

UNIVERSITY OF MILAN**Public selection for recruiting No.1 tenure track researcher(s) (RTT)****for competition sector 01/A4 - Fisica Matematica****scientific-disciplinary sector MAT/07 - Fisica Matematica****at the Department of MATEMATICA "FEDERIGO ENRIQUES",****(announcement published in Official Gazette No. 21 of 12/03/2024) - Competition code 5512**

Martina Conte

CURRICULUM VITAE

PERSONAL DATA (DO NOT INCLUDE YOUR PERSONAL ADDRESS AND LANDLINE OR MOBILE PHONE NUMBER)

SURNAME	CONTE
NAME	MARTINA
DATE OF BIRTH	

QUALIFICATIONS**DEGREE**09/2015: **Bachelor Degree in Mathematics** - University of Parma

110/110 cum laude.

Advisors: Prof. Maria Groppi and Prof. Giampiero Spiga (Uni. Parma).

09/2017: **Master Degree in Mathematics** - University of Parma

110/110 cum laude.

Advisors: Prof. Maria Groppi (Uni. Parma) and Prof. Luigi Preziosi (PoliTO).

DOCTORAL DEGREE OR EQUIVALENT QUALIFICATION EARNED IN ITALY OR ABROAD15/01/2021: **International Doctoral Degree** in “**Mathematics and Statistics**” - University of the Basque Country and Basque Center for Applied Mathematics (Bilbao, Spain).

Highest degree cum laude.

Advisors: Luca Gerardo Giorda (RICAM) and Juan Soler (Uni. Granada).

ACCADEMIC APPOINTMENTS07/2021 - 07/2024: **Postdoctoral Fellow.**

Department of Mathematical Sciences “G. L. Lagrange” - Politecnico di Torino (Italy).

Project: NeMaMoB - Nested model in biomedicine.

Mentor: Prof. A. Tosin.

10/2022 - 07/2024: **Visiting Scholar** in the Global Scholar Programme (GSP).

Department of Computational and Quantitative Medicine - Beckman Research Institute of City of Hope (CA, USA).

Mentor: Prof. R. Rockne.

03/2021 - 07/2021: **Postdoctoral Fellow.**

Applied Mathematics Department – University of Granada (Spain).

Mentor: Prof. J. Soler.

TEACHING ACTIVITIES AT ITALIAN OR FOREIGN UNIVERSITIES2023/2024: Teaching Assistant for the undergraduate course *Linear Algebra* (40 hours to 1st year Engineer B.Sc. students). Politecnico di Torino.2023/2024: Teaching Assistant for the undergraduate course *Calculus I* (60 hours to 1st year Engineer B.Sc. students). Politecnico di Torino.2022/2023: Lecturer for the PhD Course “*Modelling Glioblastoma dynamics - An introduction to multiscale models of glioma invasion*” (10 hours). University of Granada.2015/2016: Teaching Assistant for the undergraduate course *Rational Mechanics* (25 hours, 2nd year Mathematics B.Sc. students). University of Parma.

FELLOWSHIPS

- 2024: Fellowship from the Fields Institute for Research in Mathematical Sciences (Toronto) to be a Long Term Visitor of the Thematic Program on *Mathematical Oncology*.
- 2022: Fellowship from City of Hope's Global Scholars Program (GSP) to conduct a research period as Visiting Scholar in the Department of Computational & Quantitative Medicine at City of Hope (CA, USA).
- 2022: Fellowship from the Hausdorff Research Institute for Mathematics (HIM) to participate in the Hausdorff Junior Trimester Program "*Stochastic modelling in the life science: From evolution to medicine*".
- 2017: Fellowship from "la Caixa" INPhINIT Fellowship Programme for Doctoral studies at Spanish Research Centres of Excellence. This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No. 713673.

GRANTS

- 2024: ESMTB Travel grant to attend the *13th European Conference of Mathematical and Theoretical Biology* (Toledo, Spain)
- 2024: EWM travel grant from the European Women in Mathematics association to attend the *13th European Conference of Mathematical and Theoretical Biology* (Toledo, Spain)
- 2023: ESMTB travel grant to attend the *ECCOMAS Young Investigators Conference - YIC2023* (Porto, Portugal).
- 2022: Travel grant to attend the *10th IMO Workshop School on Cancer Communities* (FL, USA).
- 2022: G-Research travel grant from the European Women in Mathematics (EWM) association to attend the *27th International Conference on Transport Theory - ICTT27* (Bertinoro, Italy).
- 2022: Travel grant to attend the 11th Summer School on "*Methods and Models of Kinetic Theory*" (Pesaro, Italy).
- 2020: SIAM travel grant to attend the *SIAM Conference on the Life Sciences - LS20* (CA, USA).
- 2020: CIRM travel grant to attend the Conference "*Mathematics of Complex Systems in Biology and Medicine*" (Marseille, France).
- 2019: Travel grant to attend the *ENABLE Conference - NMG 2019* (Nijmegen, Netherland).
- 2019: Travel grant to attend the Conference "*Mathematical Biology on the Mediterranean*" (Samos, Greece).
- 2019: Travel grant to attend the Summer School and Workshop "*BIOMAT 2019*" (Granada, Spain).
- 2018: Travel grant to attend the *International PhD School on Modeling Nature - Mnat* (Granada, Spain).
- 2018: CIRM travel grant to attend the Workshop "*Mathematical perspectives in the biology and therapeutics of cancer*" (Marseille, France).

AWARDS

- 2024: **Seal of Excellence** in the 2023 Marie Skłodowska-Curie actions (MSCA) for European Postdoctoral Fellowships, awarded by the EU Commission.
- 2023: **Extraordinary Doctoral Awards 2023** for Ph.D. thesis in the area of Science at the University of the Basque Country (Bilbao, Spain).
- 2022: **2021 Reinhart-Heinrich Doctoral Thesis Award** for the best doctoral thesis in the area of Mathematical and Theoretical Biology, awarded by the European Society for Mathematical and Theoretical Biology.
- 2021: **Honour mention** in the Italian edition of the program "*L'Oréal Italia per le Donne e la Scienza*" in collaboration with the Italian National Commission for UNESCO, awarded by Foundation L'Oréal.
- 2018: **Best-poster award** in the Conference "*Mathematical perspectives in the biology and therapeutics of cancer*" (CIRM, France).
- 2016: **Best-student award** for the academic year 2015/2016, awarded by the University of Parma (Italy).

ATTESTED TRAINING OR RESEARCH ACTIVITIES AT QUALIFIED ITALIAN OR FOREIGN INSTITUTIONS

Long term visits

- 09/2024: Fields Institute for Research in Mathematical Sciences (Toronto, CAN) in the Thematic Program on "*Mathematical Oncology*" – upcoming
- 25/06/2023-30/07/2023: Beckman Research Institute of City of Hope (CA, USA). Host: Prof. R. Rockne.
- 23/10/2022-23/02/2023: Beckman Research Institute of City of Hope (CA, USA). Host: Prof. R. Rockne.

01-31/05/2022: Hausdorff Research Institute for Mathematics (Bonn, Germany) in the program “*Stochastic modelling in the life science: From evolution to medicine.*”

01/11/2019-31/01/2020: TU Kaiserslautern (Kaiserslautern, Germany). Doctoral stay. Hosted: Prof. C. Surulescu.

Short term visits

Short visits in 2023: University of Parma (Italy) hosted by Dr. R. Travaglini and Dr. G. Martalò.

05-06/10/2023: Technische Universität München (Germany) hosted by Prof. C. Kuehn.

06-12/08/2023: Isaac Newton Institute for Mathematical Sciences (Cambridge, UK) in the program “*Mathematics of movement: an interdisciplinary approach to mutual challenges in animal ecology and cell biology*”.

17-21/04/2023: University of Minho (Guimarães, Portugal). Host: Prof. A. J. Pereira Costa Soares.

30/01/2023-02/02/2023: University of Alberta (Edmonton, Canada). Host: Prof. T. Hillen.

Short visits in 2019: University of Granada (Granada, Spain). Host: Prof. J. Soler.

27-31/05/2019: TU Kaiserslautern (Kaiserslautern, Germany). Host: Prof. C. Surulescu.

13-17/05/2019: University of Parma (Parma, Italy). Host: Prof. M. Groppi.

ORGANISATION, SUPERVISION AND COORDINATION OF NATIONAL AND INTERNATIONAL RESEARCH GROUPS, OR PARTICIPATION IN THEM

Project: “*From kinetic to macroscopic models for tumor-immune system competition*”, with reference number CUP_E53C22001930001, funded by the National Group of Mathematical Physics (INdAM - GNFM).

Year: 2023

Role: PI

Grant Value: 2.5k €

Project: “*Collective Behavior of Multi-Agent System in Fluids, Cell Communication and Tumor Dynamics*”, with reference number PID2022-137228OB-I00, funded by the Spanish State Research Agency. PI: J. Soler.

Year: 2023-2026

Role: Participant

Grant value: 304.2k €

Project: “*Modelos matemáticos en comunicación mediada por citonemas y dinámica de glioblastomas*”, with reference number P18-RT-2422, funded by the Regional Government of Andalusia. PI: J. Soler.

Year: 2020-2022

Role: Participant

Grant value: 134.7k €

Project: “*Dinámica de patrones en ecuaciones en derivadas parciales no lineales originadas en mecánica celular y de fluidos*”, with reference number RTI2018-098850-B-I00, funded by the Spanish State Research Agency. PI: J. Soler.

Year: 2019-2022

Role: Participant

Grant value: 116.8k €

Project: “*MULTIscale modeling with applications in QUANTitative bioscience*”, with reference number RTI2018-093416-B-I00, funded by the Spanish State Research Agency. PI: L. Gerardo-Giorda.

Year: 2019-2020

Role: Participant

Grant value: 44.5k €

Project: “*Brain ELEctro-METabolic modeling and numerical approximation*”, with reference number MTM-201569992-R, funded by the Spanish State Research Agency. PI: L. Gerardo-Giorda.

Year: 2017-2018

Role: Participant

Grant value: 61.7k €

Project: *Programme BERC 2018-2021*, funded by the Basque Government. PI: L. Vega.

Year: 2018-2021

Role: Participant

Grant value: 4.7M €

Project: *Severo Ochoa SEV-2017-0718*, funded by the Spanish State Research Agency. PI: L. Vega.

Year: 2018-2021

Role: Participant

Grant value: 4M €

SPEAKING AT NATIONAL AND INTERNATIONAL CONFERENCES AND CONVENTIONS

Invited talks at conferences and advanced schools

- 07/2024: MS “*Recent advances in modelling cancer invasion*” at the 13th European Conference on Mathematical and Theoretical Biology, invited by C. Villa (upcoming – Toledo, Spain) - upcoming
- 07/2024: MS “*Mathematical models in oncology: cancer development and treatment optimisation*” at the Conference GIMC-SIMAI Young 2024, invited by F. Ballatore (upcoming – Napoli, Italy) - upcoming
- 01/2024: Invited talk at the Workshop on *Modeling, analysis, and control of multi-agent systems across scales* (Pisa, Italy).
- 11/2023: Invited talk at the Workshop on *Tumor Modeling and simulation* (Linz, Austria).
- 09/2023: MS “*Kinetic equations: numerical methods and applications*” at the Congress of the Italian Society of Applied and Industrial Mathematics, invited by E. Iacomini (Matera, Italy).
- 09/2023: MS “*Mathematical modelling in biology*” at the Congress of the Italian Society of Applied and Industrial Mathematics, invited by G. Lucci (Matera, Italy).
- 07/2023: MS “*Data-informed computational models and methods for predicting tumor growth and treatment response*” at the 17th U. S. National Congress on Computational Mechanics, invited by G. Lorenzo (Albuquerque, USA).
- 06/2023: MS “*Recent advances on modelling and simulations of collective dynamics*” at the ECCOMAS Young Investigators Conference, invited by M. Menci (Porto, Portugal).
- 06/2023: MS “*Evolutionary dynamics in cancer growth and therapies: a multidisciplinary approach*” at the ECCOMAS Young Investigators Conference, invited by G. Chiari (Porto, Portugal).
- 11/2022: Plenary talk at the *4th BYMAT Conference - Bringing Young Mathematicians Together* (Online).
- 10/2022: Invited talk at the Conference “*Current Trends in Kinetic Theory and Related Models*” (Parma, Italy).
- 09/2022: Price talk for the 2021 Reinhart-Heinrich Doctoral Thesis Award at the *European Conference on Mathematical and Theoretical Biology* (Heidelberg, Germany).
- 09/2022: MS “*Non-local mathematical models for collective migration: insights from analytical methods*” at the European Conference on Mathematical and Theoretical Biology, invited by S. Bernardi and D. Martinson (Heidelberg, Germany).
- 06/2022: Invited talk at BIOMAT 2022 - MNat International School on “*Multiscale Models and Methods in Life Sciences*” (Granada, Spain).
- 12/2021: Invited talk at the Young Researcher Conference “*Numerical Aspects of Hyperbolic Balance Laws and Related Problems*” (Verona, Italy).
- 09/2021: MS “*Mathematical models for cell migration*” at the Congress of the Italian Society of Applied and Industrial Mathematics, invited by A. Colombo (Parma, Italy).
- 09/2021: MS “*Recent Results in Kinetic Theory and Applications*” at the Congress of the Italian Society of Applied and Industrial Mathematics, invited by G. Martalò (Parma, Italy).
- 06/2021: MS “*Nonlinear PDEs and its applications in Natural Sciences*” at the Conference “*Differential Equation and Applications / Applied mathematics*” (CEDYA-CMA), invited by Prof. M. A. Rodríguez Bellido (Gijón, Spain).
- 05/2021: Invited talk at the Mathematical Biology on the Mediterranean Coast - Online Conference 2021.
- 05/2021: Invited talk at the BIOMAT 2021 - MNat International School (Online).
- 10/2018: Invited talk at the Conference “*Kinetic and Transport Equations: Mathematical Advances and Applications*” (Parma, Italy).
- 07/2017: Invited talk at the Workshop “*Populations in epidemics and ecology: Modelling and numerical simulations*” (Bilbao, Spain).

Invited talks in seminars

- 07/2023: Seminar at the *Multiscale and Stochastic Dynamics Research Group*, invited by Prof. C. Kuehn (TUM, Munich, Germany).
- 01/2023: Seminar at the *Mathematical Biology Seminar Series*, invited by Prof. T. Hillen (University of Alberta, Edmonton, Canada).
- 04/2022: Seminar at the *Etheridge Group*, invited by A. Martini (Online).
- 06/2021: Seminar at the Seminar Series “*Multiscale phenomena in Continuum Mechanics: singular limits, off-equilibrium and transitions*”, invited by Prof. M. Groppi (Online).

02/2021: Seminar at the *Applied Analysis Group*, invited by Dr. C. Soresina (University of Graz, Austria).
 02/2021: Seminar at the Department of Mathematical Science "Giuseppe Luigi Lagrange", Politecnico di Torino (Online).
 10/2019: *Light Seminar* in BCAM - Basque Center for Applied Mathematics (Bilbao, Spain).
 05/2019: Seminar at *Biomathematics Research Group*, invited by Prof. C. Surulescu (TU Kaiserslautern, Germany).

Contributed talks at conferences and advanced schools

09/2022: XLVII Summer School on Mathematical Physics (Ravello, Italy).
 07/2022: 27th International Conference on Transport Theory - ICTT-27 (Bertinoro, Italy).
 09/2021: Young women in Partial Differential Equations and applications (Online).
 09/2021: XLVI Summer School on Mathematical Physics (Ravello, Italy).
 02/2020: Conference "Mathematics of Complex Systems in Biology and Medicine" (Marseille, France).
 01/2020: Workshop "Mathematical modeling of cell migration" (Kaiserslautern, Germany).
 11/2019: 3rd European PhD and Postdoc symposium "*Next-generation life scientists: Side by side to break new ground*" (Nijmegen, Netherland).
 09/2019: Mathematical Biology on the Mediterranean Conference (Samos, Greece).
 09/2018: International PhD School on Modeling Nature (Granada, Spain).
 08/2018: CIME-EMS Summer School in Applied Mathematics - The Mathematics of Mechanobiology (Cetraro, Italy).
 07/2018: 11th European Conference on Mathematical and Theoretical Biology (Lisbon, Portugal).
 02/2018: 9th Workshop "Dynamical Systems Applied to Biology and Natural Sciences" (Torino, Italy).
 09/2016: XLI Summer School on Mathematical Physics (Ravello, Italy).

Posters

02/2023: City of Hope (COH) Annual Poster Session (CA, USA).
 11/2022: 27th SNO Annual Meeting (FL, USA).
 11/2022: 10th IMO Workshop on Cancer Communities (FL, USA).
 06/2022: 11th Summer School on "*Methods and Models of Kinetic Theory*" (Pesaro, Italy).
 04/2022: EMBO workshop "*Long distance cell-cell communication in development and disease*" (Exeter, UK).
 04/2019: LMS - CMI Research School "*PDEs in Mathematical Biology: Modelling and Analysis*" (Edinburgh, UK).
 07/2018: Workshop "*Mathematical perspectives in the biology and therapeutics of cancer*" (Marseille, France).
 04/2018: School on Mathematical Modelling of Tumour Growth and Therapy (CRM, Spain).

ORGANIZING EXPERIENCES

07/2024: Organization of the Mini-Symposium "*Modeling and analysis in cell biology: multi-scale perspectives*" at the 13th European Conference on Mathematical and Theoretical Biology (upcoming – Toledo, Spain)
 08/2023: Organization of the MS "*Models and Methods for Biomedical Applications*" at the Congress of the Italian Society of Applied and Industrial Mathematics (Matera, Italy).
 2021-2022: Organizing committee for the online seminar series DNFM "*Divulgazioni Notturne di Fisica Matematica*" (Online).
 02/2021: Organizing committee for the 12th Workshop "*Dynamical Systems Applied to Biology and Natural Sciences*" (Online).
 02/2019: Organizing committee for the Workshop "Quantitative Biomedicine in Health and Disease" (Bilbao, Spain).

SOCIETY MEMBERSHIPS

Since 2022: UMI (Unione Matematica Italiana)
 Since 2020: SIAM (Society for Industrial and Applied Mathematics)

Since 2020: SIMAI (Italian Society of Applied and Industrial Mathematics)
 Since 2020: EWM (European Women in Mathematics)
 Since 2019: GNFM (Mathematical Physics National Group)
 Since 2018: ESMTB (European Society for Mathematical and Theoretical Biology)
 Since 2017: MCAA Marie Curie Alumni Association

OTHER ACTIVITIES

Language skills: English (C1 - IELTS with overall band score 7.0 - 02/2017)
 Spanish (B2 - Certificado de Nivel Intermedio – 06/2019)
 Reviewer for journals: Eur. J. Appl. Math., SIAM Multiscale Model. Simul., Adv. Sci., Acta Biotheor.
 Programming skills: MATLAB, C++, SAS, LATEX.
 Specialized software: FSL, Freesurfer, Freeview, FSLeys, Paraview, Fiji, Prism.

SCIENTIFIC PRODUCTION

SCIENTIFIC PUBLICATIONS

Accepted

1. M. Conte, and N. Loy. A non-local kinetic model for cell migration: a study of the interplay between contact guidance and steric hindrance. *SIAM Journal on Applied Mathematics* (2023): S429-S451 Impact Factor: 2.148. DOI: [10.1137/22M150638](https://doi.org/10.1137/22M150638)
2. M. Conte, M. Groppi, and A. Tosin. Kinetic and macroscopic equations for action potential in neural networks. Accepted in Problems in Mathematical Biophysics · A volume in memory of Alberto Gandolfi, SEMA SIMAI Springer Series (2023). Accepted on 17/03/2023. DOI:
3. E. Buckwar, M. Conte, and A. Meddah. A stochastic hierarchical model for low grade glioma evolution. *Journal of Mathematical Biology*, **86** (2023): 89. Impact Factor: 2.164. DOI: [10.1007/s00285-023-01909-5](https://doi.org/10.1007/s00285-023-01909-5)
4. M. Conte, Y. Dzierma, S. Knobe, and C. Surulescu. Mathematical modeling of glioma invasion and therapy approaches via kinetic theory of active particles. *Mathematical Models and Methods in Applied Sciences*, **33**(5) (2023): 1009-1051. Impact Factor: 3.803. DOI: [10.1142/S0218202523500227](https://doi.org/10.1142/S0218202523500227)
5. M. Conte, and N. Loy. Multi-cue kinetic model with non-local sensing for cell migration on a fibers network with chemotaxis. *Bulletin of Mathematical Biology*, **84** (2022): 1-46. Impact Factor: 1.758. DOI: [10.1007/s11538-021-00978-1](https://doi.org/10.1007/s11538-021-00978-1)
6. M. Conte, and C. Surulescu. Mathematical modeling of glioma invasion: acid- and vasculature mediated go-or grow dichotomy and the influence of tissue anisotropy. *Applied Mathematics and Computation*, **407** (2021): 126305. Impact Factor: 4.091. DOI: [10.1016/j.amc.2021.126305](https://doi.org/10.1016/j.amc.2021.126305)
7. M. Conte, S. Casas-Tintó, and J. Soler. Modeling invasion patterns in the glioblastoma battlefield. *PLOS Computational Biology*, **17**(1) (2021): e1008632. Impact Factor: 4.7. DOI: [10.1371/journal.pcbi.1008632](https://doi.org/10.1371/journal.pcbi.1008632)
8. M. Conte, L. Gerardo-Giorda, and M. Groppi. Glioma invasion and its interplay with nervous tissue and therapy: a multiscale model. *Journal of Theoretical Biology*, **486** (2020): 110088. Impact Factor: 2.691. DOI: [10.1016/j.jtbi.2019.110088](https://doi.org/10.1016/j.jtbi.2019.110088)
9. M. Conte, M. Groppi, and G. Spiga. Qualitative analysis of kinetic-based models for tumor-immune system interaction. *Discrete & Continuous Dynamical Systems - Series B*, **23**(6) (2018): 2393-2414. Impact Factor: 1.27. DOI: [10.3934/dcdsb.2018060](https://doi.org/10.3934/dcdsb.2018060)
10. M. Conte. Mathematical models for glioma growth and migration inside the brain. *Ph.D. Dissertation*. Universidad del País Vasco-Euskal Herriko Unibertsitatea, 2021. DOI: hdl.handle.net/10810/50748

Submitted

11. N. Loy, and M. Conte. Modeling cell migration in cancer spread as a response to multi-cue heterogeneous environments: a kinetic approach. (2023)
12. M. Conte, V. Cabeza-Fernández, F. J. Oliver, T. Alarcón, and J. Soler. Emergence of cyclic hypoxia and the impact of PARP inhibitors on tumor progression. (2024)
13. M. Conte, R. Woodall, M. Gutova, B.T. Chen, M.S. Shiroishi, C.E. Brown, J.M. Munson, and R.C. Rockne. Structural and practical identifiability of contrast transport models for DCE-MRI. (2023)

In preparation

14. G. Chiari, M. Conte, and M. Delitala. Multi-scale modeling of SNAIL-mediated response to hypoxia in tumor progression.
15. M. Conte, G. Martalò, and R. Travaglini. A kinetic derivation of different spatial distributed model for tumor immune system interactions.

Torino, 05/04/2024

Madina Conte