

Curriculum Vitae of Barbara DEMBIN

PLACE AND DATE OF BIRTH: France — 2 November 1993
ADDRESS: Université Paris Diderot, Bâtiment Sophie Germain,
8 Place Aurélie Nemours, 75013 Paris, France
EMAIL: bdembin@lpsm.paris

EDUCATION

2017 - 2020 Ph.D. in Mathematics, **LPSM, Université Paris Diderot**, France
Thesis: “Maximal flow and minimal cutset in first passage percolation”
— Advisor: Prof. Marie THÉRET

2016 - 2017 Master in Probability, **Université Paris Sud**, France
— Final Grade: 16,76/20

2013 - 2017 Bachelor and Master of Science **École Polytechnique**, France
— Specialized in Probability and Statistics

VISITING INTERNSHIPS

MAR 2018 - SEP 2018	Visiting Raphaël CERF at École Normale Supérieure , France Work on first passage percolation using methods developed for the study of the Wulff crystal in Ising model
APR 2017 - JUL 2017	Master thesis under the supervision of Marie THÉRET at Université Paris Diderot , France Work on the regularity of the time constant in Bernoulli percolation
MAR 2016 - JUL 2016	Visiting R. SRIKANT at University of Illinois Urbana-Champaign , USA Theoretic improvement of an existing algorithm. The aim was to cluster users based upon pairwise comparisons of items users have made. Numerical simulation of the model using Python.

RESEARCH INTEREST

THEME: Probability, statistical mechanics.
KEYWORDS: Bernoulli bond percolation (time constant, isoperimetry), First passage percolation (maximal flow, minimal cutset)
PROJECT: Member of the project ANR PPPP (Percolation et Percolation de Premier Passage)

PREPRINTS

- [1] Dembin B. “Regularity of the time constant for a supercritical Bernoulli percolation”, available on <https://arxiv.org/abs/1803.03141>, 27 pages, 2018.
- [2] Dembin B., Théret M. “Size of a minimal cutset in supercritical first passage percolation”, available on <https://arxiv.org/abs/1803.04272>, 26 pages, 2018.
- [3] Dembin B. “The maximal flow from a compact convex subset to infinity in first passage percolation on \mathbb{Z}^d ”, available on <https://arxiv.org/abs/1807.02316>, 28 pages, 2018.
- [4] Dembin B. “Existence of the anchored isoperimetric profile in supercritical bond percolation in dimension two and higher”, available on <https://arxiv.org/abs/1810.11239>, 50 pages, 2018.

- [5] Dembin B. "Anchored isoperimetric profile of the infinite cluster in supercritical bond percolation is Lipschitz continuous", available on <https://arxiv.org/abs/1901.00367>, 12 pages, 2018.

CONFERENCES, WORKSHOPS AND SEMINARS

- JAN 2018 XX^e Journées Louis Antoine (Rennes, France)
 JAN 2018 Rennes Probability seminar (France)
 Talk : Maximal flow from a compact convex set to infinity in first passage percolation
 JAN 2018 Young Statisticians and Probabilists (IHP, France)
 Talk : Anchored isoperimetric constant of the infinite cluster in supercritical Bernoulli percolation
 DEC 2018 État de la recherche "Mécanique statistique" (IHP, France)
 AUG 2018 Journées MAS, Processus et échantillonnage (Dijon, France)
 Talk : Maximal flow from a compact convex set to infinity in first passage percolation
 JUL 2018 48th Probability summer school Saint-Flour (France)
 Talk : Maximal flow from a compact convex set to infinity in first passage percolation
 JUN 2018 Universality in Probability Theory and Statistical Mechanics (Ischia, Italy)
 FEB 2018 Probability Seminar of PhD student of laboratory LPSM (France)
 Talk : Minimal size of a cutset in supercritical first passage percolation
 JUL 2017 Spectral properties of large random objects (IHES, France)
 MAR 2017 Sharp threshold phenomena in Statistical Physics (IHES, France)

TEACHING

Université Paris Diderot, Paris, France

- 2017-2019 Tutorials of the course "Probability" L3 MIASHS
 2018-2019 Tutorials of the course "Probability" L2 Maths- Info
 2017-2018 Oral examiner of the course "Linear Algebra and Analysis" L2 Maths- Info

Lycée Louis Pasteur, Neuilly sur seine, France

- 2014-2015 Oral examiner in Mathematics for preparatory class (MPSI)
 2016-2017 Oral examiner in Mathematics for preparatory class (MPSI)

Association Tremplin, Paris, France

- 2014-2015 Organization of advanced sessions in Mathematics and Physic for students from inner-city high school

Lycée le Corbusier, Aubervilliers, France

- OCT 2013- MAR 2014 Six-months internship as a tutor for high school and undergraduate students.

LANGUAGES

- FRENCH: Mother tongue
 ENGLISH: Fluent
 MANDARIN: Scholar knowledge, HSK 3 in preparation, attended a two-week intensive course of Mandarin in BLCU (Beijing) in 2015
 HEBREW: Scholar knowledge