

Léo Girardin

Junior CNRS Researcher in biomathematics

Education

- 2015–2018 **Ph.D of mathematics**, *Propagation phenomena and reaction–diffusion systems for population dynamics in homogeneous or periodic media*, advisors: Grégoire Nadin and Vincent Calvez, Sorbonne University, Paris (France).
- 2011–2015 **Normalien student at École Normale Supérieure de Cachan**.
- 2014–2015 **Master Logique, Philosophie, Histoire et Sociologie des sciences (epistemology)**, *magna cum laude*, Paris Diderot University, Paris (France).
- 2013–2014 **Master Mathématiques de la Modélisation (partial differential equations)**, *summa cum laude*, Pierre and Marie Curie University, Paris (France).

Supplementary training

- 2016 **Summer school: PDE and Probability for Life Sciences**, 1 week, CIRM, Marseille (France).
- 2016 **Séminaire de Mathématiques Supérieures: Biological Dynamics**, 2 weeks, University of Alberta, Edmonton (Canada).
- 2013 **Summer school: Biology for Students in Mathematics**, 1 week, CIRM, Marseille (France).

Research and teaching experience

Current position

Since 2020 **Junior CNRS researcher**, interdisciplinary section 51, affiliated with Institut Camille Jordan UMR 5208, Claude Bernard Lyon 1 University, Villeurbanne.

Past position

2018–2020 **Postdoctoral fellow**, *Propagation phenomena and ill-structured reaction–diffusion systems in biology*, mentor: Danielle Hilhorst, Paris-Saclay University, Orsay (France).

Scientific visits in foreign countries

- 2019 **Visitor of the Meiji Institute for the Advanced Study of Mathematical Sciences**, 10 days, invited by Pr. Hiroshi Matano, Tokyo (Japan).
- 2017 **Visitor of the Department of Mathematics of the Ohio State University**, 3 months, invited by Pr. Adrian Lam, co-funded by the OSU and the ANR NONLOCAL project, Columbus, Ohio (USA).

Publications

- 2020 (with Q. Griette), A Liouville-type result for non-cooperative Fisher–KPP systems and nonlocal equations in cylinders, *Acta Applicandae Mathematicae*.
- 2020 (with A. Zilio), Competition in periodic media: III – Existence and stability of segregated periodic coexistence states, *Journal of Dynamics and Differential Equations*, **32**, pp. 257–279.
- 2019 The effect of random dispersal on competitive exclusion – A review, *Mathematical Biosciences*, **318**, 108271.
- 2019 (with V. Calvez et F. Débarre), Catch me if you can: a spatial model for a brake-driven gene drive reversal, *Bulletin of Mathematical Biology*, **81 (12)**, pp. 5054–5088..
- 2019 Two components is too simple: an example of oscillatory Fisher–KPP system with three components, *Proceedings of the Royal Society of Edinburgh - A*.
- 2019 (with A. Lam), Invasion of open space by two competitors: spreading properties of monostable two-species competition-diffusion systems, *Proceedings of the London Mathematical Society*, **119 (05)**, pp. 1279–1335.

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Born on July 09, 1991 in Colombes (France)

- 2018 Addendum to 'Non-cooperative Fisher–KPP systems: traveling waves and long-time behavior', *Nonlinearity*, **32**, pp. 168–171.
- 2018 Non-cooperative Fisher–KPP systems: asymptotic behaviors of traveling waves, *Mathematical Models and Methods in Applied Sciences*, **28 (06)**, pp. 1067–1104.
- 2018 Non-cooperative Fisher–KPP systems: traveling waves and long-time behavior, *Nonlinearity*, **31**, pp. 108–164.
- 2018 (with G. Nadin), Competition in periodic media: II – Segregative limit of pulsating fronts and “Unity is not Strength”-type result, *Journal of Differential Equations*, **265 (01)**, pp. 98–156.
- 2017 Competition in periodic media: I – Existence of pulsating fronts, *Discrete and Continuous Dynamical Systems - Series B*, **22 (04)**, pp. 1341–1360.
- 2015 (with G. Nadin), Traveling waves for diffusive and strongly competitive systems: relative motility and invasion speed, *European Journal of Applied Mathematics*, **26 (04)**, pp. 521–534.

Talks in national or international conferences

- 2020 **Interfacial Phenomena in Reaction–Diffusion Systems**, *Banff International Research Station*, online.
- 2019 **GDR MAMOVI Days**, *Tours University*, Tours (France).
- 2019 **Young PDEists Days**, Rennes (France).
- 2018 **Congress of the GDRI ReaDiNet**, Jeju (South Korea).
- 2018 **ERC READI Colloquium**, Porquerolles (France).
- 2018 **ANR NONLOCAL Days**, *Savoie University*, Chambéry (France).
- 2017 **ANR NONLOCAL Days**, *Paul Sabatier University*, Toulouse (France).
- 2015 **ANR NONLOCAL Days**, *Complex Systems Institute*, Paris (France).

Talks in seminars or workshops

- 2021 **Seminar on modelling in social sciences and life sciences**, *School for Advanced Studies in the Social Sciences*, Paris (France).
- 2021 **Applied Maths Seminar**, *University of Graz*, Graz (Austria).
- 2021 **LBBE Seminar**, *Claude Bernard Lyon-1 University*, Villeurbanne (France).
- 2021 **Chaire MMB**, *Museum d'Histoire Naturelle*, Paris (France).
- 2020 **MMCS Seminar**, *Claude Bernard Lyon-1 University*, Villeurbanne (France).
- 2019 **Biomaths Workshop**, *Aix–Marseille University*, Marseille (France).
- 2019 **Population Dynamics Seminar**, *Bordeaux University*, Bordeaux (France).
- 2019 **Biomaths Workshop**, *Sorbonne University*, Paris (France).
- 2019 **EDPs² Seminar**, *Savoie University*, Chambéry (France).
- 2019 **Biomaths Seminar**, *Paris Sud University*, Orsay (France).
- 2019 **Biomaths Seminar**, *Paris 13 University*, Villetaneuse (France).
- 2019 **ACSIOM Seminar**, *Montpellier University*, Montpellier (France).
- 2019 **EDPAN Seminar**, *Nice Sophia-Antipolis University*, Nice (France).
- 2019 **IDP Analysis Seminar**, *Tours University*, Tours (France).
- 2019 **MEB Seminar**, *Aix–Marseille University*, Marseille (France).
- 2019 **Workshop on propagation phenomena**, *Meiji University*, Tokyo (Japan).
- 2018 **MIP Seminar**, *Paul Sabatier University*, Toulouse (France).
- 2018 **MAS Seminar**, *Paris Descartes University*, Paris (France).
- 2018 **AA Seminar**, *Aix–Marseille University*, Marseille (France).
- 2017 **Biomaths Interdisciplinary Seminar**, *Paris Dauphine University*, Paris (France).
- 2017 **MBI's Visitor Seminar**, *Ohio State University*, Columbus, Ohio (USA).
- 2017 **PDE Seminar**, *Ohio State University*, Columbus, Ohio (USA).
- 2016 **CAKE Seminar**, *University of Cambridge*, Cambridge (United Kingdom).
- 2015 **ERC ReaDi PDE Seminar**, *School for Advanced Studies in the Social Sciences*, Paris (France).

Posters

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- 2016 **Competition in periodic media: pulsating fronts and segregation**, *Presented at three poster sessions.*
- Organisation of scientific meetings**
- 2019 **PDE–biology Workshop**, *Two-days interdisciplinary workshop focusing on PDE models in biology*, Principal coordinator, Orsay (France).
- 2016 **SIMBAD Seminar**, *Seminar on biomathematical PDE models primarily aimed at French PhD students and postdoctoral fellows*, Co-principal coordinator, Paris, Lyon, Montpellier (France).

Reports for peer-reviewed journals

- 2021 **Proceedings of the Royal Society of Edinburgh, Section A.**
- 2021 **Journal of Mathematical Biology.**
- 2020 **Nonlinear Differential Equations and Applications.**
- 2020 **Journal of Functional Analysis.**
- 2020 **Annales Henri Lebesgue.**
- 2020 **Discrete and Continuous Dynamical Systems - Series B.**
- 2020 **SIAM Journal on Applied Mathematics.**
- 2020 **Journal of Mathematical Biology.**
- 2020 **Calculus of Variations and Partial Differential Equations.**
- 2019 **Annales de l'Institut Henri Poincaré C, Analyse Non Linéaire/Nonlinear Analysis.**
- 2019 **Journal of Mathematical Biology.**
- 2019 **Discrete and Continuous Dynamical Systems.**
- 2019 **Nonlinear Analysis: Real World Applications.**
- 2018 **Annales de l'Institut Henri Poincaré C, Analyse Non Linéaire/Nonlinear Analysis.**
- 2018 **Nonlinearity.**
- 2018 **Journal of Differential Equations.**
- 2018 **Proceedings of the Royal Society of Edinburgh, Section A.**
- 2017 **SIAM Journal on Mathematical Analysis.**

Awards

- 2020 **IOP Publishing “Trusted reviewer”.**
- 2019 **Second award of the Chancellerie de Paris for a PhD thesis in mathematics**, *amount 2000€.*
- 2019 **Junior Scientific Visibility funding of the Fondation Mathématique Jacques Hadamard to organize an interdisciplinary workshop**, *amount 2000€.*
- 2019 **“Outstanding Reviewer of 2018” award by Nonlinearity.**
- 2018 **Postdoctoral fellowship *Mathematics Life Sciences* of the Fondation Mathématique Jacques Hadamard.**
- 2016 **Honorable Mention of the poster session of the Séminaire de Mathématiques Supérieures.**

Teaching

- 2015–2018 **Tutorials (64 hours per year)**, *Multivariable calculus*, 2nd year of Licence and 2nd year of *Classe préparatoire intégrée*, Sorbonne University, Paris (France).

Mentoring

- 2021 **Baptiste Maucourt**, *Mathematical modelling and analysis of a system with three trophic levels, a vector-borne disease and space-time periodicity*, M2 research internship.

Languages

French First language

English Fluent

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