Felisia Angela Chiarello

Personal information

Nationality	Italian
Date and place of birth	14 December 1992, Taranto (Italy)
Address	Dipartimento di Ingegneria e Scienze dell'Informazione e Matematica
	Via Vetoio, Ed. Coppito 1, 67100 L'Aquila AQ
Email	felisiaangela.chiarello@univaq.it
Web	https://sites.google.com/site/felisiaangelachiarello/home
ORCID	0000-0002-5506-9086

Education

From July 2022	Research fellow (RTDa) at Università degli Studi dell'Aquila, Italy. Lab head: Prof. Debora Amadori.
February 2021-June 2022	Postdoctoral fellow (Assegnista tipo b) at Politecnico di Torino, Italy. Supervisor: Prof. Andrea Tosin.
January 2020-December 2020	Postdoctoral fellow (Assegnista tipo a) at Politecnico di Torino, Italy. Supervisor: Prof. Andrea Tosin.
2 May 2017- 6 December 2019	Ph.D. in Mathematics at Inria Sophia Antipolis - Méditerranée financed by Université Côte d'Azur, with European doctorate label. Thesis Title: 'Non-local conservation laws for traffic flow modeling'. Supervisor: Dr. Paola Goatin.
2014-2017	Master's degree in Mathematics, Università degli Studi di Bari (Italy). Final grade 110/110 cum laude with a thesis in Mathematical Analysis on 'Conservation laws and vanishing viscosity on network'; advisors Mcf. Carlotta Donadello (Université Franche-Comté), Prof. Giuseppe Maria Coclite, Prof. Mario Michele Coclite.

Research periods

16 Mar 2022 - 26 Mar 2022	Research period at Universität Mannheim, Germany, financed by the DFG "Multiscale Control Concepts for Transport-Dominated Problems" project G01920/10-1.
6 Oct 2019 - 19 Oct 2019	Research period at Universität Mannheim, Germany, financed by the project "Non-local conservation laws for engineering applications" DAAD (Project-ID 57445223) e PHC Procope (Project no. 42503RM).

March 2019-May 2019	Research period at Universität Mannheim, Germany. Grant promoted by the German Academic Exchange Service (DAAD) within the 'International Promovieren in Deutschland for all' (IPID4all) program.

Conferences, Workshops and Schools

July 13-15, 2022.	12th Meeting on Nonlinear evolution PDEs, fluid dynamics and transport equations. University of L'Aquila.
June 20-25, 2022	HYP2022, XVIII International Conference on Hyperbolic Problems: Theory, Numerics and Applications. Málaga, Spain.
March 14-18, 2022.	SIAM Conference on Analysis of Partial Differential Equations - Happening Virtually.
Dec. 15-17, 2021	Numerical aspects of hyperbolic balance laws and related problems-young research conference. Verona.
Oct. 01, 2021	Waiting for the BioTOMath Conference. On the occasion of Luigi Preziosi 60th birthday. Politecnico di Torino.
Sept. 27- Oct. 01, 2021	DMV-ÖMG Annual Conference 2021. University of Passau.
Sept. 08-10, 2021	Indam Workshop: 'Present Recent Trends in Conservation Laws'. Rome.
June 23-25, 2021	Program: Introduction to Mean Field Games and Applications. 'Crowd and Social Dynamics', IMSI, Chicago, USA. Invited lecturer.
December 21-22, 2020	Xmaths workshop 2020, Università degli Studi di Bari, Italy.
September 14-December 18, 2020	Long Program: Mathematical Challenges and Opportunities for Autonomous Vehicles. IPAM, Los Angeles, USA.
February 5, 2020	Workshop on Kinetic Traffic Models and Numerical Methods. Conference on the occasion of Gabriella Puppo 60th birthday. University La Sapienza, Rome, Italy.
December 19-20, 2019	Xmaths workshop 2019, Università degli Studi di Bari, Italy.
July 29-August 2, 2019	12th ISAAC Congress, Aveiro, Portugal.
July 15-19, 2019	ICIAM 2019, Valencia, Spain.
May 19-25, 2019	Nonlinear Hyperbolic Problems: modeling, analysis, and numerics, MFO Oberwolfach, Germany.
February 25-26, 2019	Le Monde des Mathématiques Industrielles MOMI 2019, Sophia Antipolis, France.
October 1-5, 2018	Fall school Hyperbolic Conservation Laws and Mathematical Fluid Dynamics, Würzburg, Germany.
September 10-12, 2018	Interactive workshop on hyperbolic equations. Università degli Studi di Ferrara, Italy.
July 2-6, 2018	MicroLocal and Time-Frequency Analysis 2018. A Conference in honor of Luigi Rodino on occasion of his 70th Birthday. University of Turin.
June 25-29, 2018	XVII International Conference on Hyperbolic Problems Theory, Numerics, Applications University Park, Pennsylvania, USA.
June 19-21, 2018	Summer school on DDM in Nice, 2018, Laboratoire Dieudonné.

April 09-13, 2018	Course: Problemi matematici in teoria cinetica, Politecnico di Bari, Italy.
February 26-27, 2018	Le Monde des Mathématiques Industrielles MOMI 2018, Sophia Antipolis, France.
20-21 Dec 2017	Xmas Workshop 2017, Universitá degli Studi di Bari.
22-23 Nov 2017	Conference: The Finite volumes schemes and traffic modeling in Besançon, France.
2016-2017	Erasmus+ student at the University of Franche-Comte, Besançon, France. Attended course: EDP held by Professor Louis Jeanjean and Farid Ammar Khodja, Laboratoire de Mathématiques. Project M1 and Master thesis with Maître de conférences Carlotta Donadello on the argument: Conservation laws.
August 2016	Perugia Summer courses SMI. Attended courses: Partial Differential Equations held by Prof. Giuseppe Savaré (University of Pavia) with final mark test A, and Differential Geometry held by Prof. Liviu Ornea (University of Bucharest), with final mark test A+.

Teaching experiences

26 Sept 2022 - 14 Jan 2023	University of L'Aquila. Classroom exercises of Mathematical Analysis B for students of Bachelor's degree in Mathematics; Prof. Donatella Donatelli. 30 hours.
26 Sept 2022 - 14 Jan 2023	University of L'Aquila. Classroom exercises of Introductory Real Analysis for the international degree course in mathematical engineering; Prof. Rosella Sampalmieri. 30 hours.
27 Sept 2021 - 14 Jan 2022	Politecnico di Torino. Classroom exercises of Mathematical Analysis II for students of course 3 of Computer Engineering; Prof. Vincenzo Recupero. 40 hours.
27 Sept 2021 - 14 Jan 2022	Politecnico di Torino. Classroom exercises of probability and mathematical statistics for the course of Atelier City and Territory F to the students of the second year of bachelor's degree in Architecture; Prof. Manriquez Jorge Raul Cordovez. 10 hours.
23 Jun 2021 - 25 Jun 2021	IMSI Institute for Mathematical and Statistical Innovation, Chicago, USA. Invited lecturer for the mini-course 'Crowd and Social Dynamics', in the Long Program IMSI entitled 'Introduction to Mean Field Games and Applications'. Link: https://www.imsi.institute/imfga21/
Feb-Sept 2016	Tutoring for students enrolled in the first and second years of Bachelor's degree in Mathematics, Università degli Studi di Bari (Italy): weekly meetings organized to support students in preparation for exams in mathematical analysis (Analisi 1,2,3,4).

Talks and Posters

June 20-25, 2022	Kinetic nonlocal description and macroscopic limits of car-following traffic dynamics. HYP2022, XVIII International Conference on Hyperbolic Problems: Theory, Numerics and Applications. Málaga, Spain.

March 14-18, 2022.	Nonlocal reaction traffic flow model with on-off ramps. SIAM Conference on Analysis of Partial Differential Equations - Happening Virtually. (Invited speaker).
15-17 Dec 2022	A statistical mechanics approach to macroscopic limits of car-following traffic dynamics. Numerical aspects of hyperbolic balance laws and related problems-young researches conference. Verona. (Invited speaker).
14 Oct 2021	A statistical mechanics approach to macroscopic limits of car-following traffic dynamics. Scientific Computing Research. Universität Mannheim. (Invited speaker).
Sept. 27- Oct. 01, 2021	Micro-Macro limit of a non-local generalized Aw-Rascle type model. DMV-ÖMG Annual Conference 2021, University of Passau, Minisymposium 'Nonlocal conservation laws'. (Invited speaker).
Sept 8-10 2021	A Statistical Mechanics Approach to Macroscopic Limits of Car-Following Traffic Dynamics. INdAM Workshop: Present Research Trends in Conservation Laws. Rome. (Invited speaker).
June 23-25, 2021	Program: Introduction to Mean Field Games and Applications. 'Crowd and Social Dynamics', IMSI, Chicago, USA. Invited lecturer.
December 21, 2020.	Multiscale control of generic second order traffic models by driver-assist vehicles. Xmaths Workshop, University of Bari. (Invited speaker).
November 5, 2020.	Multiscale control of generic second order traffic models by driver-assist vehicles. Ipam 2020 Junior Participant Seminar.
October 8, 2020.	Multiscale control of generic second order traffic models by driver-assist vehicles. Scientific Computing Research Seminar Universität Mannheim, Germany. (Invited speaker).
September 29, 2020.	Multiscale control of generic second order traffic models by driver-assist vehicles. CI2MA Seminars, Chile. (Invited speaker).
19-20 Dec 2019	Non-local conservation laws for traffic flow modeling. Xmaths 2019, Bari, Italy.(Invited speaker).
November 14, 2019	Non-local conservation laws for traffic flow modeling. Seminar, Politecnico di Torino. (Invited speaker).
July 15-19, 2019	Non-local vehicular traffic flow models. ICIAM 2019, Valencia, Spain. (Invited speaker).
May 19-25, 2019	Non-local traffic flow models. Nonlinear Hyperbolic Problems: modeling, analysis and numerics, MFO Oberwolfach, Germany. (Invited speaker).
March 14, 2019	Ph.D. Seminar, Non-local traffic flow models. Universität Mannheim, Germany. (Invited speaker).
October 1-5, 2018	Poster session at Fall school Hyperbolic Conservation Laws and Mathematical Fluid Dynamics, Würzburg, Germany. Poster title: Non-local multi-class traffic flow models.
September 10-12, 2018	Interactive workshop on hyperbolic equations. University of Ferrara, Italy. Talk title: Non-local multi-class traffic flow models. (Invited speaker).

June 28, 2018	General non-local traffic flow models. HYP 2018, Penn State University, University Park, USA. (Contributed talk).
Feb 26-27, 2018	Poster session at MOMI 2018, Inria Sophia Antipolis, France. Poster title: Non-local traffic flow models.
Dec 18, 2017	Global entropy weak solutions for general non-local traffic flow models with anisotropic kernel. EDP e dintorni, III Meeting around PDE. Department of Mathematics, Universitá degli Studi di Bari. (Invited speaker).

Journal articles

1. Felisia Angela Chiarello, Paola Goatin. Global entropy weak solutions for general non-local traffic flow models with anisotropic kernel. ESAIM: M2AN Volume 52, Number 1, January-February 2018.

2. Felisia Angela Chiarello, Paola Goatin, Elena Rossi. Stability estimates for non-local scalar conservation laws. Nonlinear Analysis Series B: Real World Applications, 2019.

3. Felisia Angela Chiarello, Paola Goatin. Non-local multi-class traffic flow models. Networks and Heterogeneous Media, 2019.

4. Felisia Angela Chiarello, Paola Goatin, Luis Miguel Villada. Lagrangian-Antidiffusive Remap schemes for non-local multi-class traffic flow models. Computational and Applied Mathematics, (2020) 39:60.

5. Felisia Angela Chiarello, Jan Friedrich, Paola Goatin, Simone Göttlich, Oliver Kolb. A non-local traffic flow model for 1-to-1 junctions. European Journal of Applied Mathematics, 1-21, 2020.

6. Felisia Angela Chiarello. An overview of non-local traffic flow models, in 'Mathematical Descriptions of Traffic Flow: Micro, Macro and Kinetic Models', ICIAM2019 SEMA SIMAI Springer Series, 2020.

7. Felisia Angela Chiarello, Jan Friedrich, Paola Goatin, Simone Göttlich. Micro-Macro limit of a non-local generalized Aw-Rascle type model, SIAM J. Appl. Math., 2020 80:4, 1841-1861, 2021.

8. Felisia Angela Chiarello, Giovanni Girardi, Sandra Lucente. Fujita regularity exponent for scale invariant damped semilinear wave equation. Journal of Evolution Equations, 21, pages 2735-2748, 2021.

9. Felisia Angela Chiarello, Benedetto Piccoli, Andrea Tosin. Multiscale control of generic second order traffic models by driver-assist vehicles.Multiscale Modeling and Simulation, 19(2), 589-611, 2021.

10. Felisia Angela Chiarello, Benedetto Piccoli, Andrea Tosin. A statistical mechanics approach to macroscopic limits of car-following traffic dynamics. International Journal of Non-Linear Mechanics, Volume 137, 103806, 2021.

11. Felisia Angela Chiarello, Harold Devi Contreras, Luis Miguel Villada. Non-local reaction traffic flow model with on-off ramps. Networks and Heterogeneous Media, April 2022, 17(2): 203-226. doi: 10.3934/nhm.2022003.

Chapters book

1 Felisia Angela Chiarello, Paola Goatin, Luis Miguel Villada. High-order Finite Volume WENO schemes for non-local multi-class traffic flow models. AIMS Series on Applied Mathematics. Hyperbolic Problems: Theory, Numerics, Applications, Volume 10. Proceedings of the Seventeenth International Conference on Hyperbolic Problems held at the Pennsylvania State University, University Park, June 25-29, 2018.

2 Felisia Angela Chiarello. An overview of non-local traffic flow models, in 'Mathematical Descriptions of Traffic Flow: Micro, Macro and Kinetic Models', ICIAM2019 SEMA SIMAI Springer Series, 2020.

Conference paper

1 Felisia Angela Chiarello. Non-local traffic flow models. Oberwolfach Report N. 24, 2019.

Preprints

1 F. A. Chiarello, G. M. Coclite. Nonlocal scalar conservation laws with discontinuous flux.

2 F. A. Chiarello, P. Goatin. A non-local system modeling bi-directional traffic flows. 2022.

3 F. A. Chiarello, A. Tosin. Macroscopic limits of non-local kinetic descriptions of vehicular traffic. 2022.

4 F. A. Chiarello, H. D. Contreras, L. M. Villada. Existence of entropy weak solutions for 1D non-local traffic models with space-discontinuous flux. 2022.

Grants

1 Valencia, GRANT ICIAM2019. Link:https://iciam2019.com/index.php/infomation-for-delegates/financial- support

2 Financial support Hyp 2018, Penn State, USA. 'XVII International Conference on Hyperbolic Problems Theory, Numerics, Applications'. Link: https://www.hyp2018.psu.edu/registration/

3 GRANT DAAD German Academic Exchange Service, Universität Mannheim. Link: https://www2.daad.de/deutschland/stipendium/datenbank/en/21148-scholarship-database/?detail=50015434

4 Oberwolfach Leibniz Graduate Student (OWLG) Grant. MFO, Oberwolfach Research Institute for Mathematics.

5 GRANT Erasmus+.

6 GRANT SMI (Scuola Matematica Interuniversitaria di Perugia), August 2016.

Research Groups and projects

1. Universität Mannheim, Germany. Participation in the Project G01920/10-1 DFG 'Multiscale Control Concepts for Transport-Dominated Problems'. 2019-2022.

2. CI2MA-Universidad de Concepcion. Participation in the project AFB170001 of the PIA Program: Concurso Apoyo a Centros Cientìficos y Tecnòlogicos de Excelencia con Financiamiento Basal. Link: https://www.conicyt.cl/pia/grupos-y-centros-2019/centros-del-pia/apoyo-a-centros-cientificos-y-tecnologicos- de-excelencia-con-financiamiento-basal-2017/

3. INRIA Sophia Antipolis - Méditerranée, Nice, France / University of Mannheim, Germany. Link: https://www.wim.uni-mannheim.de/goettlich/projects/current-projects/daad-ppp-frankreich-non-local-conservation-laws-for-engineering-applications- 2019-2020/ Participation in the Project 'DAAD-PPP Frankreich: Non-local conservation laws for engineering applications' cofinanced by DAAD (Project-ID 57445223) and PHC Procope (Project no. 42503RM).

4. INRIA Sophia Antipolis - Méditerranée, Nice, France. Participation in the project: 'NOLOCO Efficient numerical schemes for non-local transport phenomena'. Link: https://team.inria.fr/acumes/assoc-team/noloco/

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Languages

Italian	**Mothertongue**
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French	**Intermediate level**