

LEPOUTRE Thomas

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Born on 1984/02/02, French citizen
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Education and positions

Since October 2010	INRIA Junior researcher (CR2 then CR1) in project team DRACULA <i>Inria Rhône Alpes and Institut Camille Jordan (Lyon 1)</i>
2017	Habilitation thesis in applied mathematics <i>Université Claude Bernard (Lyon 1, France)</i> Manuscript: https://tel.archives-ouvertes.fr/tel-01524261
2007-2009	PHD in applied mathematics: Analysis and modelling of growth and motion phenomenon from biology <i>Université Pierre et Marie Curie Paris (France)</i> supervisors: <i>J. Clairambault, S. Gaubert and B. Perthame</i> Manuscript: https://tel.archives-ouvertes.fr/tel-00457561
2006-2007	Master 2 (Applied mathematics in life sciences) <i>Université Pierre et Marie Curie Paris (France)</i>
2006	Agrégation de mathématiques (Degree for teaching)
2005	Second semester (Master 1) at Imperial College London (UK)
2003-2008	Student in mathematics at École Normale Supérieure de Lyon (France)

PhD Students

2018- present	Kyriaki Dariva mathematical models of treatment of chronic myeloid leukemia
2014-2017	Alvaro Matteos Gonzales co advised with H. Berry and V. Calvez, on mathematical modelling of anomalous diffusion using age structured models (Now postdoc in Montpellier) Manuscript available https://tel.archives-ouvertes.fr/tel-01701022
2014-2017	Apollos Besse, co advised with S. Bernard on mathematical modelling of chronic myeloid leukemia. (Manuscript: https://tel.archives-ouvertes.fr/tel-01561249 , now teacher in CPGE)

Interns

2018	Kyriaki Dariva mathematical models of treatment of chronic myeloid leukemia
2018	Marion Morize (L3) on treatment cessation in chronic myeloid leukemia
2016	Emma Leschiera (L2) TIPE
2014	Alvaro Matteos Gonzales (M2) co advised with H. Berry and V. Calvez,
2014	Apollos Besse (M2), co advised with S. Bernard,
2013	Cigdem Ak (M2), co advised with F. Crauste
2013	Martin Legras (L3)
2011	Claire Elias (M1) co advised with S. Bernard

Jurys and comitees

2017	PhD defence of Athmane Bakhta (CERMICS, reviewer)
2016	PhD defence of Bastien Polizzi (Nice, examiner)
since 2014	member of the comission CORDI-S (comittee for Inria PhD fundings)
2014	Hiring comittee MCF Lyon 1
2013	Hiring comittee MCF Paris Sud

Participations to research projects

Principal Investigator

- Since 2017 (with V. Bansaye, CMPA Ecole Polytechnique) GDR MaMoVi. French research networks on mathematical modelling in life sciences.
<http://gdr-mamovi.math.cnrs.fr/spip/>
- Since 2012 Inria Partnerships programm Modelling Leukemia
http://dracula.univ-lyon1.fr/modelling_leukemia.php. This programm funds exchange between our team and the group of Doron Levy (CSCAMM, University of Maryland, USA) on the mathematical modelling of leukemia.
- 2011 Inria Programme Explorateur : funding for a 5 weeks stay at CSCAMM (led to the Inria Patnrships afterwards).

Member

- Since 2014 ERC MESOPROBIO (PI: V. Calvez, ENS Lyon, France)
- Since 2013 member of ANR Grant KIBORD (PI: Laurent Desvillettes, CMLA ENS CACHAN, France) <https://www.ljll.math.upmc.fr/kibord/>. This programm is dedicated to the development of PDEs methods for issues coming out of biology and connected subjects (chemistry, medical sciences).
- before member of the young resarcher ANR Grant MODPOL (PI: Vincent Calvez, ENS LYON, France), ANR Procell (PI: Fabien Crauste, UCBL Lyon 1, France), ANR Toppaz (PI: Marie Doumic Inria Paris, France)

Collaborations

- Oct. 2016 **short visit to Doron Levy** *College Park (USA)* .
- Nov. 2015 **short visit to Doron Levy** *College Park (USA)* .
- May 2015 **short visit to Doron Levy** *College Park (USA)* .
- Nov. 2014 **short visit to Doron Levy** *College Park (USA)* .
- Aug 2013 **2 weeks visit to Peter Kim** *University of Sydney (Australia)* .
- Dec 2012 **2 weeks visit to Doron Levy** *College Park (USA)* .
- May-Jun. 2012 **2 months visit to Nicolas Meunier** *Université Paris Descartes* .
- Oct.-Nov. 2011 **5 weeks visit to Doron Levy** *College Park (USA)* .
- Mar. 2011 **2 weeks visit to Salome Martinez** *CMM Santiago (Chile)* .
- Jan. 2010 **2 weeks visit to Salome Martinez** *CMM Santiago (Chile)* .
- Jun. 2008 **2 weeks visit to Mostafa Bendahmane** *Universidad de Concepcion (Chile)* .

Organization of conferences

- Sept. 2017. organizer of kick-off session of GDR MAMOVI
(<https://gdr-mamovi-2017.sciencesconf.org/>) .
- July 2016 co-organizer of school "EDP et Probabilités pour les sciences du vivant"
(<http://programme-scientifique.weebly.com/1426.html>) .
- July 2015 member of the organizig comittee of EQUADIFF 2015 (Lyon) .
- October 2013 co-organizer of GDR METICE days (Lyon) .
- May 2013 co-organizer of EMS-ESMTB school "Multiscale modeling in the life sciences"
(<http://mathbio2013.sciencesconf.org/resource/page/id/5>) .
- Sept. 2012 co-organizer of school "Modélisation en dynamique de populations et évolution"
(<http://www.cmap.polytechnique.fr/~ecolemathbio2012/index.php>) .
- Nov. 2011 minisymposium at SIAM Conference on Analysis of Partial Differential equations (San Diego, USA).

Recent Communications

Nov.-18	Mathematical Challenges in the Analysis of Continuum Models for Cancer Growth, Evolution and Therapy CMO, Oaxaca, Mexico
Jul.-18	Asymptotic approach to spatial and dynamical organizations LJLL, Paris
Jul.-18	Mathematical Perspectives in Cancer Biology and Therapeutics CIRM, Marseille
June-18	CANUM (MS talk) Agde
May-18	Seminar Montpellier
March-18	Seminar for biomathematics Universit Paul Sabatier, Toulouse
Feb.-18	Inria-Fields meeting Toronto, Canada

Teaching

2016-2017	Agrégation (Option B: Scientific Computing and Modelling), UCBL (Lyon 1).
jan.- june 2016	Agrégation (Option B: Scientific Computing and Modelling), UCBL (Lyon 1).
sept.-dec 2015	Master 2 lectures on integro-differential equations (shared with L. Tine)
sept.-dec 2014	Master 2 lectures on integro-differential equations (shared with L. Tine)
sept.-dec 2013	Master 2 lectures on integro-differential equations (shared with V. Calvez)
sept.-dec 2013	Exercices class of Master 2 lectures on Hamilton Jacobi equations (lecturer V. Calvez)
jan.-june 2013	Agrégation (Option B: Scientific Computing and Modelling), UCBL (Lyon 1).
sept.-dec 2012	Exercices class of Master 2 lectures on Hamilton Jacobi equations (lecturer V. Calvez)
jan.-june 2012	Agrégation (Option B: Scientific Computing and Modelling), UCBL (Lyon 1).
jan.-june 2012	Student seminar on Perron Frobenius theory and population dynamics, ENS LYON (with V. Calvez)
dec. 2011	Short introduction to population dynamics, ENS CACHAN
2007-2010	Exercices class, Université Pierre et Marie Curie (L1-L2)

Miscellaneous

2010-2015	member of Opérations Postes (website clarifying recruitment process for Ph. D. candidates) .
2011-2014	member of the press team for images des Mathématiques (we collect articles mentioning mathematics in press and summarize them every month).

Skills

Languages	English (fluent), French (native) and German (basics) .
Softwares	Scilab, Matlab, LaTeX.

Publications in journals

- [1] T. Lepoutre. “Improved duality estimates: time discrete case and applications to a class of cross-diffusion systems”. In: *Communications in Mathematical sciences* 17.2 (Sept. 2019), pp. 339–351.
- [2] A. Besse, G. D. Clapp, S. Bernard, F. E. Nicolini, D. Levy, and T. Lepoutre. “Stability Analysis of a Model of interaction between the Immune System and Cancer Cells in CML”. In: *Bulletin of Mathematical Biology* (2017).
- [3] A. Besse, T. Lepoutre, and S. Bernard. “Long-term treatment effects in chronic myeloid leukemia”. In: *Journal of Mathematical Biology* 75.3 (Sept. 2017), pp. 733–758.
- [4] T. Lepoutre and A. Moussa. “Entropic structure and duality for multiple species cross-diffusion systems”. In: *Nonlinear Analysis* (Sept. 2017).
- [5] H. Berry, T. Lepoutre, and Á. M. González. “Quantitative Convergence Towards a Self-Similar Profile in an Age-Structured Renewal Equation for Subdiffusion”. In: *Acta Applicandae Mathematicae* 145.1 (2016), pp. 15–45.
- [6] G. D. Clapp, T. Lepoutre, F. E. Nicolini, and D. Levy. “BCR-ABL transcript variations in chronic phase chronic myelogenous leukemia patients on imatinib first-line: Possible role of the autologous immune system”. In: *OncoImmunology* 5.5 (Jan. 2016), e1122159.
- [7] G. D. Clapp, T. Lepoutre, R. El Cheikh, S. Bernard, J. Ruby, H. Labussière-Wallet, F. E. Nicolini, and D. Levy. “Implication of the Autologous Immune System in BCR-ABL Transcript Variations in Chronic Myelogenous Leukemia Patients Treated with Imatinib.” eng. In: *Cancer Res* 75.19 (Oct. 2015), pp. 4053–4062.
- [8] L. Desvillettes, T. Lepoutre, A. Moussa, and A. Trescases. “On the Entropic Structure of Reaction-Cross Diffusion Systems”. In: *Communications in Partial Differential Equations* 40.9 (2015), pp. 1705–1747.
- [9] S. Gaubert and T. Lepoutre. “Discrete limit and monotonicity properties of the Floquet eigenvalue in an age structured cell division cycle model”. English. In: *Journal of Mathematical Biology* (2015), pp. 1–41.
- [10] F. Billy, J. Clairambault, O. Fercoq, S. Gaubert, T. Lepoutre, T. Ouillon, and S. Saito. “Synchronisation and control of proliferation in cycling cell population models with age structure”. In: *Mathematics and Computers in Simulation* 96.0 (2014), pp. 66–94.
- [11] L. Desvillettes, T. Lepoutre, and A. Moussa. “Entropy, Duality, and Cross Diffusion”. In: *SIAM Journal on Mathematical Analysis* 46.1 (2014), pp. 820–853.
- [12] T. Lepoutre and S. Martinez. “Steady state analysis for a relaxed cross diffusion model”. Anglais. In: *Discrete and Continuous Dynamical Systems - Series A* 2 (2014), pp. 613–633.
- [13] T. Lepoutre, N. Meunier, and N. Muller. “Cell polarisation model: The 1D case”. In: *Journal de Mathématiques Pures et Appliquées* 101.2 (Feb. 2014), pp. 152–171.
- [14] F. Thomas, D. Fisher, P. Fort, J.-P. Marie, S. Daoust, B. Roche, C. Grunau, C. Cosseau, G. Mitta, S. Baghdiguian, et al. “Applying ecological and evolutionary theory to cancer: a long and winding road”. In: *Evolutionary Applications* 6.1 (2013), pp. 1–10.
- [15] R. El Cheikh, T. Lepoutre, and S. Bernard. “Modeling Biological Rhythms in Cell Populations”. In: *Math. Model. Nat. Phenom.* 7 (06 2012), pp. 107–125.
- [16] T. Lepoutre, M. Pierre, and G. Rolland. “Global Well-Posedness of a Conservative Relaxed Cross Diffusion System”. In: *SIAM Journal of Mathematical Analysis* 44.3 (2012), pp. 1674–1693.
- [17] J. Clairambault, S. Gaubert, and T. Lepoutre. “Circadian rhythm and cell population growth”. In: *Math. Comput. Modelling* 53 (2011), pp. 1558–1567.
- [18] M. Bendahmane, T. Lepoutre, A. Marrocco, and B. Perthame. “Conservative cross diffusions and pattern formation through relaxation”. In: *Journal de Mathématiques Pures et Appliquées* 92.6 (May 2009), pp. 651–667.
- [19] J. Clairambault, S. Gaubert, and T. Lepoutre. “Comparison of Perron and Floquet Eigenvalues in Age Structured Cell Division Cycle Models”. In: *Math. Model. Nat. Phenom.* 4.3 (2009), pp. 183–209.
- [20] M. Doumic, T. Goudon, and T. Lepoutre. “Scaling limit of a discrete prion dynamics model”. In: *Commun. Math. Sci.* Volume 7, Issue 4 (2009), pp. 839–865.