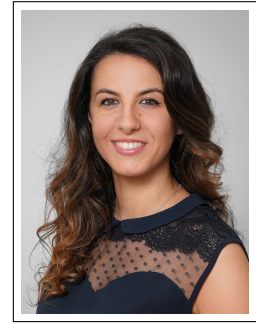


CONTACT INFORMATION

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Orcid: <https://orcid.org/0000-0002-2297-4522>



Born on April 28, 1989. Italian citizenship.

RESEARCH INTERESTS

- **Analytical:** PDEs; ODEs; applied dynamical systems; pattern formation; Geometric Singular Perturbation Theory; asymptotics; reaction-diffusion(-ODE) systems; bifurcations.
- **Numerical:** simulation (MATLAB); analysis (Mathematica); continuation (AUTO, pde2path).
- **Interdisciplinary:** vegetation dynamics and patterns; pedestrian dynamics; MEMS; microstructures; neuroscience.

EMPLOYMENT

Jan 2021–present: **University of Vienna (Austria)**
Principal Investigator of the project “*Mathematical models to study toxicity effects on vegetation*” (FWF Firnberg-Programm T 1199)

Apr 2021–Sep 2021: **National Research Council (CNR) (Italy)**
Occasional Collaborator of the project “*Validation of hippocampal CA1 neurons models using GLIF formalism*” (HBP voucher 63)

Nov 2019–Dec 2020: **Radon Institute for Computational and Applied Mathematics (Austria)**
Postdoctoral Researcher in the group of Dr. Marie-Therese Wolfram

Mar 2017–Oct 2019: **Vienna University of Technology (Austria)**
Scientific Manager of the Doctoral School (DK) “*Dissipation and Dispersion in Nonlinear PDEs*” and **Postdoctoral Researcher** (from Jan 2018)

EDUCATION

2014–2018: **Vienna University of Technology (Austria)**
Ph.D in Mathematics (with Distinction), Viva date: 24 January 2018
“*Geometric analysis of multi-scale solutions in regularized models of microstructures and touchdown phenomena in MEMS*”
Advisor: Peter Szmolyan

2011–2013: **University of Naples Federico II (Italy)**
Master Degree in Mathematics (110/110 cum Laude)
“*Mathematical Models for Vegetation Pattern Formation*”
Advisors: Addolorata Marasco and Francesco Giannino

2007–2011: **University of Naples Federico II (Italy)**
Bachelor Degree in Mathematics (110/110 cum Laude)
“*On nonparametric inference statistical methods: The Wilcoxon Test*”
Advisor: Maria Longobardi

ACADEMIC HONOURS AND AWARDS

2020: **Hertha Firnberg Postdoctoral Fellowship** (243.K€)
2019: **Christiana Hörbiger Award**, travel grant (5.K€)
2018: **Christiana Hörbiger Award**, travel grant (1.1K€)

ADDITIONAL FUNDING

- 2021: **Hausdorff School** (with E. Daus, L. Kanzler, C. Soresina), Bonn, Germany (2022)
2020: **ICMS Early-Career Workshop** (with E. Daus, C. Soresina, A. Manhart), Edinburgh, UK (2021)
2019: **Hausdorff School** (with E. Daus, C. Soresina) (2021, **online**)

PUBLICATIONS

- [1] C. Kuehn, N. Berglund, C. Bick, M. Engel, T. Hurth, A. Iuorio, C. Soresina. *A General View on Double Limits in Differential Equations*. Physica D, 431:133105, 2022, <https://doi.org/10.1016/j.physd.2021.133105>.
- [2] A. Iuorio, F. Veerman. *The influence of autotoxicity on the dynamics of vegetation spots*. Physica D, 427:133015, 2021, <https://doi.org/10.1016/j.physd.2021.133015>.
- [3] A. Marasco, F. Giannino, A. Iuorio. *Modelling competitive interactions and plant-soil feedback in vegetation dynamics*. Ricerche mat., 2020, <https://doi.org/10.1007/s11587-020-00497-6>.
- [4] A. Iuorio, N. Popović, and P. Szmolyan. *Singular perturbation analysis of a regularized MEMS model*. SIAM J. Appl. Dyn. Syst. (SIADS), 18(2):661–708, 2019, <https://doi.org/10.1137/18M1197552>.
- [5] A. Iuorio and S. Melchionna. *Long-time behavior of a nonlocal Cahn-Hilliard equation with reaction*. Discrete Contin. Dyn. Syst., 38(8):3765–3788, 2018, <https://doi.org/10.3934/dcds.2018163>.
- [6] A. Iuorio, C. Kuehn, and P. Szmolyan. *Geometry and numerical continuation of multiscale orbits in a nonconvex variational problem*. Discrete Contin. Dyn. Syst. Ser. S, 13.4:1269, 2020, <https://doi.org/10.3934/dcdss.2020073>.
- [7] A. Marasco, A. Iuorio, F. Cartenì, G. Bonanomi, D.M. Tartakovsky, S. Mazzoleni, and F. Giannino. *Vegetation pattern formation due to interactions between water availability and toxicity in plant-soil feedback*. Bull. Math. Biol., 76(11):2866–2883, 2014, <https://doi.org/10.1007/s11538-014-0036-6>.
- [8] A. Marasco, A. Iuorio, F. Cartenì, G. Bonanomi, F. Giannino, and S. Mazzoleni. *Water limitation and negative plant-soil feedback explain vegetation patterns along rainfall gradient*. Procedia Environ. Sci., 19: 139–147, 2013, <https://doi.org/10.1016/j.proenv.2013.06.016>.

ACCEPTED

- [9] A. Iuorio, G. Jankowiak, P. Szmolyan, M.T. Wolfram. *A PDE model for unidirectional flows: stationary profiles and asymptotic behaviour*. 2021, <https://arxiv.org/abs/2010.14424> (to appear in JMAA).

SUBMITTED

- [10] M. Zotti, N. Salvatori, M. Moreno, A. Iuorio, F. Cartenì, G. Bonanomi, S. Mazzoleni, F. Giannino. *Process based modelling of plants-fungus interactions explains fairy ring types and dynamics*. 2021.

RESEARCH VISITS

- Nov 2021: **University of Naples Federico II (Italy)**, collaboration with Laboratory of Applied Ecology and System Dynamics
Jul 2019 & Jan 2019: **Heidelberg University (Germany)**, collaboration with Frits Veerman
Jul 2019: **University of Rostock (Germany)**, collaboration with Jens Starke
Jun 2018 & Nov 2021: **TU Munich (Germany)**, collaboration with Christian Kuehn
May 2018 & Sep-Dec 2016: **The University of Edinburgh (UK)**, collaboration with Nikola Popović

SEMINAR TALKS

- Jan 2022: *Advances in Socio-Epidemic Mathematical Modelling - UMI-MSE Online Seminar*, Italy
Jun 2021: *PDE Afternoon*, TU Wien/University of Vienna/IST Austria, Austria
Jun 2021: *Analysis Group Seminar*, University of Leiden, The Netherlands
Apr 2021: *ICTP-SAIFR Complex Systems and Statistical Mechanics*, ICTP-SAIFR, Brazil
Jan 2020: *Applied Math Seminar*, University of Warwick, UK
Nov 2019: *Seminar on Qualitative Theory of Differential Equations*, Comenius University Bratislava, Slovakia
Sep 2019: *Analysis Seminar*, University of Graz, Austria
Aug 2019: *Applied and Interdisciplinary Mathematics Seminar*, University of Bath, UK
Jul 2019: *GSPT Seminar*, Heidelberg University, Germany
Jul 2019: *Mathematisches Forschungskolloquium*, University of Rostock, Germany
Mar 2019: *Mathematisches Forschungskolloquium*, University of Rostock, Germany
Jan 2019: *Applied Analysis Seminar*, Heidelberg University, Germany
Jun 2018: *Oberseminar*, Technical University of Munich, Germany
Sep 2016: *PG (Post-Graduate) Colloquium*, The University of Edinburgh, UK
Sep 2016: *Applied and Computational Mathematics (ACM) Seminar*, The University of Edinburgh, UK

CONFERENCES & WORKSHOPS

- Nov 2022: *Workshop on "Topics in Multiple Time Scale Dynamics"*, Banff International Research Station, Canada (**Invited Speaker**)
Apr 2022: *Spatial Ecology Workshop: Integrating mathematical theory and ecological applications*, Sheffield, UK (**Invited Speaker + Discussion Chair**)
Nov 2021: *SIAM Conference on Analysis of Partial Differential Equations (PD22)*, Berlin, Germany (**Invited Speaker**) ([online](#))
Nov 2021: *Neuroscience 2021*, Chicago, USA (**Poster Presenter**) ([online](#))
Aug 2021: *Dynamics Days Europe*, Nice, France (**Invited Speaker**)
Aug 2021: *Workshop on "Dynamics of Waves and Patterns"*, Oberwolfach, Germany
Jun 2021: *Workshop on "A PhD in Mathematics - career possibilities & gender aspects"*, online (**Invited Speaker**)
May 2021: *SIAM Conference on Applications of Dynamical Systems (DS21)*, online (**Talk + Minisymposium Organiser**)
Feb 2021: *12th Workshop on Dynamical Systems Applied to Biology and Natural Sciences (DSABNS2021)*, online
Aug 2020: *SMB 2020 Annual Meeting, e-Conference* (**Contributed talk**)
Aug 2020: *European Conference on Mathematical Biology (ECMTB) 2020*, Heidelberg, Germany (**Poster Presenter**) (**postponed**)
Feb 2020: *11th Workshop on Dynamical Systems Applied to Biology and Natural Sciences (DSABNS2020)*, Trento, Italy (**Contributed Talk**)
Jan 2020: *PDE-MANS 2020*, Granada, Spain (**Poster Presenter**)
Sep 2019: *Workshop "On growth and pattern formation"*, Oxford, UK (**Poster Presenter**)
Jul 2019: *Edinburgh Slow-Fast-Ival*, Edinburgh, UK (**Invited Speaker**)
May 2019: *SIAM Conference on Applications of Dynamical Systems (DS19)*, Snowbird, Utah, USA (**Invited Speaker**)
Mar 2019: *GFS follow on: Mathematics of form in active and inactive media*, Cambridge, UK (**Invited Speaker**)
Feb 2019: *First International Nonlinear Dynamics Conference (NODYCON2019)*, Rome, Italy (**Contributed Talk**)
Feb 2019: *10th Workshop on Dynamical Systems Applied to Biology and Natural Sciences (DSABNS2019)*, Naples, Italy (**Contributed Talk**)

- Jul 2018: *European Conference on Mathematical Biology (ECMTB) 2018*, Lisbon, Portugal
(Invited Speaker)
- Jun 2017: *9th European Nonlinear Dynamics Conference (ENOC)*, Budapest, Hungary
(Invited Speaker)
- Jul 2016: *European Conference on Mathematical Biology (ECMTB) 2016*, Nottingham, UK
- Jun 2016: *Vienna young Scientist Symposium*, Vienna, Austria **(Contributed Talk)**
- Jul 2015: *Equadiff 2015*, Lyon, France **(Contributed Talk)**
- Jun 2013: *Four decades of progress in monitoring and modeling of processes in the soil-plant-atmosphere system: applications and challenges*, Naples, Italy
(Contributed Talk)

TEACHING EXPERIENCE

- Winter Term 2021/22: Linear Algebra for Computational Science (6 ECTS), University of Vienna, Austria
- Summer Term 2021: Tutorials on Ordinary Differential Equations (2 ECTS), University of Vienna, Austria

MENTORING AND SUPERVISION OF STUDENTS

- 2021: Advisor for the Bachelor thesis of Mr. Yehor Pospolit at the Faculty of Mathematics, University of Vienna.

RESEARCH SCHOOLS

- Mar 2020: *DK Winter School "Dissipation and Dispersion in Nonlinear PDEs"*, Baden, Austria
(Invited Speaker) (postponed)
- Apr 2019: *LMS-CMI Research School "PDEs in Mathematical Biology: Modelling and Analysis"*, Edinburgh, UK **(Poster Presenter)**
- Nov 2015: *1st CENTRAL School on Analysis and Numerics for Partial Differential Equations*, Vienna, Austria
- Sep 2014: *Summer School "Analysis and Applications of Partial Differential Equations"*, Graz, Austria

OUTREACH EVENTS

- Nov 2021: Role model profile for the workshop "MINT erforschen" @ *KinderUni*, University of Vienna, Austria
- Jul 2021: "The Turing Pattern Project" @ *KinderUni*, University of Vienna, Austria
- Dec 2016: *Edinburgh Maths Circle*, The University of Edinburgh, UK
- Nov 2016: Outreach event at *Flora Stevenson Primary School*, Edinburgh, UK

ACADEMIC SERVICES

- 2017-present: **Organiser of Scientific Events**
- Apr 2022: Hausdorff School *Diffusive Systems: Part II*, Bonn, Germany
- Sep 2021: ICMS Early-Career Workshop *MoDiS - Modelling Diffusive Systems: Theory & Biological Applications*, online
- May 2021: Mini-symposium *Recent Developments in Ecosystems' Resilience* at SIAM DS21, online
- Apr 2021: Hausdorff School *Diffusive Systems: pattern formation, bifurcations, and biological applications*, online
- 2020: Mini-symposium "Multi-scale phenomena in biology: modelling and analysis" at ECMTB 2020, Heidelberg, Germany **(postponed)**
- 2017-2019: DK Winter & Summer Schools
- Seminar *PDE Afternoon*
- Jun 2019: Workshop *Women in PDEs @ Vienna*, Austria
- Nov 2016: Workshop *Nonlinear PDEs & Gradient Flows: Analytical and Numerical Aspects*, Vienna, Austria

2018-present: **Journal Referee**

SIAM Journal on Applied Mathematics
Physica D: Nonlinear Phenomena
Journal of Mathematical Biology
Mathematical Biosciences
International Journal of Bifurcations and Chaos
IEEE Control Systems
Mathematical Modelling of Natural Phenomena
Mathematical Problems in Engineering
Ricerche di Matematica
Mathematics

2021: **Journal Editor**

Guest Editor of the Special Issue on “*Mathematical and Data-Driven Computational Modelling in Neuroscience*”, *Mathematical Biosciences and Engineering*

PROGRAMMING & SOFTWARE SKILLS

Languages: Mathematica, MATLAB, Fortran
Software: AUTO, pde2path, Microsoft Office (ECDL license)
Graphics: Gimp, Xfig

SCIENTIFIC TRAINING

Oct 2021: ERC Starting and Consolidator Grant Application Workshop
Feb 2021: Basic Qualification for Junior Staff - Teaching in STEM disciplines
Jan 2017: Proposal writing
Jan 2016: Career planning
Jan 2015: Scientific writing
Jan 2014: Presentation techniques

WORK EXPERIENCE

2012-2014: **Book Reviser** for *Editorial Group SIMONE*, Italy
2013-2014: **Scientific Reviser** for *Progetto Matematika*, Italy

MEMBERSHIPS

Oct 2021–present: *Society for Neuroscience (SFN)*
Oct 2021–present: *Sydic (System Dynamics Italian Chapter)*
Sep 2021–present: *Gruppo UMI “Modellistica Socio-Epidemiologica (MSE)”*
Jul 2021–present: *Società Italiana di Matematica Applicata ed Industriale (SIMAI)*
Jul 2021–present: *Unione Matematica Italiana (UMI)*
Jul 2019–present: *European Women in Mathematics (EWM)*
Feb 2019–present: *European Society for Mathematical and Theoretical Biology (ESMTB)*
May 2019–Apr 2020: *Society for Applied and Industrial Mathematics (SIAM)*

LANGUAGES

Italian, mother tongue
English, fluent (TOEFL certificate, 112/120)
German, fluent (C1.2 certificate, 17/20)

December 29, 2021