Luciano Marzufero

Curriculum Vitae et Studiorum   🌐 *Personal Webpage*

Current position

Mar. 2024 – ongoing   **Junior assistant professor (RTD-a)**, Faculty of Economics and Management (SSD SECS-S/06), *Free University of Bozen-Bolzano*.

Past positions

Mar. 2023 – Feb. 2024   **Research fellow**, Mathematics, *"La Sapienza" University of Rome*.
Mentor: Prof. Fabio Camilli.

Feb. 2022 – Feb. 2023   **Research fellow**, Mathematics, *University of Trento*.
Mentor: Prof. Fabio Bagagiolo.

Education

19th July, 2022   **Ph.D.** (with scholarship), Mathematics, XXXIV Cycle, *University of Trento*.
Thesis title: *Some optimal visiting problems: from a single player to a mean-field type model.*
Supervisor: Prof. Fabio Bagagiolo.

12th April, 2018   **Master of Science**, Mathematics (LM-40), *University of Camerino*.
Grade: *summa cum laude*.
Thesis title: *Soluzioni di viscosità dell'equazione dell'∞–Laplaciano.*
Advisor: Prof. Cristina Giannotti.

22th July, 2015   **Bachelor's Degree**, Mathematics (L-35), *University of Camerino*.
Grade: *summa cum laude*.
Thesis title: *La funzione ζ di Riemann.*
Advisor: Prof. Andrea Spiro.

5th July, 2012   **Scientific high school diploma**, *IIS Costanza Varano*.
Grade: 88/100.

Teaching experience

Sep. 2021 – Feb. 2022   **Teaching assistant**, Geometria A, *University of Trento*.
Exercises lectures, Department of Mathematics, Trento.

Sep. 2020 – Feb. 2021   **Teaching assistant**, Geometria A, *University of Trento*.
Exercises lectures, Department of Mathematics, Trento.

Sep. 2019 – Feb. 2020   **Teaching assistant**, Geometria A, *University of Trento*.
Exercises lectures, Department of Mathematics, Trento.

Oct. 2017 – June 2018   **Supporting tutor**, *University of Camerino*.
Supporting activity to students, Department of Mathematics, Camerino.

Nov. 2014 – Feb. 2015   **High school internship trainee**, Mathematics and Physics, *IIS Costanza Varano*.

Languages

Native language   **Italian**

Other languages **English**, fluent

Computer skills and competences

Good knowledge MATLAB, C, LATEX, LINGO (*LINDO Systems Inc.*)
Microsoft Office
Windows, Linux

Fair knowledge Java, JavaScript

Talks and Seminars

30th November, 2023 Invited seminar: "A Mean-Field Game network model for urban planning", *Optimal control problems and mean field games in life sciences and economics*.

8th November, 2023 Invited seminar: "A Mean-Field Games model for urban planning and for reducing carbon emissions", *University of Trento*.

30th November, 2022 Seminar: "On a time-dependent switching mean-field game on networks", *Controllo di Dinamiche e Flussi e Applicazioni socio-logistico-economiche*, *University of Trento*.

26th July, 2022 Invited seminar: "On a pursuit-evasion game between a single player and a population of agents", *19th International Symposium on Dynamic Games and Applications*.

14th July, 2022 Contributed talk: "A time-dependent switching mean-field game on networks", *15th Viennese Conference on Optimal Control and Dynamic Games*.

27th May, 2022 Contributed talk: "A time-dependent switching mean-field game on networks", *100 years Unione Matematica Italiana 800 years Università di Padova*.

26th January, 2022 Invited seminar: "A hybrid control framework for an optimal visiting problem: from a single player to a crowd", *University of Padua* (online).

26th October, 2021 Invited seminar: "Some problems in optimal visiting mean field games: continuity equation with sinks and switching representation on a network", *Polytechnic University of Turin*.

9th July, 2021 Contributed talk: "A hybrid control framework for an optimal visiting problem", *7th IFAC Conference on Analysis and Design of Hybrid Systems* (online).

17th June, 2021 Invited seminar: "A hybrid control framework for an optimal visiting problem: from a single player to a crowd", *University of Verona* (online).

27th March, 2020 Seminar: "An optimal visiting mean field game problem", *University of Trento* (online).

28th June, 2019 Seminar: "The continuity equation on metric measure spaces: part 2", *Geometric Measure Theory* Ph.D. and M.Sc. course, *University of Trento*.

6th June, 2019 Seminar: "Analysis of finite dimensional models for 3D stochastic fluid dynamics", *Nonlinear infinite dimensional stochastic equations* Ph.D. course, *University of Trento*.

19th April, 2019 Seminar: "The first order Mean Field Game system: existence via fixed point", *Mean Field Games and Optimal Transport* Ph.D. course, *University of Trento*.

18th September, 2018 Invited seminar: "Viscosity solutions of the ∞–Laplace equation", *University of Trento*.

Short invited visits

6–10 November, 2023 **University of Trento**, Prof. Fabio Bagagiolo.

25–28 October, 2021	**Polytechnic University of Turin**, Prof. Adriano Festa.

Participation to conferences, schools and workshops

30 November – 1 December, 2023	Workshop *Optimal control problems and mean field games in life sciences and economics*, Padua.
24–26 May, 2023	Workshop *Nonlinear partial differential equations: theory, numerics and applications a conference in memory of Maurizio Falcone*, Rome.
20–24 February, 2023	Workshop *Distributed Solutions to Complex Societal Problems Reunion Workshop*, Chicago.
18–20 January, 2023	Workshop *First order problems on networks and applications*, Rome.
30 November – 2 December, 2022	Workshop *Controllo di Dinamiche e Flussi e Applicazioni socio-logistico-economiche*, Trento.
25–28 July, 2022	Conference *19th International Symposium on Dynamic Games and Applications*, Porto.
12–15 July, 2022	Conference *15th Viennese Conference on Optimal Control and Dynamic Games*, Vienna.
23–27 May, 2022	Conference *100 years Unione Matematica Italiana 800 years Università di Padova*, Padua.
9–17 December, 2021	Workshops *Applications to Financial Engineering* and *Mathematical Advances in Mean Field Games*, Chicago.
7–9 July, 2021	Conference *7th IFAC Conference on Analysis and Design of Hybrid Systems* (online).
18–19 June, 2020	Workshop *Two–days online workshop on Mean Field Games* (online).
3–7 February, 2020	Conference *XXX Convegno Nazionale di Calcolo delle Variazioni*, Levico Terme.
9–13 September, 2019	Conference *Mean Field Games and Related Topics – 5*, Levico Terme.
15–19 July, 2019	Conference *ICIAM 2019*, Valencia.
10–14 June, 2019	Summer School on *Mean Field Games*, Fondazione CIME, Cetraro.
14–16 January, 2019	Winter School on *Stochastic PDEs and Mean-Field Games*, Bologna.

Funded projects

Jan. 2024 – Dec. 2024	**Principal investigator of the INdAM-GNAMPA project *Modelli mean-field games per lo studio dell'inquinamento atmosferico e i suoi impatti***, joint with Prof. F. Bagagiolo, F. Camilli, P. Mannucci and C. Marchi.

Scholarships, grants and awards

Mar. 2024 – Feb. 2027	**3-years junior assistant professor (RTD-a)**, Free University of Bozen-Bolzano.
10–14 June, 2024	**INdAM-GNAMPA grant for participation in the conference *Mean-field models in optimal control and multi-agent dynamics***.
Mar. 2023 – Feb. 2024	**1-year research fellow**, "La Sapienza" University of Rome.
Feb. 2022 – Feb. 2023	**1-year research fellow**, University of Trento.
Nov. 2018 – Jan. 2022	**Ph.D. scholarship "Departments of Excellence"**, University of Trento.
Oct. 2016 – Sep. 2017	**Scholarship of Excellence**, University of Camerino.
Oct. 2015 – Sep. 2016	**Scholarship of Excellence**, University of Camerino.
Oct. 2014 – Sep. 2015	**"Merit" and "Graduate on time" scholarship**, University of Camerino.

Other activities

Sep. 2022 – Feb. 2023	**Representative of research fellows**, *University of Trento*.
	Bureaucratic and administrative activity for research fellows, Department of Mathematics, Trento.
Oct. 2017 – June 2018	**Supporting tutor**, *University of Camerino*.
	Supporting activity to students, Department of Mathematics, Camerino.

Publications

1. F. Bagagiolo, R. Capuani, L. Marzufero
   A single player and a mass of agents: a pursuit evasion-like game.
   ESAIM: Control, Optimisation and Calculus of Variations, forthcoming article (2024)
   DOI: https://doi.org/10.1051/cocv/2024009

2. F. Bagagiolo, L. Marzufero
   A time-dependent switching mean-field game on networks motivated by optimal visiting problems.
   Journal of Dynamics and Games **10**(2), 151–180 (2023) (**Early access:** 2022)
   DOI: http://dx.doi.org/10.3934/jdg.2022019

3. F. Bagagiolo, A. Festa, L. Marzufero
   Hybrid control for optimal visiting problems for a single player and for a crowd.
   Nonlinear Differential Equations and Applications **29**, 4 (2022) (**Early access:** 2021)
   DOI: https://doi.org/10.1007/s00030-021-00737-0

4. F. Bagagiolo, A. Festa, L. Marzufero
   A hybrid control framework for an optimal visiting problem.
   IFAC-PapersOnLine **54**(5), 241–246 (2021)
   DOI: http://dx.doi.org/10.1016/j.ifacol.2021.08.505

5. F. Bagagiolo, A. Festa, L. Marzufero
   The orienteering problem: a hybrid control formulation.
   IFAC-PapersOnLine **54**(5), 175–180 (2021)
   DOI: http://dx.doi.org/10.1016/j.ifacol.2021.08.494

Preprints

1. F. Camilli, A. Festa, L. Marzufero
   A Mean-Field Game network model for urban planning.
   (in preparation).

2. F. Bagagiolo, E. Bertolazzi, L. Marzufero, A. Pegoretti, D. Rigotti
   Numerical modelization of a non-woven fabric: the bonding case.
   2023.

Ph.D. Thesis

– L. Marzufero
   Some optimal visiting problems: from a single player to a mean-field type model.
   Ph.D. Thesis in Mathematics, XXXIV Cycle, University of Trento, (2022)
   DOI: https://dx.doi.org/10.15168/11572_350780

01/03/2024