

Bastien Mallein

Born March 30th 1988

Université de Toulouse
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I am currently professor in Probability at the University of Toulouse. I mainly study the asymptotic properties of spatial branching processes. I take interest in the behaviour of atypical particles in these processes, notably in the extremal process. I also take interest in the application of these models to statistical physics, biology, medical study and computer science.

Current situation

2023 – **Professor**, *IMT, Université de Toulouse*, Toulouse, France
Research in Probability, teaching in Probability and Statistics

Professional situation

- 2021 – 2023 **Assistant professor**, *DMA, École Normale Supérieure*, Paris, France
Detached teacher in DMA for *Integration and Probability*
- 2017 – 2023 **Assistant professor (Maître de Conférence)**, *LAGA, Université Paris 13*, Villetaneuse, France
Teacher and researcher of the Probability and Statistics team
- 2016 – 2017 **Post-doc**, *Institut für Mathematik, Universität Zürich*, Zürich, Suisse
Postdoc on growth-fragmentation processes, under the direction of JEAN BERTOIN
- 2013 – 2016 **Teaching assistant (Agrégé-Préparateur CDD)**, *DMA, École Normale Supérieure*, Paris, France
Teaching assistant for the *Stochastic processes* lecture
- 2012 – 2013 **PhD student**, *Université Pierre et Marie Curie*, Paris, France
PhD student in probability under the direction of ZHAN SHI

University training

- 2023 **Habilitation à diriger les recherches en mathématiques**, *LAGA, Université Sorbonne Paris Nord*, Villetaneuse, France
title: Extrema of Spatial Branching Processes
- 2012– 2015 **PhD in Mathematics**, *LPMA, Université Pierre et Marie Curie*, Paris, France
Title: Branching random walk, time-inhomogeneous environment, selection
Under the direction of Zhan Shi
- 2009 – 2011 **Master of Mathematics**, *Université Paris 11*, Orsay, France
Option Probability and Statistics
- 2010 **Research internship**, *University of British Columbia*, Vancouver, Canada
Title: Convergence of superprocesses through Girsanov transform
Under the direction of Edwin Perkins
- 2008 – 2011 **Licence in Mathematics**, *École Normale Supérieure*, Paris, France

Scientific communication

Invitation to international events

- 10/2023 **Discrete Random Structures**, *University of Wroclaw, Bedlewo, Poland*
- 03/2023 **Random discrete structures**, *Universität Münster, Germany*
- 03/2023 **Franco-Moroccan Mathematics Days**, *Université de Tétouan, Morocco*
- 02/2023 **Branching and Interacting Particle Systems**, *Universität Mainz, Germany*
- 08/2022 **X Escuela de Probabilidad y Procesos Estocásticos**, *UNAM, Mexico*
- 06/2022 **The 42nd Conference on Stochastic Processes and their Applications**, *Wuhan, Chine, (online)*
- 06/2022 **IMS Annual Meeting in Probability and Statistics**, *Londres, Royaume-Uni, (online)*
- 05/2022 **Branching systems, reaction-diffusion equations and population models**, *CRM, Université de Montréal*
- 07/2021 **Random excursions with Jean Bertoin**, *Université Sorbonne Université, France*
- 04/2021 **One World Probability Seminar**, *One World Project*
- 04/2021 **The 5th International Workshop on Branching Processes and their Applications**, *Universidad de Extremadura, Badajoz, Espagne, (online)*
- 08/2020 **Applied Probability Workshop**, *Novosibirsk State University, Russie, (online)*
- 08/2019 **Applied Probability Workshop**, *Novosibirsk State University, Russie, & cours doctoral*
- 07/2019 **9th international conference on Lévy processes**, *University of the Aegean, Samos, Grèce*
- 06/2019 **5th Workshop on Branching Processes and Related Topics**, *Beijing Normal University, Beiing, Chine*
- 09/2017 **Modern perspectives of branching in probability**, *Universität Münster, Allemagne*
- 07/2017 **39th Conference on Stochastic Processes and their Applications**, *Moscow, Russie*
- 07/2017 **Phase transition on random trees**, *Dortmund Universität, Allemagne*
- 05/2017 **Probability & Analysis 2017**, *Bedlewo, Pologne*
- 10/2016 **Conference on Random processes, random media**, *Université de Brest et IUF*

Other oral communications

- 2023 Séminaire de Probabilités de Toulouse (IMT, Université de Toulouse), Séminaire de Calcul Stochastique (IRMA, Université de Strasbourg)
- 2022 Probas du Vendredi (LPSM, Sorbonne Université), Séminaire de Probabilités (IRMAR, Université Rennes 1), Séminaire de Probabilités (LPSM, Sorbonne Université), Stochastic Seminar (University of Liverpool), Probability Seminar (University of Oxford), Séminaire des élèves de M2 de Probas-Stat (Université Paris-Saclay)
- 2021 Seminar Stochastics and Its Applications (Taras Shevchenko National University of Kyiv), Focus recherche (ENS Paris), Séminaire informel de Probabilités (DMA, ENS Paris), Journée Branchement/RW/Percolation (LPSM, Sorbonne Université)
- 2020 Probability seminar (University of Bath), Séminaire de Probabilités (Université Lyon 1 et ENS Lyon), Séminaire de M2 (Université Paris-Saclay), Séminaire de Probabilités (LMO, Université Paris-Sud), Groupe de travail Math4Covid-19 (LJLL, Sorbonne Université), Informal seminar (Probability at University College London), Bernoulli-IMS One World Symposium (Exposé participant), Séminaire de Modélisation Stochastique (LPSM, Université de Paris)
- 2019 Probability seminar (Department of Statistics, University of Oxford), Séminaire de probabilités (Modal'X, Université Paris-Nanterre), Séminaire de probabilités (Universität Münster), Workshop on Lévy processes (Universität Mannheim), Séminaire de probabilités (CMAP, École Polytechnique), Séminaire de probabilités (LMBP, Université Clermont-Auvergne), Séminaire de probabilités (IMT, Université Toulouse 3 – Paul Sabatier)

- 2018 Groupe de travail de probabilités (MAP5, Université Paris-Descartes), Séminaire Probabilités et Statistique (LAREMA, Université d'Angers), Séminaire SPACE (Institut Denis Poisson, Université de Tours)
- 2017 Seminar IHP Combinatorics and Interactions (IHP, Paris), Séminaire de Probabilités (Institut Fourier, Université Grenoble-Alpes), Séminaire de Probabilités (LMO, Université Paris-Sud), Seminar on Stochastic Processes (Institut für Mathematik, Universität Zürich), Séminaire de Probabilités (LAGA, Université Paris 13), Séminaire Analyse-Probabilités Dauphine (CEREMADE, Université Paris-Dauphine), Seminar Postdoc and graduate Students (Institut für Mathematik, Universität Zürich)
- 2016 Seminar on Stochastic Processes (Institut für Mathematik, Universität Zürich), 4e rencontre Paris-Bath sur les structures branchantes (IHP, Paris), Ecole d'été de Saint-Flour
- 2015 Séminaire de Probabilités (Université Lille 1), Séminaire Probabilités et Statistiques (Université Lyon 1), Séminaire de Probabilités (Institut Denis Poisson, Université d'Orléans)
- 2014 Responsable de session Journées YSP (IHP, Paris), Exposé Jeunes Probabilistes et Statisticiens, Séminaire de Probabilités (LAGA, Université Paris 13), Séminaire de Probabilités (Institut Elie Cartan, Université de Nancy), Ecole d'été de Saint-Flour, Rencontres ANR MEMEMO2, Séminaire des thésards (École Polytechnique)
- 2013 Séminaire Analyse-Probabilités Dauphine (CEREMADE, Université Paris-Dauphine), Séminaire de Probabilités et Statistiques (Laboratoire de Mathématiques de Versailles, Université Versailles-St-Quentin), Exposé Journées de Probabilités 2013

Teaching and formation

Teaching

- 2021– **Temporary assistant professor**, *FIMFA, ENS Paris*
 - M1 : Organization of a student's working group.
 - L3: TA of *Integration and probabilities*.
- 2019 **Invited lecture**, *Sobolev Institute of Mathematics, Novosibirsk State University*
 - Lecture for doctoral level of 6 hours on Galton-Watson processes, branching random walks and the spinal decomposition.
- 2017– **Assistant professor**, *Institut Galilée, Université Paris 13*
 - M1: Responsible for TA and TP *Probability*, Responsible for Lectures, TA and TP *Statistics*.
 - L3: Responsible for Lecture and TA *Differential equations and systems* (for Math applied to the Economy), TA and TP *Probability* (for Math applied to the Informatics).
 - L2: TA in *Probability*, TA in *Statistics*.
- 2016–2017 **Post-doc with Lecture sessions**, *Institut für Mathematik, Universität Zürich*
 - M2: Lecture *Branching random walk*.
 - M2: Responsible for a reading group *Large deviations in infinite dimensions*.
 - Doctoral: Responsible for a reading group *Levy processes*.
- 2013–2016 **Teaching assistant**, *FIMFA, École Normale Supérieure*
 - M1: TA sessions in *Probability*.
- 2012–2013 **Doctorant contractuel**, *LPMA, UPMC*
 - L1: TA sessions in *Analysis*.

Doctoral evaluation

- 2023 **Rapporteur et membre du jury de la thèse de Chris Dean**, ..., in University of Bath, directed by Cécile Mailler
- 2023 **Rapporteur et membre du jury de la thèse d'Émilie Tezenas**, *Modèles mathématiques pour l'étude de l'interaction entre suppression de recombinaison et mutations délétères au voisinage d'un locus de type sexuel*, in Université de Lille, directed by Sylvain Billiard, Tatiana Giraud et Amandine Veber

- 2023 **Rapporteur and jury member for the thesis of Hairuo Yang**, *Two Contributions on Branching Stable Processes*, at Universität Zürich, under the direction of Jean Bertoin
- 2022 **Rapporteur and jury member for the thesis of Alejandro Hernández Wences**, *Population Dynamics With Selection and the Bolthausen-Sznitman Coalescent*, at UNAM, under direction of Arno Siri-Jégousse
- 2022 **Rapporteur and jury member for the thesis of Zsofiá Talyigás**, *Branching processes with selection*, at University of Bath, under the codirection of Sara Penington and Matt Roberts
- 2019 **Rapporteur and jury member for the thesis of Benjamin Dadoun**, *Some aspects of growth-fragmentation*, at Universität Zürich, under the direction of Jean Bertoin
- Supervision (PhD, Postdoc)**
- Oct 2018 – **Mohamed Ali Belloum**, *Extremal values of log-correlated Gaussian fields*
Dec 2021 Co-supervised by Yueyun Hu
- Sep 2020 – **Elie Cerf**, *Branching-selection particle systems based on a large number of genes*
Co-supervised by Bénédicte Haas and Laurent Tournier
- Oct 2023 – **Lianghui Luo**, ...
- Supervision (internship, projects)**
- 2023 **M2 intership of Alexis Imbert**, *Université de Paris-Saclay*
Convergence of the maximum of a multitype branching Brownian motion
- 2023 **First year project of Louis Vanhaelewyn and Nicolas Sekulov**, *École Normale Supérieure*
Random graphs, graphons and exchangeable arrays
- 2023 **First year project of Nicolas Heitz and Côme Le Réveillé**, *École Normale Supérieure*
Number of increasing paths in an N -ary tree
- 2023 **M1 intership of Julia Carbó**, *Université Paris 13*
Shot-noise process
- 2022 **Short internship project of Antonio Marini**, *Université PSL*
Bang-bang processes and large deviations
- 2022 **M1 intership of Maxime Lamouroux**, *Université Paris 13*
Longest chains in oriented random graphs: (some) asymptotic behaviours
- 2021 **M1 intership of George Rahal**, *Université Paris 13*
Monte-Carlo methods for the resolution of Neutron Transport Equation
- 2021 **M1 intership of Manel Selsane**, *Université Paris 13*
Kingman's coalescent with erosion
- 2020 **M1 intership of Laila Nizdar**, *Université Paris 13*
Parking processes on critical Galton-Watson trees
- 2020 **Undergrad internship of Jérémy Maignant**, *ENS Lyon*
Number of increasing paths on N -ary trees
- 2019 **M1 internship of Thi Dai Trang Nguyen**, *Université Paris 13*
Page Parking process (stopped)
- 2018 **Master thesis of Mohamed Ali Belloum**, *Université Paris 13*
Construction of a genealogical version of Markovian growth-fragmentation processes
- 2018 **Master thesis of Vera Ibrahimi**, *Universität Zürich*
Coalescent processes with instantaneous fragmentation
- 2017 **Master thesis of François Chalus**, *Universität Zürich*
Branching Brownian motion with decay of mass

- 2016 **Internship project of Yier Lin**, *École Normale Supérieure*
Short time asymptotics of the number of blocs in a coalescent process
- 2015 **First year short project of Vincent Aubry, Junkang Li**, *École Normale Supérieure*
Branching random walk with selection
- 2014 **First year project of Jean-Jil Duchamps et Paul Thévenin**, *École Normale Supérieure*
Voter model
- 2012–2015 **Supervision 5 students/year**, *École Normale Supérieure*
Supervision of ENS students following mathematical studies

Academic and scientific responsibilities

Academic responsibilities

- 2020– **Elected member of the laboratory advisory board**, *LAGA, Université Paris 13*
- 2019– **Director of the M2 Mathematics for Data**, *LAGA, Université Paris 13*
- 2018 **Member of a working group creating a new master to professionalize students**, *LAGA, Université Paris 13*
- 2013 – 2015 **Elected representant of AGPR to the advisory lab**, *DMA, ENS*
- 2012 – 2013 **Elected representant of PhD students to the advisory lab**, *LPMA, UPMC*

Organization of conferences, seminars and colloquiums

- Sep 2021 – **Co-organization of One World Probability Seminar**, *online*
Feb 2022 International seminar in Probability
- Sep 2021 **Co-organization of Random Networks and Interacting Particle Systems**, *online*
Four days long thematical conference
- Sep 2021 **Co-organization of Paris-Bath-Beijing 6**, *online*
Week-long seminar with thematics englobing branching processes and their applications
- Oct 2019 **Co-organization of Journées MathSTIC**, *Université Paris 13*
Three days long seminar with thematics related to combinatorics and statistical physics models
- 2018 – 2020 **Organization of the Colloquium du LAGA**, *Université Paris 13*
Colloque for all LAGA members, happening 4 times a year
- Sept 2018 **Co-organization of the workshop Branching-type structures**, *Universität Zürich*
Three days seminar around branching processes
- 2015 – 2019 **Co-organization of Probabilités de demain**, *Paris*
Yearly PhD students meeting days in probability of the Paris area
- 2013 – 2015 **Co-organization of Lab(émol)**, *ENS*
Weekly seminar of former students of the ENS
- 2012 – 2013 **Co-organization of GTT**, *LPMA, UPMC*
Weekly seminar of PhD students of LPMA
- 2011 – 2012 **Co-organization of the seminar of Probability students of the ENS**
Weekly seminar of second year probability students of the ENS

Participation to research grants

- 2022– **GDR Branchement**, *Coordinator: Pascal Maillard*
French-wide network of of around 150 researchers with interest in the study of branching models.
- 2017–2020 **ANR MALIN**, *Coordinator: Pierre Tares*
- 2011–2015 **ANR MEMEMO2**, *Coordinator: Fabienne Castell*

Received grants and research projects

- 2022 **Chercheur Simons-CRM**, *CRM, Université de Montréal, Montréal, Canada*

- 2019–2021 **PICS CNRS (PRC Franco-Russe)**, *Infinite-bin models*, French PI
- 2019 **PEPS CNRS Jeune chercheur**, *Branching Lévy process*
- 2018 **PEPS CNRS Jeune chercheur**, *Growth-fragmentation process*

Acts of scientific popularization

- 2018, 2022 **Déclics**, *Cercle FSER*, Saint-Denis
- Sept. 2017 **Savantes Banlieue**, (*Science Fair*), Villetaneuse
- 2013 – 2016 **Fête des Sciences**, (*Science Fair*), Paris
- 2012 – 2015 **Salon Culture et Jeux Mathématiques**, (*Science Fair*), Paris

Publications and preprints

Research themes

- **Branching Markov processes:** branching random walk, branching Brownian motion and branching diffusions, branching Lévy processes.
- **Interacting branching processes:** branching random walks with selection, in time-inhomogeneous or random environment, or multitype versions.
- **Application of branching processes:** directed Erdős-Rényi graphs, infinite bin model, pulmonary pathologies.
- **Tree-valued processes:** Derrida-Retaux model, frozen percolation on trees, fixed point of the smoothing transform.
- **Humanoid robotics:** trajectory of linear inverted pendulum, stochastic control of a system

Prépublications

- Dec 2023 **Last passage percolation and limit theorems in Barak-Erdős directed random graphs and related models**, *Sergey Foss, Takis Konstantopoulos, Bastien Mallein and Sanjay Ramassamy*, arXiv:2312.02884
- Dec 2023 **Fragmentation processes and the convex hull of the Brownian motion in a disk**, *Bénédicte Haas and Bastien Mallein*, arXiv:2312.01952
- Oct 2023 **Reinforced Galton-Watson processes II: Large time behaviors**, *Jean Bertoin and Bastien Mallein*, arXiv:2310.19030
- Juin 2023 **Reinforced Galton-Watson processes I: Malthusian exponents**, *Jean Bertoin and Bastien Mallein*, arXiv:2306.02476
- Mai 2023 **KPP traveling waves in the half-space**, *Julien Berestycki, Cole Graham, Yujin H. Kim and Bastien Mallein*, arXiv:2305.17057
- Oct 2019 **Tight estimates of exit and containment probabilities for nonlinear stochastic systems**, *Quang-Cuong Pham, Bastien Mallein and Jean-Jacques Slotine*, arXiv:1910.03724

Publications

- 2023 **The extremal point process of branching Brownian motion in \mathbb{R}^d** , *Julien Berestycki, Yujin H. Kim, Eyal Lubetzky, Bastien Mallein and Ofer Zeitouni*, *Ann. Probab.*, à paraître.
- 2023 **Branching Brownian motion conditioned on small maximum.**, *Xinxin Chen, Hui He and Bastien Mallein*, *Alea Lat.-Am. J. Probab. Stat.* 20, no 2, 901–940.
- 2023 **Estimation of the last passage percolation constant in a charged complete directed acyclic graph via perfect simulation**, *Sergey Foss, Takis Konstantopoulos, Bastien Mallein and Sanjay Ramassamy*, *Alea Lat.-Am. J. Probab. Stat.* 20, no 1, 547–560.
- 2023 **A necessary and sufficient condition for the convergence of the derivative martingale in a branching Lévy process**, *Bastien Mallein and Quan Shi*, *Bernoulli* 29, No. 1, 597-624.

- 2022 **A simple method to find all solutions to the functional equation of the smoothing transform**, *Gerold Alsmeyer and Bastien Mallein*, *J. Theor. Probab.* 35, No. 4, 2569-2599.
- 2022 **A simple backward construction of branching Brownian motion with large displacement and applications**, *Julien Berestycki, Éric Brunet, Aser Cortines and Bastien Mallein*, *Ann. Inst. Henri Poincaré, Probab. Stat.* 58, No. 4, 2094-2113.
- 2022 **On the length of the shortest path in a sparse Barak-Erdős graph**, *Bastien Mallein and Pavel Tesemnikov*, *Stat. Probab. Lett.* 190, Article ID 109634, 5 p.
- 2022 **A tractable non-adaptative group testing method for non-binary measurements**, *Emilien Joly and Bastien Mallein*, *ESAIM, Probab. Stat.* 26, 283-303.
- 2022 **Total number of births on the negative half-line of the binary branching Brownian motion in the boundary case.**, *Xinxin Chen and Bastien Mallein*, *Electron. Commun. Probab.* 27, Paper No. 7, 11 p.
- 2022 **Late levels of nested occupancy scheme in random environment**, *Alexander Iksanov and Bastien Mallein*, *Stoch. Models* 38, No. 1, 130-166.
- 2021 **On the branching convolution equation $\mathcal{E} = \mathcal{Z} \otimes \mathcal{E}$** , *Pascal Maillard and Bastien Mallein*, *Electron. Commun. Probab.* 26, no 59, 12 pp.
- 2021 **Barak-Erdős graphs and the infinite-bin model**, *Bastien Mallein and Sanjay Ramassamy*, *Ann. Inst. Henri Poincaré, Probab. Stat.* 57, No. 4, 1940-1967.
- 2021 **Derivative martingale of the branching Brownian motion in dimension $d \geq 1$** , *Roman Stasiński, Julien Berestycki and Bastien Mallein*, *Ann. Inst. Henri Poincaré, Probab. Stat.* 57, No. 3, 1786-1810.
- 2021 **Anomalous spreading in reducible multitype branching Brownian motion**, *Mohamed Ali Belloum and Bastien Mallein*, *Electron. J. Probab.* 26, no 61, 1-39.
- 2021 **Group testing as a strategy for the epidemiologic monitoring of COVID-19**, *Vincent Brault, Bastien Mallein and Jean-François Rupprecht*, *PLOS Comput. Biol.*, 17, no 3
- 2021 **Barak-Erdős graphs and the infinite-bin model**, *Bastien Mallein and Sanjay Ramassamy*, *Ann. Inst. Henri Poincaré Probab. Stat.*, a paraître
- 2021 **Derivative martingale of the branching Brownian motion in dimension $d \geq 1$** , *Roman Stasiński, Julien Berestycki and Bastien Mallein*, *Ann. Inst. Henri Poincaré Probab. Stat.*, à paraître
- 2021 **On the derivative martingale in a branching random walk**, *Dariusz Buraczewski, Alexander Iksanov and Bastien Mallein*, *Ann. Probab.*, 49, no 3, 1164-1204
- 2020 **Capturability-based Pattern Generation for Walking with Variable Height**, *Stéphane Caron, Adrien Escande, Leonardo Lanari and Bastien Mallein*, *IEEE Transactions on Robotics*, 36, no 2, 517-536
- 2020 **An exactly solvable continuous time Derrida-Retaux model**, *Yueyun Hu, Bastien Mallein and Michel Pain*, *Communications in Mathematical Physics*, 375, no 1, 605-651
- 2019 **Coalescences in Continuous-State Branching Processes**, *Clément Foucart, Chunhua Ma and Bastien Mallein*, *Electronic Journal of Probability*, 24, no 103, 1-52
- 2019 **Analyticity of the growth rate of the longest path in Barak-Erdős graphs**, *Bastien Mallein and Sanjay Ramassamy*, *Bernoulli*, 25, no 4B, 3479-3495
- 2019 **Maximal displacement of a supercritical branching random walk in a time-inhomogeneous random environment**, *Bastien Mallein and Piotr Miłoś*, *Stochastic Processes and their applications*, 129, no 9, 3239-3260
- 2019 **On the trajectory of an individual chosen according to supercritical Gibbs measure in the branching random walk**, *Xinxin Chen, Thomas Madaule and Bastien Mallein*, 125, no 10, 3821-3858

- 2019 **Infinitely ramified point measures and branching Lévy processes**, *Jean Bertoin and Bastien Mallein*, *Annals of Probability*, 47, no 3, 1619–1652
- 2019 **Necessary and sufficient conditions for the convergence of the consistent maximal displacement of the branching random walk**, *Bastien Mallein*, *Brazilian Journal of Probability and Mathematical Statistics*, 33, no 2, 356–373
- 2019 **A result on power moments of Lévy-type perpetuities and its application to the L_p -convergence of Biggins' martingales in branching Lévy processes**, *Alexander Iksanov and Bastien mallein*, *Alea Latin-American Journal on Probability and Statistics*, 15, no 2, 315–331
- 2018 **Branching-stable point measures and processes**, *Jean Bertoin, Aser Cortines and Bastien Mallein*, *Advances in Applied Probability*, 50, no 4, 1294–1314
- 2018 **The genealogy of an exactly solvable Ornstein-Uhlenbeck type branching process with selection**, *Aser Cortines and Bastien Mallein*, *Electronic Communications in Probability*, 23, no 98, 1–13
- 2018 **Biggins' Martingale Convergence for Branching Lévy Processes**, *Jean Bertoin and Bastien Mallein*, *Electronic Communications in Probability*, 23, no 83, 1–12
- 2018 **Brownian motion and Random Walk above Quenched Random Wall**, *Bastien Mallein and Piotr Miłoś*, *Annales de l'Institut Henri Poincaré B : Probabilités and Statistiques*, 54, no 4, 1877–1916
- 2018 **Genealogy of the extremal process of the branching random walk**, *Bastien Mallein*, *ALEA*, 15, no 39, 1065–1087
- 2018 **Balance control using both ZMP and COM height variations: A convex boundedness approach**, *Stéphane Caron and Bastien Mallein*, *ICRA 2018, Brisbane, Australie, May 2018*
- 2018 **Branching random walk with trapping zone**, *Romain Biard, Landy Rabehasaina and Bastien Mallein*, *Stochastic processes and their applications*, 128, 2341–2366
- 2017 **Second order behavior of the block counting process of beta coalescents**, *Yier Lin and Bastien Mallein*, *Electronic Journal of Probability*, 22, no 61, 1–8
- 2017 **A N -branching random walk with random selection**, *Aser Cortines and Bastien Mallein*, *Alea Latin-American Journal on Probability and Mathematical Statistics*, 14, no 1, 117–137
- 2017 **N -branching random walk with α -stable spine**, *Bastien Mallein*, *Theory of Probability and its Applications*, 62, no 2, 295–318
- 2017 **Branching random walk with selection at critical rate**, *Bastien Mallein*, *Bernoulli*, 23, no 3, 1784–1821
- 2015 **Maximal displacement of a d -dimensional branching Brownian motion**, *Bastien Mallein*, *Electronic Communications in Probability*, 20, no. 76, 1–12
- 2015 **Maximal displacement of a branching random walk in time-inhomogeneous environment**, *Bastien Mallein*, *Stochastic processes and their applications*, 125, no. 10, 3958–4019
- 2015 **Maximal displacement of a branching random walk through interfaces**, *Bastien Mallein*, *Electronic Journal of Probability*, 20, no. 68, 1–40
- Mathematical popularization**
- 2016 **Asymptotic of the maximal displacement in a branching random walk**, *Graduate Journal of Mathematics*, 1, no 2, 92–104
- 2011 **Généalogie de populations : le coalescent de Kingman**, *CultureMath, Editeur : Eric Vandendriessche*, [link](#)
- 2010 **Urnes aléatoires, populations en équilibre et séries génératrices**, *CultureMath, Editeur : Eric Vandendriessche*, [link](#)

Participation to books

Jun 2016 **Exercices sur les temps locaux de semi-martingales continues et les excursions browniennes**, *Marc Yor et Bastien Mallein*, arXiv:1606.07118, hal-01336238v1
Livre d'exercices basé sur le cours de M2 éponyme de Marc Yor.

Reports (last 5 years)

Writing reports for Acta Applicandae Mathematicae, Annals of Applied Probability, ALEA–Latin American Journal of Probability and Mathematical Statistics (x2), Annales de l'Institut Henri Poincaré (B) Probabilités et Statistiques (x5), Bernoulli (x2), Electronic Communications in Probability (x2), Electronic Journal of Probability (x6), Markov Processes and Related Fields, Royal Society Open Science (x1), Statistics and Probability Letters (x2), Stochastic Processes and their Applications (x4)

Writing reviews for MathSciNet (x13), zbMath (x6), Modcov19 (x12).