



# Andrea Tosin

## General Information

Name, Surname Andrea Tosin  
Nationality Italian  
Date of birth 22nd September 1980  
Place of birth Torino, Italy  
Gender Male

## Education

### Studies

PhD (2008) Mathematics for Engineering Sciences (Politecnico di Torino, Italy)  
MSc (2004) Mathematical Engineering (Politecnico di Torino, Italy)  
BSc (2002) Mathematics for Engineering Sciences (Politecnico di Torino, Italy)

### Languages

Italian Native  
English TOEFL (CBT)  
French DELF A1-A4

Score: 270/300  
Score: 307.70/360

## Academic Positions

### Current

Oct 15–present Associate professor of Mathematical Physics (MAT/07)  
Department of Mathematical Sciences “G. L. Lagrange”  
Dipartimento di Eccellenza 2018-2022  
Politecnico di Torino  
Address Corso Duca degli Abruzzi 24, 10129 Torino, Italy  
Email [andrea.tosin@polito.it](mailto:andrea.tosin@polito.it)  
Phone +39 011.090.7562  
Home page <http://staff.polito.it/andrea.tosin>

### Previous

Oct 11–Oct 15 Researcher  
Istituto per le Applicazioni del Calcolo “M. Picone”  
Consiglio Nazionale delle Ricerche  
Roma, Italy  
Nov 08–Sept 11 INdAM Postdoctoral Fellow  
Department of Mathematics  
Politecnico di Torino, Italy  
Funding Agency: Compagnia di San Paolo

Oct 07–Oct 08 Research Fellow  
Istituto per le Applicazioni del Calcolo “M. Picone”  
Consiglio Nazionale delle Ricerche (Roma, Italy)  
Funding Agency: University of Salerno ( Fisciano SA, Italy)

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## Qualifications

2017 National Scientific Qualification (ASN – “Abilitazione Scientifica Nazionale”) as full professor of Mathematical Physics  
Validity 28th March 2017 through 28th March 2023  
Report [http://staff.polito.it/andrea.tosin/pdf/ASN19212\\_I.pdf](http://staff.polito.it/andrea.tosin/pdf/ASN19212_I.pdf)

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## Prizes and Honours

2013 SIMAI 2013 prize for young scientists in Applied Mathematics  
2011 INdAM-SIMAI 2010 prize for the best Italian PhD theses in Applied Mathematics

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## Scientific Activity

### Research

Research Field Mathematical Physics  
Research Topics Interacting multi-agent systems, in particular traffic problems (vehicular traffic, crowd dynamics) and social systems  
Methods Kinetic theory, multiscale conservation laws, transport and diffusion equations, numerical simulations

### Projects and Grants

2017 National Grant for Fundamental Research (FFABR)  
Grant 3 k€

2016-2020 Compagnia di San Paolo Starting Grant “Attracting Excellent Professors”  
Title Vehicular and pedestrian traffic models: from flow forecast to safety management  
Role Principal Investigator  
Grant 100 k€

2012 Google Research Award  
Title Multi-population models for vehicular traffic and pedestrians  
Role Participant

2010–2014 FP7 NoE HYCON2  
Title Highly-complex and networked control systems  
Role Participant (CNR Unit)

2011 INdAM-GNFM Young Researchers Project  
Title Multiscale methods and models for collective behaviors in living complex systems  
Role Principal Investigator  
Grant 2 k€

2011–2013 PRIN  
Title Nonlinear hyperbolic problems for applications  
Role Participant

- 2009–2011 PRIN  
 Title Mathematical models of mechanical interactions of cells and cell aggregates with the surrounding environment  
 Role Participant
- 2006–2008 PRIN  
 Title Mathematical models of growth and vascularisation of tumours and biological tissues  
 Role Participant
- 2005 INdAM Project  
 Title Traffic flows and optimization on complex networks  
 Role Participant

### Organisation of Conferences and Conference Sessions

- Sep 19 “Models and Applications”  
 Section S9 of the 21st UMI (“Italian Mathematical Union”) Congress – Pavia, Italy  
 (co-organiser: Giuseppe Saccomandi)
- Oct 18 “Recent trends in kinetic modelling and related fields” – Torino, Italy  
 (co-organiser: Mattia Zanella)
- Oct 18 “Problems in discrete dynamics: from biochemical systems to rare events, networks, clustering and related topics - IV Edition” – Arcidosso, Italy  
 (co-organisers: Vincenzo Barone, Armando Bazzani, Paolo Freguglia, Giordano Mancini, Monica Sanna)
- Sep 18 “Advances in kinetic theory”  
 Thematic session within the UMI-SIMAI-PTM Joint Meeting – Wrocław, Poland  
 (co-organiser: Ewelina Zatorska)
- Jul 18 “Models and numerical methods in kinetic theory”  
 Special session within the 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications – Taipei, Taiwan  
 (co-organisers: Giacomo Dimarco, Mattia Zanella)
- Oct 17 “Problems in discrete dynamics: from biochemical systems to rare events, networks, clustering and related topics - II Edition” – Arcidosso, Italy  
 (co-organisers: Armando Bazzani, Chiara Cappelli, Paolo Freguglia, Monica Sanna)
- Jul 14 “Complex Systems (vehicular traffic, crowd dynamics, biological systems, social systems)”  
 Mini-Symposium within the SIMAI 2014 Congress – Taormina ME, Italy  
 (co-organiser: Marina Dolfin)
- Nov 12 “From individual to collective behaviour: crowds and swarms” – Roma, Italy
- Jun 10 “Crowd and swarm dynamics: interactions, self-organization, mathematics, applications”  
 Young Researcher Mini-Symposium within the SIMAI 2010 Congress – Cagliari, Italy  
 (co-organiser: Paolo Frasca)

### Editorial Activity

- 2018-present Associate Editor of *Mathematics and Computers in Simulation* (Elsevier)
- 2012-present Member of the Editorial Board of *SEMA SIMAI Springer Series*
- 2013-2015 Member of the Editorial Board of the Springer-Birkhäuser Series (Boston, USA) *Modeling and Simulation in Science, Engineering and Technology*

## Referee Activity

Referee for • Acta Applicandae Mathematicae • Applied Mathematical Modelling • Communications in Mathematical Sciences • Comptes Rendus – Mécanique • Discrete and Continuous Dynamical Systems – Series B • Journal of Computational and Applied Mathematics • Journal of Differential Equations • Journal of Mathematical Biology • Journal of Physics A: Mathematical and Theoretical • Journal of Theoretical Biology • Kinetic and Related Models • Mathematical Models and Methods in Applied Sciences • Multiscale Modeling & Simulation • Networks and Heterogeneous Media • New Journal of Physics • Physica A • SIAM Journal on Applied Mathematics • SIAM Journal on Control and Optimization • Transportation Research Part C: Emerging Technologies

Publons Certified referee activity: <https://publons.com/a/591032>

## Students

- Under way Marilina Barulli  
BSc Mathematics for Engineering, Politecnico di Torino, Italy  
Thesis topic: binary control strategies in kinetic models of vehicular traffic
- Under way Elena Pitino  
BSc Mathematics for Engineering, Politecnico di Torino, Italy  
Thesis topic: kinetic models of interacting multi-agent systems
- Oct 18 Davide Cividino  
BSc Mathematics for Engineering, Politecnico di Torino, Italy  
Thesis: “A Boltzmann-type kinetic model of Alzheimer’s disease”
- Oct 18 Simona Cucchiara  
BSc Mathematics for Engineering, Politecnico di Torino, Italy  
Thesis: “Kinetic models for multi-agent systems with application to vehicular traffic”
- Oct 18 Luca Lanzilao  
MSc Mathematical Engineering (co-supervised with Fiammetta Venuti), Politecnico di Torino, Italy  
Thesis: “Mathematical models of crowd-to-structure action in footbridges at different scales”
- Oct 18 Nicolò Perello  
BSc Mathematics for Engineering, Politecnico di Torino, Italy  
Thesis: “Stability and bifurcations in models of population dynamics”
- Sep 18 Sara Cavaglion  
BSc Mathematics for Engineering, Politecnico di Torino, Italy  
Thesis: “SIS and SIR epidemiological models”
- Sep 18 Giulia Formica  
BSc Mathematics for Engineering, Politecnico di Torino, Italy  
Thesis: “Fokker-Planck models for social phenomena”
- Mar 18 Matteo Marino  
BSc Mathematics for Engineering, Politecnico di Torino, Italy  
Thesis: “The Cucker-Smale model and its mean-field limit”
- Sep 17 Julien Genovese  
BSc Mathematics for Engineering, Politecnico di Torino, Italy  
Thesis: “Conservation laws for vehicular traffic”
- Jun 17–Aug 17 Sebastiano Roncoroni  
Research fellow, Politecnico di Torino, Italy  
Research topic: Boltzmann-type kinetic equations for the study of non-homogeneous vehicular traffic
- Jan 17–Jul 18 Mattia Zanella  
Postdoc, Politecnico di Torino, Italy  
Research topic: Kinetic models of multi-agent systems, Fokker-Planck asymptotics and related numerical approximations

- Oct 16–present Nadia Loy  
PhD student (co-supervised with Luigi Preziosi), Politecnico di Torino, Italy  
Research topic: Kinetic and continuous models of biological systems
- Nov 15–present Raul De Maio  
PhD student (co-supervised with Fabio Camilli), “Sapienza” University of Rome, Italy  
Research topic: Multiscale models of traffic flow on networks
- Oct 15 Raul De Maio  
MSc Applied Mathematics (co-supervised with Eugenio Montefusco), “Sapienza” University of Rome, Italy  
Thesis: “A multiscale approach to vehicular traffic”
- Jan 14–Dec 16 Giuseppe Visconti  
PhD student (co-supervised with Gabriella Puppo and Matteo Semplice), Università degli Studi dell’Insubria, Como, Italy  
Thesis: “Single- and multi-population kinetic models for vehicular traffic reproducing fundamental diagrams and with low computational complexity”
- Jan 13–May 15 Fabio S. Priuli  
Postdoc (co-supervised with Emiliano Cristiani), University of Rome “Tor Vergata” and IAC-CNR, Italy  
Research topic: Optimisation of pedestrian flows in complex environments
- Jan 12–Dec 15 Marco Scianna  
Postdoc, Politecnico di Torino, Italy  
Research topic: Multiscale models of environment sensing in cell aggregates and human crowds
- Jan 12–Dec 15 Alessandro Corbetta  
PhD student (co-supervised with Luca Bruno, Adrian Muntean, Federico Toschi), Politecnico di Torino, Italy & TU/e Eindhoven, the Netherlands  
Thesis: “Multiscale crowd dynamics: physical analysis, modeling and applications”
- Mar 11 Riccardo Ferrero  
BSc Mathematics for Engineering Sciences (co-supervised with Enrico Serra), Politecnico di Torino, Italy  
Thesis: “Maximum principles and overdetermined elliptic problems”
- Mar 11 Lorenzo Pavese  
BSc Mathematics for Engineering Sciences (co-supervised with Marco Codegone), Politecnico di Torino, Italy  
Thesis: “Elements of distributional Fourier transform with application to a linear elasticity problem”
- Dec 10 Anna Scotti  
MSc Mathematical Engineering (co-supervised with Luca Bruno, Fiammetta Venuti), Politecnico di Torino, Italy  
Thesis: “The role of hanger slackening in footbridge dynamics: mathematical modelling and engineering outcomes”
- Mar 10 Annachiara Colombi  
BSc Mathematics for Engineering Sciences (co-supervised with Luigi Preziosi), Politecnico di Torino, Italy  
Thesis: “Modelling tumour growth by mixture theory methods”
- Mar 10 Fabio Fanari  
BSc Mathematics for Engineering Sciences (co-supervised with Luigi Preziosi), Politecnico di Torino, Italy  
Thesis: “Variational methods with applications to analytical mechanics”
- Dec 08 Miriam Pirra  
MSc Mathematical Engineering (co-supervised with Luigi Preziosi), Politecnico di Torino, Italy  
Thesis: “Modelling pedestrian traffic by conservation laws with non-local flux”

- Dec 07 Mattia Bozzola  
MSc Mathematical Engineering (co-supervised with Davide Fransos, Luigi Preziosi), Politecnico di Torino, Italy  
Thesis: "Immersed boundary method applied to tumor cord development"
- Jul 07 Paola Latorraca  
MSc Mathematical Engineering (co-supervised with Luigi Preziosi), Politecnico di Torino, Italy  
Thesis: "Qualitative analysis of a multiphase model for the growth of tumor cords"
- Dec 06 Miriam Pirra  
BSc Mathematics for Engineering Sciences (co-supervised with Luigi Preziosi), Politecnico di Torino, Italy  
Thesis: "Tumour growth models in avascular phase"

### Invited Talks

- Apr 18 Workshop "Numerical Aspects of Hyperbolic Balance Laws and Related Problems" (University of Ferrara, Italy)  
Talk: "Boltzmann-type models with uncertain binary interactions"
- Nov 17 Meeting "The finite volumes schemes and traffic modeling" (Laboratoire de Mathématiques de Besançon, Besançon, France)  
Talk: "Control strategies for road risk mitigation in kinetic traffic modelling"
- Oct 17 Mathematics and Applications Sussex seminars (University of Sussex, Brighton, UK)  
Talk: "Kinetic and multiscale models of traffic flows"
- Sep 17 IperPV2017 – XVII Italian Meeting on Hyperbolic Equations (University of Pavia, Italy)  
Plenary talk: "Kinetic and multiscale models of traffic flows"
- May 17 Warwick EPSRC Symposium on Partial Differential Equations and their Applications – "Emerging PDE models in Socio-Economic Sciences" (Mathematics Institute, University of Warwick, UK)  
Talk: "Reducing complexity of multi-agent systems with symmetry breaking: an application to opinion dynamics with polls"
- Mar 17 CrossFields PDEs – "Current Topics in Kinetic Theory" (Institute of Mathematics of the Polish Academy of Sciences, Warsaw, Poland)  
Talk: "Kinetic description of collision avoidance in pedestrian crowds by sidestepping"
- Feb 17 Problems in discrete dynamics - From biochemical systems to rare events, networks, clustering and related topics (Arcidosso, Italy)  
Talk: "Proposal of a risk model for vehicular traffic: A Boltzmann-type kinetic approach"
- Jun 16 X Forum of Partial Differential Equations (Institute of Mathematics of the Polish Academy of Sciences, Będlewo, Poland)  
Talk: "A Boltzmann-type kinetic approach to the modelling of vehicular traffic"
- Mar 16 ANCONET "Analysis and Control on Networks: trends and perspectives" (University of Padua, Italy)  
Talk: "A Boltzmann-type kinetic approach to traffic flow on road networks"
- Nov 15 Applied PDEs Seminar (Imperial College London, UK)  
Talk: "Multiscale models of crowd dynamics"
- Oct 15 Radon Group Seminars (RICAM, Linz, Austria)  
Talk: "Multiscale models of crowd dynamics"
- Sep 15 Workshop "Mathematical Foundations of Traffic" (IPAM-UCLA, Los Angeles CA, USA)  
Talk: "A Boltzmann-type kinetic approach to the modeling of vehicular traffic"
- Jun 15 MASCOT 2015 "14th Meeting on Applied Scientific Computing and Tools" (IAC-CNR, Roma, Italy)  
Talk: "Individuality vs. Collectivity in Crowd Dynamics Modeling"
- Jan 15 Meiji Seminar on Nonlinear Mathematical Sciences (Meiji University, Tokyo, Japan)  
Talk: "Microscopic, Macroscopic: Comparison and Multiscale Coupling"
- Jan 15 ICMMA 14 Conference "Crowd Dynamics" (Meiji University, Tokyo, Japan)  
Talk: "Multiscale Modeling of Pedestrian Dynamics: Individuality vs. Collectivity"

- Oct 14 KI-Net Conference “Modeling and Control in Social Dynamics” (Rutgers University, Camden NJ, USA)  
Talk: “Generalized Kinetic Equations and Stochastic Game Theory for Social Systems”
- Jul 14 SIMAI 2014 Congress (Taormina, Italy)  
Plenary talk: “From individuals to collectivity: Multiscale methods for living complex systems”
- Jun 14 Biomat 2014 “Complexity and Emergence in Social and Biological Systems” (University of Granada, Spain)  
Talk: “Traffic flow on networks: A fully-discrete kinetic theory approach”
- Sept 13 NumHyp2013 “Numerical Approximations of Hyperbolic Systems with Source Terms and Applications” (RWTH Aachen University, Germany)  
Talk: “Multiscale methods for cell migration and organization – Modeling, analysis, and (some) numerics”
- Sept 13 INdAM Meeting “The Mathematics of Cells and Tissues” (Cortona, Italy)  
Talk: “Multiscale modeling of *in vitro* cell organization and migration”
- May 13 INdAM Workshop “Mathematical Models and Methods for Planet Earth” (Roma, Italy)  
Talk: “On the dynamics of social conflicts: looking for the Black Swan”
- Sept 10 Workshop “Partial Differential Equations in Mathematical Biology” (Institute of Mathematics of the Polish Academy of Sciences, Będlewo, Poland)  
Talk: “Initial/boundary-value problems of tumor growth in mixture theory”
- Jul 09 BIRS Workshop “Multiscale Analysis of Self-Organization in Biology” (Banff, Alberta, Canada)  
Talk: “Tumor growth by a mixture theory approach: modeling and analytical issues”

### Contributed Talks

- Oct 18 Conference “Kinetic and transport equations: mathematical advances and applications” (Parma, Italy)  
Talk: “Kinetic insights into the rise and fall of popularity on social media”
- Jun 18 15th IFAC Symposium on Control in Transportation Systems (CTS 2018, Savona, Italy)  
Talk: “Control strategies for road risk mitigation in kinetic traffic modelling”

### Visits

- Oct 17 University of Sussex  
Brighton, UK  
Dr. Bertram Düring
- Nov 15 Imperial College London  
London, UK  
Prof. José Antonio Carrillo de la Plata, Prof. Pierre Degond
- Oct 15 Johann Radon Institute for Computational and Applied Mathematics (RICAM)  
Linz, Austria  
Dr. Marie-Therese Wolfram
- Jul 15 University of Ferrara  
Ferrara, Italy  
Prof. Lorenzo Pareschi
- Dec 11 Eindhoven University of Technology (TU/e)  
Eindhoven, the Netherlands  
Dr. Adrian Muntean, Prof. Federico Toschi
- Nov 10 Institute of Applied Mathematics and Mechanics  
Warsaw, Poland  
Prof. Mirosław Lachowicz
- Apr-May 10 Rutgers University  
Camden NJ, USA  
Prof. Benedetto Piccoli

Jun 07 University of Minnesota  
Minneapolis MN, USA  
Prof. Hans Othmer

## Boards

- Jul 17 President of the PhD thesis committee of Antonella Verderosa (Politecnico di Torino, Italy)  
Thesis: “Energy and density distortion in an oscillator chain” (supervisor: Lamberto Rondoni)
- Jul 17 President of the PhD thesis committee of Annachiara Colombi (Politecnico di Torino, Italy)  
Thesis: “Non-local hybrid models for collective dynamics” (supervisors: Marco Scianna, Luigi Preziosi)
- Feb 16 Member of the PhD thesis committee of Alessandro Corbetta (TU/e Eindhoven, the Netherlands)  
Thesis: “Multiscale crowd dynamics: physical analysis, modeling and applications” (supervisors: Luca Bruno, Federico Toschi, Adrian Muntean, Andrea Tosin)
- Dec 15 Member of the PhD thesis committee of Matthias Mimault (INRIA Sophia Antipolis - Méditerranée, France)  
Thesis: “Crowd motion modeling by conservation laws” (supervisor: Paola Goatin)
- 2012-present National coordinator of the SIMAI Activity Group on Complex Systems (SisCo-SIMAI, <http://staff.polito.it/andrea.tosin/SisCo-SIMAI>)

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## Teaching

### Holder of PhD and Advanced Courses

- 2018 “Optimal Transport: Numerical Methods and Applications” (Lake Como School of Advanced Studies, Como, Italy)  
Series of 4 lectures on: “Conservation laws with nonlocal flux”
- 2015 “Modeling and Simulation of Emerging Collective Behavior” (“Sapienza” University of Rome, Italy)  
Series of 4 lectures on: “Macroscopic and kinetic models of vehicular traffic flows”
- 2012 CISM Course “Analysis, Modeling and Simulation of Collective Dynamics from Bacteria to Crowds” (Udine, Italy)  
Series of 8 lectures on: “Multiscale modeling of pedestrian motions by time-evolving measures”
- 2008 Intensive Program in “Mathematical Models in Life and Social Sciences” – MathMods IP 2008 (L’Aquila, Italy)  
Series of 2 lectures on: “Traffic flow: modeling and networks”

### Holder of BSc Courses

- 2019 Rational Mechanics (Politecnico di Torino, Italy)  
Mathematical Methods for Engineering (Politecnico di Torino, Italy)
- 2018 Rational Mechanics (Politecnico di Torino, Italy)  
Mathematical Methods for Engineering (Politecnico di Torino, Italy)
- 2017 Rational Mechanics (Politecnico di Torino, Italy)  
Mathematical Methods for Engineering (Politecnico di Torino, Italy)
- 2016 Mathematical Methods for Engineering (Politecnico di Torino, Italy)

### Teaching Assistant at BSc and MSc Courses

- 2019 Transport Models and Kinetic Theory (MSc, Politecnico di Torino, Italy)
- 2018 Transport Models and Kinetic Theory (MSc, Politecnico di Torino, Italy)
- 2017 Transport Models and Kinetic Theory (MSc, Politecnico di Torino, Italy)
- 2016 Rational Mechanics (BSc, Politecnico di Torino, Italy)



- 2009 Mathematical Methods for Engineering (MSc, Politecnico di Torino, Italy)  
Partial Differential Equations (BSc, Politecnico di Torino, Italy)
- 2007 Functional Analysis (MSc, Politecnico di Torino, Italy)  
Partial Differential Equations (BSc, Politecnico di Torino, Italy)
- 2006 Functional Analysis (MSc, Politecnico di Torino, Italy)  
Partial Differential Equations (BSc, Politecnico di Torino, Italy)
- 2005 Calculus II (BSc, Politecnico di Torino, Italy)
- 2004 Calculus II (BSc, Politecnico di Torino, Italy)

### Thematic Seminar Cycles

- 2011 Complex Systems in Engineering Sciences (Politecnico di Torino, Italy)
- 2010 Mathematical Methods and Models for Complex Systems (Politecnico di Torino, Italy)

### Self-Contained Mini-Courses

- 2011 Mechanics of Multiphase Systems (MSc, Politecnico di Torino, Italy)
- 2010 Mechanics of Multiphase Systems (MSc, Politecnico di Torino, Italy)
- 2008 Continuum Mechanics (MSc, Politecnico di Torino, Italy)
- 2007 Continuum Mechanics (MSc, Politecnico di Torino, Italy)
- 2006 Mechanics of multiphase systems (MSc, Politecnico di Torino, Italy)

### Membership of Boards of Teachers

- 2017 Boards of Teachers of Electronics, Telecommunications and Physical Engineering (Politecnico di Torino, Italy)
- Boards of Teachers of Mathematical Engineering (Politecnico di Torino, Italy)
- 2016 Boards of Teachers of Mathematical Engineering (Politecnico di Torino, Italy)

## Publications

### Books

- [2] E. Cristiani, B. Piccoli, A. Tosin. *Multiscale Modeling of Pedestrian Dynamics*, volume 12 of *MS&A: Modeling, Simulation and Applications*. Springer, Cham, 2014. doi:10.1007/978-3-319-06620-2.
- [1] G. Ajmone Marsan, N. Bellomo, A. Tosin. *Complex Systems and Society – Modeling and Simulation*. SpringerBriefs in Mathematics. Springer, New York, 2013. doi:10.1007/978-1-4614-7242-1.

### Papers

- [43] M. Bertsch, B. Franchi, M. C. Tesi, A. Tosin. Well-posedness of a mathematical model for Alzheimer's disease. *SIAM J. Math. Anal.*, 50(3):2362–2388, 2018. doi:10.1137/17M1148517.
- [42] S. Cacace, F. Camilli, R. De Maio, A. Tosin. A measure theoretic approach to traffic flow optimisation on networks. *European J. Appl. Math.*, 2018. doi:10.1017/S0956792518000621.
- [41] F. Camilli, R. De Maio, A. Tosin. Measure-valued solutions to nonlocal transport equations on networks. *J. Differential Equations*, 264(12):7213–7241, 2018. doi:10.1016/j.jde.2018.02.015.
- [40] E. Cristiani, A. Tosin. Reducing complexity of multiagent systems with symmetry breaking: an application to opinion dynamics with polls. *Multiscale Model. Simul.*, 16(1):528–549, 2018. doi:10.1137/17M113397X.
- [39] A. Festa, A. Tosin, M.-T. Wolfram. Kinetic description of collision avoidance in pedestrian crowds by sidestepping. *Kinet. Relat. Models*, 11(3):491–520, 2018. doi:10.3934/krm.2018022.
- [38] M. Herty, A. Tosin, G. Visconti, M. Zanella. Hybrid stochastic kinetic description of two-dimensional traffic dynamics. *SIAM J. Appl. Math.*, 78(5):2737–2762, 2018. doi:10.1137/17M1155909.
- [37] G. Toscani, A. Tosin, M. Zanella. Opinion modeling on social media and marketing aspects. *Phys. Rev. E*, 98(2):022315/1–15, 2018. doi:10.1103/PhysRevE.98.022315.

- [36] A. Tosin, M. Zanella. Boltzmann-type models with uncertain binary interactions. *Commun. Math. Sci.*, 16(4):963–985, 2018. doi:10.4310/CMS.2018.v16.n4.a3.
- [35] M. Bertsch, B. Franchi, N. Marcello, M. C. Tesi, A. Tosin. Alzheimer’s disease: a mathematical model for onset and progression. *Math. Med. Biol.*, 34(2):193–214, 2017. doi:10.1093/imammb/dqw003.
- [34] M. Bertsch, B. Franchi, M. C. Tesi, A. Tosin. Microscopic and macroscopic models for the onset and progression of Alzheimer’s disease. *J. Phys. A: Math. Theor.*, 50(41):414003/1–22, 2017. doi:10.1088/1751-8121/aa83bd.
- [33] F. Camilli, R. De Maio, A. Tosin. Transport of measures on networks. *Netw. Heterog. Media*, 12(2):191–215, 2017. doi:10.3934/nhm.2017008.
- [32] P. Freguglia, A. Tosin. Proposal of a risk model for vehicular traffic: A Boltzmann-type kinetic approach. *Commun. Math. Sci.*, 15(1):213–236, 2017. doi:10.4310/CMS.2017.v15.n1.a10.
- [31] G. Puppo, M. Semplice, A. Tosin, G. Visconti. Analysis of a multi-population kinetic model for traffic flow. *Commun. Math. Sci.*, 15(2):379–412, 2017. doi:10.4310/CMS.2017.v15.n2.a5.
- [30] G. Puppo, M. Semplice, A. Tosin, G. Visconti. Kinetic models for traffic flow resulting in a reduced space of microscopic velocities. *Kinet. Relat. Models*, 10(3):823–854, 2017. doi:10.3934/krm.2017033.
- [29] G. Visconti, M. Herty, G. Puppo, A. Tosin. Multivalued fundamental diagrams of traffic flow in the kinetic Fokker-Planck limit. *Multiscale Model. Simul.*, 15(3):1267–1293, 2017. doi:10.1137/16M1087035.
- [28] L. Bruno, A. Corbetta, A. Tosin. From individual behaviour to an evaluation of the collective evolution of crowds along footbridges. *J. Engrg. Math.*, 101(1):153–173, 2016. doi:10.1007/s10665-016-9852-z.
- [27] A. Colombi, M. Scianna, A. Tosin. Moving in a crowd: Human perception as a multiscale process. *J. Coupled Syst. Multiscale Dyn.*, 4(1):25–29, 2016. doi:10.1166/jcsmd.2016.1093.
- [26] A. Corbetta, A. Tosin. Comparing discrete and continuous crowd models for an increasing number of massive agents. *Adv. Math. Phys.*, 2016:6902086/1–17, 2016. doi:10.1155/2016/6902086.
- [25] G. Puppo, M. Semplice, A. Tosin, G. Visconti. Fundamental diagrams in traffic flow: the case of heterogeneous kinetic models. *Commun. Math. Sci.*, 14(3):643–669, 2016. doi:10.4310/CMS.2016.v14.n3.a3.
- [24] A. Colombi, M. Scianna, A. Tosin. Differentiated cell behavior: a multiscale approach using measure theory. *J. Math. Biol.*, 71(5):1049–1079, 2015. doi:10.1007/s00285-014-0846-z.
- [23] E. Cristiani, F. S. Priuli, A. Tosin. Modeling rationality to control self-organization of crowds: an environmental approach. *SIAM J. Appl. Math.*, 75(2):605–629, 2015. doi:10.1137/140962413.
- [22] L. Fermo, A. Tosin. A fully-discrete-state kinetic theory approach to traffic flow on road networks. *Math. Models Methods Appl. Sci.*, 25(3):423–461, 2015. doi:10.1142/S0218202515400023.
- [21] L. Fermo, A. Tosin. Fundamental diagrams for kinetic equations of traffic flow. *Discrete Contin. Dyn. Syst. Ser. S*, 7(3):449–462, 2014. doi:10.3934/dcdss.2014.7.449.
- [20] N. Bellomo, M. A. Herrero, A. Tosin. On the dynamics of social conflicts: Looking for the Black Swan. *Kinet. Relat. Models*, 6(3):459–479, 2013. doi:10.3934/krm.2013.6.459.
- [19] L. Fermo, A. Tosin. A fully-discrete-state kinetic theory approach to modeling vehicular traffic. *SIAM J. Appl. Math.*, 73(4):1533–1556, 2013. doi:10.1137/120897110.
- [18] A. Tosin. Initial/boundary-value problems of tumor growth within a host tissue. *J. Math. Biol.*, 66(1):163–202, 2013. doi:10.1007/s00285-012-0505-1.
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