization activity

- Electronic Workshop *Collective Models, Control and Uncertainty Quantification for Infectious Diseases and Related Problems*, April 4.
(co-organizers Dr. Giacomo Albi, Prof. Giacomo Dimarco, Prof. Lorenzo Pareschi)
- Minisymposium *Computational methods for model-driven optimization and control under uncertainty*, 28th Numerical Analysis Conference, June 25–28, 2019, University of Strathclyde, Glasgow, UK.
(co-organizer Dr. Dante Kalise Balza)
- Summer School *Trails in kinetic theory: foundational aspects and numerical methods*, May 20-24, 2019, Hausdorff Research Institute for Mathematics, Bonn, Germany.
(co-organizers Dr. Giacomo Albi, Dr. Sara Merino Aceituno, Dr. Alessia Nota)
- Workshop *Recent Trends in Kinetic Modelling and Related Fields*, Politecnico di Torino, October 25-26, 2018, Politecnico di Torino, Italy.
(co-organizer Prof. Andrea Tosin)

- Special session *Models and Numerical Methods in Kinetic Theory*, 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, July 2018, Taipei, Taiwan.
(co-organizers Prof. Giacomo Dimarco, Prof. Andrea Tosin)
- Conference *Numerical Aspects of Hyperbolic Balance Laws and Related Problems*, April 2018, University of Ferrara, Ferrara, Italy.
(co-organizers Dr. Giacomo Albi, Prof. Giacomo Dimarco)
- Conference *Numerical Aspects of Hyperbolic Balance Laws and Related Problems*, December 2015, University of Ferrara, Ferrara, Italy.
(co-organizers Prof. Giacomo Dimarco, Prof. Lorenzo Pareschi)

Referee Activity

I served as referee for the following journals:

Acta Applicandae Mathematicae • Aerospace Science & Technology • Analysis and Applications • Applied Mathematical Modelling • Communications in Computational Physics • Communications in Mathematical Sciences • Communications in Nonlinear Science and Numerical Simulation • Computer & Mathematics with Applications • Discrete and Continuous Dynamical Systems • Entropy • Frontiers in Artificial Intelligence • International Journal of Automation and Computing • Journal of Computational Physics • Journal of Computational Science • Journal of Statistical Physics • Kinetic and Related Models • Mathematics • Mathematics and Computers in Simulation • Mathematical Methods in the Applied Sciences • Mathematical Models and Methods in the Applied Sciences • Numerische Mathematik • SIAM Journal on Multiscale Modeling & Simulation • SIAM Journal on Scientific Computing • Nonlinearity • Physica A • Physics Letters A • PLOS ONE • Processes • SEMA–SIMAI Springer Series.

Certified referee activity <https://publons.com/a/1271086/>.

Boards

- Referee of Research Projects for the University of Verona, Italy.
- Referee of Research Projects of High National Interest (PRIN) for the Italian Ministry of Education, University and Research.
- July 2019 - Member of the PhD thesis committee of Giovanni Dematteis, Politecnico di Torino (Italy). Thesis: "Large deviations for rare realizations of dynamical systems" (supervisor: Prof. Lamberto Rondoni).
- Since May 2020 - member of the board of PhD program in "Computational Mathematics and Decision Sciences" (XXXVI cycle), University of Pavia and USI (Università della Svizzera Italiana).

BSc and MSc students

- Under way - Emanuele Bernardi, MSc in Mathematics, University of Pavia, Italy
- Under way - Adele Ravagnani, MSc in Complex Systems, Politecnico di Torino, Italy.
Thesis topic: Impact of the introduction of autonomous vehicles on vehicular traffic.
Co-supervised with Prof. Andrea Tosin (Politecnico di Torino)

- April 6, 2020 - Andrea Medaglia, MSc in Physics, University of Milan, Italy.
Thesis: "Kinetic-controlled non-Maxwellian traffic models with driver-assist vehicles" .
Co-supervised with Prof. Davide Galli (University of Milan), Prof. Andrea Tosin (Politecnico di Torino).
- March 19, 2020 - Matteo Defilippi, MSc in Mathematical Engineering, Politecnico di Torino, Italy.
Thesis: "Virtual shaker testing of a large-size satellite with uncertainty quantification of the mechanical stiffness"
Co-supervised with Prof. Andrea Tosin (Politecnico di Torino)
External Company: Thales Alenia Space (representative: Dr. Eng. Pietro Nali)

Teaching

Holder of BSc and MSc Courses

- Since November 2019: Mathematics, BSc in Geology, University of Pavia, Italy.
- October 2019: Probability & Statistics, MSc in Architecture, Politecnico di Torino, Italy.

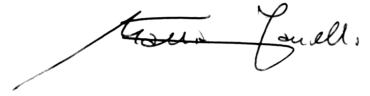
Self-contained Mini Courses

- May 2019: *Numerical Methods for Kinetic Equations*, MSc in Mathematical Engineering, Politecnico di Torino, Italy.
- April 2017–May 2017: *An Introduction to Numerical Methods for Stochastic Computations*, MSc in Mathematics, University of Ferrara, Italy
- April 2016–May 2016: *Stochastic Calculus and Financial Markets: Laboratory of Numerical Methods*, MSc in Mathematics, University of Ferrara, Italy.
- April 2015–May 2015: *Stochastic Calculus and Financial Markets: Laboratory of Numerical Methods*, MSc in Mathematics, University of Ferrara, Italy.

Teaching Assistant at BSc and MSc Courses

- March 2019–June 2019: Rational Mechanics, BSc in Civil Engineering, Politecnico di Torino.
- October 2018–January 2019: Calculus, MSc in Architecture, Politecnico di Torino.
- October 2016–December 2016: Calculus I, MSc in Architecture, University of Ferrara.
- September 2016–December 2016: Continuous Mechanics, MSc in Mathematics, University of Ferrara.
- October 2015–December 2015: Calculus I, MSc in Architecture, University of Ferrara.
- September 2015–December 2015: Continuous Mechanics, MSc in Mathematics, University of Ferrara.
- October 2014–December 2014: Calculus II, BSc in Civil Engineering, University of Ferrara.
- February 2013–June 2013: Stochastic Calculus and Applications, MSc in Mathematics, University of Milan.

August 11, 2020

A handwritten signature in black ink, appearing to read "Mattia Zanella". The signature is written in a cursive style with a long, sweeping underline that extends to the left.