Antoine Pauthier
Curriculum Vitae

📞 (+33) 6 78 09 42 90
✉ apauthie@umn.edu
🖰 http://www.math.umn.edu/ apauthie/

Position

2016–2019 **Dunham Jackson Assistant Professor**, *University of Minnesota*, Minneapolis.

Education

2013–2016 **PhD in Mathematics**, *Université de Toulouse*.

2009–2013 **Student at ENS Cachan**, Cachan.

2012–2013 **Master in Applied Mathematics**, *Université de Toulouse*, Toulouse.
Major : applied analysis, modelisation, scientific computing.

2011–2012 **Agrégation de Mathématiques**, rank 57th/308.
A competitive exam for undergraduate teaching tenure.
Specialization : scientific computing.

2009–2011 **BSc and MSc (1st year) in Mathematics**, *ENS Cachan & Paris Diderot University*, Cachan, Paris.

Ph.D thesis

Title *Two examples of reaction-diffusion front propagation in heterogeneous media.*

Advisors Henri Berestycki & Jean-Michel Roquejoffre

Defense June 20, 2016

Committee Henri Beresrycki, Laurent Desvillettes, Marie Doumic-Jauffret, Alexander Kiselev, Sepideh Mirrahimi, Jean-Michel Roquejoffre, Enrico Valdinoci

short summary My thesis focuses on spreading phenomena and travelling fronts in inhomogeneous reaction-diffusion equations. In a first work, I studied nonlocal interactions between an homogeneous media and a road of fast diffusion for a Fisher-KPP equation. The initial model was introduced in 2013 by Berestycki, Roquejoffre and Rossi. In a second part I extended the works of Berestycki, Bouhours and Chapuisat concerning "cylinder-like" domains, where they devised the existence of travelling fronts for a bistable equation, to more general domains.

Publications

All preprints available on arXiv.

○ *The influence of a line with fast diffusion and nonlocal exchange terms on Fisher-KPP propagation*, Comm. Math. Sciences, 2 (2016) 535-570.

○ *Uniform dynamics for Fisher-KPP propagation driven by a line of fast diffusion under a singular limit*, Nonlinearity 28 (2015) 3891-3920.

○ *Road-field reaction-diffusion system: a new threshold for long range exchanges*, a short note about infemum for the spreading speed for the systems considered above, 2015.

○ *Entire solutionsin cylinder-like domains for a bistable reaction-diffusion equation*, to appear in J. Dynam. Differential Equations, 2017.

Teaching experience

Fall 2017 **Multivariable Calculus**, UNIVERSITY OF MINNESOTA, Minneapolis.
lecturer, one section

Spring 2017 **Linear Algebra and Differential Equations**, UNIVERSITY OF MINNESOTA, Minneapolis.
lecturer, two sections

Fall 2016	**Multivariable Calculus**, University of Minnesota, Minneapolis.
	lecturer, one section
2013–2016	**Teaching duty as a Ph.D student**, Toulouse University.
	○ 2013–2014 Undergrad (2nd year) in preparatory cycle for ingeneering school. Tutorial (64h). Topics: parametric curves, topology in finite dimension, differential calculus, multiple integral.
	○ 2014–2015 Undergrad (2nd year) in preparatory cycle for ingeneering school. Tutorial (72h). Topics: sequences and series, improper integrals, sequences and series of functions, power series, matrices and linear transformations.
	○ 2015–2016
	– Undergrad (2nd year) in preparatory cycle for ingeneering school. Tutorial (44h). Topics: sequences and series, improper integrals, sequences and series of functions, power series.
	– Undergrad (2nd year), students majoring in mathematics, physics and chemistry. Tutorial (12h). Topics: same as above, Fourier series.
2014–2015	**2 Hippocampe Tutoring**, Toulouse University.
	A 3 days experience with high school students where they discover research. It consists in studying a completely new field for them, with as little knowledge as possible in the beginning. In the end, they should present their results in a talk to the other students, and during a poster session to the researchers of the laboratory.
	Topics : Optimal transport.
2011–2012	**Oral examinations in Preparatory classes for Grandes Écoles**, Paris.
	2011–2012 MPSI (students majoring in mathematics and physics) – Lycée Saint-Louis

Invited talks

March 2014	**5th workshop of the ReaDi ERC project**, *EHESS - Paris*.
Jan. 2015	**BioSP seminar at INRA**, *Avignon*.
April 2015	**1st workshop of the ANR NONLOCAL project**, *Paris*.
June 2016	**3rd workshop of the ANR NONLOCAL project**, *Porquerolles*.
October 2016	**PDE seminar**, *School of Mathematics - Minneapolis*.

Past responsibilities

2014–2016	**Co-organizer of the PhD seminar**.
	Fortnightly seminar covering all topics present at the Institut de Mathémathiques de Toulouse.
2014–2015	**Co-organizer of a working group**.
	Monthly working group covering stochastic ODEs, fluid mechanism, and reaction-diffusion equations.
2015–2016	**Elected member of the board of the Institut de Mathémathiques de Toulouse**.
	Representative of the PhD students.

Research internships

2013	**Master II**, Institut de Mathématiques de Toulouse, 5 months.
	"The influence of a line with fast diffusion on Fisher-KPP propagation : integral models " advised by J.M. Roquejoffre. I adapted the work of H. Berestycki, J.-M. Roquejoffre and L. Rossi on a road-field system with nonlocal boundary conditions. This was the starting point of my Ph.D thesis.
2011	**Master I**, Commissariat à lÉnergie Atomique, Ile-de-France, 5 months.
	"Stationary solutions for 1D radiative Euler equations" advised by P. Hoch, B. Rebourcet and G. Samba.
2010	**BSc**, Centre de mathématiques de de leurs applications, Cachan, 5 month.
	"Stabilisation of a 1D wave equation with bilinear control" advised by K. Beauchard.

Languages

French	**Mothertongue**	
English	**Advanced**	*TOEIC: 920*