

Grégory MIERMONT

Professeur (PR1)

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Born 16 July 1979 in Paris

French citizen

Married, two children

Academic Vita

2008	Habilitation à Diriger des Recherches: <i>Random trees, maps, fragmentation and coalescence processes</i> , Université Paris-Sud 11, defended 28-11-2008.
2000-2003	PhD in Mathematics: <i>Stochastic coalescence and fragmentation, random trees and Lévy processes</i> , Université Pierre et Marie Curie, under the supervision of Jean Bertoin, defended 16-12-2003
2001-2002	Visiting Student at the Department of Statistics, University of California, Berkeley, under the supervision of David Aldous and Jim Pitman
1998-2002	Student at the École Normale Supérieure , Paris

Positions held

2012–	Professor at École Normale Supérieure de Lyon, Unité de Mathématiques Pures et Appliquées.
2009–2012	Professor at Université Paris-Sud 11, Laboratoire de Mathématiques d'Orsay (on leave in 2011–2012, visiting University of British Columbia, Vancouver).
2004–2009	CNRS Researcher , Département de Mathématiques, Université de Paris-Sud and DMA, École Normale Supérieure

Current duties

- Chief Editor, *Annales de l'Institut Henri Poincaré (B)* (with C. Sabot)
- Head of Mathematics Teaching Department at ENS Lyon since July 2016.
- Member of the executive committee of Labex MILyon

Past editorial duties

- 2012–2016 Chief Editor, *Cours Spécialisés*, Société Mathématique de France (Associate Editor 2006–2012)
- 2010–2016 Associate Editor, *Probability Theory and Related Fields*

Conference organization

- Co-organizer of the thematic term at the Centre Émile Borel (Institut Henri Poincaré, Paris) *Physique statistique, combinatoire et probabilités: approches du continu par le discret*, Fall 2009. <http://ipht.cea.fr/statcomb2009/>
- Co-organizer of the CIRM workshop *Arbres et cartes aléatoires: aspects probabilistes et combinatoires*, June 6–10 2016.
- Co-organizer of the MFO meeting *Stochastic Analysis: Geometry of random processes*, May 28 – June 3rd, 2017

Selected invited conferences and lectures

- IMS Medallion lecture, *39th Congress on Stochastic Processes and Applications*, Oxford, July 2015.
- Rothschild invited Professor, Isaac Newton Institute program on *Random geometry*, January 2015.
- *Saint-Flour Summer School*, July 2014
- *Barrett lectures*, University of Tennessee, Knoxville, June 2014.
- *Emerging Trends in Probability Theory*, Max Planck Institute, Leipzig, Germany, 2013.
- Invited lecturer for the *PIMS-Mprime Summer School in Probability*, UBC, Vancouver, 2012
- *10th Northeast Probability Seminar*, CUNY, New York, 2011
- *Stochastics Meeting Lunteren*, the Netherlands, 2010.
- Plenary conference, *34th Congress on Stochastic Processes and Applications*, Osaka, Japan, 2010.
- Invited lecturer for the *Clay Mathematical Institute Summer School, Probability and Statistical Physics in Two and more Dimensions*, Buzios, Brazil. Joint set of lectures with J.-F. Le Gall, 2010
- *Fractal Geometry and Stochastics 4*, Greifswald, Germany, 2008

PhD Students

- Jérémie Bettinelli, *Scaling Limits of Arbitrary Genus Random Maps*, defended 26/10/2011.

- Robin Stephenson (co-advisor B. Haas), *Various aspects of random trees: from fragmentation trees to infinite planar maps*, defended 27/06/2014.
- Daphné Dieuleveut (co-advisor Y. Le Jan), *Cutting and rebuilding random trees and maps*, defended 10/12/2015.
- Loïc Richier (defense expected in 2017)
- Ariane Carrance (co-advisor F. Vignes-Tourneret) (defense expected in 2018)

Awards

- 2007 prize of the Fondation des Sciences Mathématiques de Paris
- Rollo Davidson prize 2009
- 2012 Prize of the European Mathematical Society
- Junior Member of Institut universitaire de France 2013–2018
- Doeblin Prize 2014 of the Bernoulli Society/Springer
- 2015 Scientific Grant of the Fondation Simone et Cino Del Duca
- Prix Jaffé 2016 de l'Académie des Sciences

Publications

Research interests: Probability theory, more specifically random trees, large planar maps and other random combinatorial structures, scaling limits of such structures, fragmentation and coalescence stochastic processes.

Articles in international journals

1. G. Miermont, Ordered additive coalescent and fragmentations associated to Lévy processes with no positive jumps, *Electron. J. Probab.*, **6** (2001), pp. no. 14, 33 pp. (electronic).
2. G. Miermont and J. Schweinsberg, Self-similar fragmentations and stable subordinators, in *Séminaire de Probabilités XXXVII*, vol. 1832 of Lecture Notes in Math., Springer, Berlin, 2003, pp. 333–359.
3. G. Miermont, Self-similar fragmentations derived from the stable tree. I. Splitting at heights, *Probab. Theory Related Fields*, **127** (2003), pp. 423–454.
4. D. Aldous, G. Miermont, and J. Pitman, Brownian bridge asymptotics for random p-mappings, *Electron. J. Probab.*, **9** (2004), pp. no. 3, 37–56 (electronic).
5. B. Haas and G. Miermont, The genealogy of self-similar fragmentations with negative index as a continuum random tree, *Electron. J. Probab.*, **9** (2004), pp. no. 4, 57–97 (electronic).
6. D. Aldous, G. Miermont, and J. Pitman, The exploration process of inhomogeneous continuum random trees, and an extension of Jeulin’s local time identity, *Probab. Theory Related Fields*, **129** (2004), pp. 182–218.
7. G. Miermont, Self-similar fragmentations derived from the stable tree. II. Splitting at nodes, *Probab. Theory Related Fields*, **131** (2005), pp. 341–375.
8. D. Aldous, G. Miermont, and J. Pitman, Weak convergence of random p-mappings and the exploration process of inhomogeneous continuum random trees, *Probab. Theory Related Fields*, **133** (2005), pp. 1–17.
9. J. Bertoin and G. Miermont, Asymptotics in Knuth’s parking problem for caravans, *Random Structures Algorithms* **29** (2006), pp. 38–55.
10. J.-F. Marckert and G. Miermont, Invariance principles for random bipartite planar maps, *Ann. Probab.* **35**, n.5, 1642–1705 (2007)
11. G. Miermont, M. Weill, Radius and profile of random planar maps with faces of arbitrary degrees, *Electron. J. Probab.* **13**, 79–106 (2008)
12. G. Miermont, On the sphericity of scaling limits of random planar quadrangulations, *Elect. Comm. Probab.* **13**, 248–257 (2008).
13. B. Haas, G. Miermont, M. Winkel, and J. Pitman, Continuum tree asymptotics of discrete fragmentations and applications to phylogenetic models, *Ann. Probab.* **36**, 1790–1837 (2008)
14. G. Miermont, Invariance principles for spatial multitype Galton-Watson trees, *Ann. Inst. H. Poincaré (B)* **44**, 1128–1161 (2008).
15. G. Miermont, Tessellations of random maps of arbitrary genus, *Ann. Scient. Éc. Norm. Supér.* **42**, fascicule 5, 725–781 (2009).

16. J.-F. Le Gall and G. Miermont, Scaling limits of random planar maps with large faces. *Ann. Probab.* **39**, n.1, 1–69 (2011).
17. J.-F. Marckert and G. Miermont, The CRT is the scaling limit of unordered binary trees. *Random Structures Algorithms* **38**, n.4, 467–501 (2011).
18. B. Haas and G. Miermont, Self-similar scaling limits of non-increasing Markov chains, *Bernoulli* **17**(4), 1217–1247 (2011).
19. B. Haas and G. Miermont, Scaling limits of Markov branching trees, with applications to Galton-Watson and random unordered trees. *Ann. Probab.* **40**(6), 2589–2666 (2012).
20. N. Curien, L. Ménard and G. Miermont, A view from infinity of the Uniform Infinite Planar Quadrangulation. *ALEA, Lat. Am. J. Probab. Math. Stat.* **10** (1), 45–88 (2013).
21. N. Curien, J.-F. Le Gall and G. Miermont. The Brownian Cactus I. Scaling limits of discrete cactuses *Ann. Inst. Henri Poincaré (B)* **49** (2), 340–373 (2013).
22. G. Miermont, The Brownian map is the scaling limit of uniform random plane quadrangulations. *Acta Math.* **210**, 319–401 (2013)
23. J. Bertoin and G. Miermont, The cut-tree of large Galton-Watson trees and the Brownian CRT. *Ann. Appl. Probab.* **23**(4) (4), 1469–1493 (2013).
24. J. Bettinelli, E. Jacob and G. Miermont, The scaling limit of uniform random plane maps, *via* the Ambjørn-Budd bijection. *Electron. J. Probab.* **19**, paper 73, 1–16 (2014)
25. N. Curien and G. Miermont. Uniform infinite planar quadrangulations with a boundary. *Random Structures Algorithms* **47** (1), 30–58 (2015)
26. E. Baur, G. Miermont and L. Richier, Geodesic rays in the uniform infinite half-planar quadrangulation return to the boundary *ALEA Lat. Am. J. Probab. Math. Stat.* **13** (2), 1123–1149 (2016)
27. J. Bettinelli and G. Miermont, Compact Brownian surfaces I. Brownian disks (2015). *Probability Theory and Related Fields* **167** (3), 555–614 (2017)

Book chapters, lecture notes

1. J. Berestycki, J. Bertoin, B. Haas and G. Miermont, Quelques aspects fractals des fragmentations aéatoires, chapitre du volume *Quelques interactions entre analyse, probabilités et fractals*, Panoramas et Synthèses **32**, Société Mathématique de France (2011)
2. J.-F. Le Gall and G. Miermont, Scaling limits of random trees and planar maps, Lecture notes for the Clay Mathematical Institute Summer School, Buzios, July 11 – August 7, 2010.

Invited articles in international conferences

1. G. Miermont, An invariance principle for random planar maps, (2006), DMTCS Proc. **AG**, 4th Colloquium on Mathematics and Computer Sciences, Nancy.
2. G. Miermont, Random maps and their scaling limits, *in* C. Bandt, P. Mörters, M. Zähle (Eds.), Proceedings of the conference Fractal Geometry and Stochastics IV, Greifswald (2008). Progress in Probability, Vol. 61, Birkhäuser.

3. J.-F. Le Gall and G. Miermont, On the scaling limit of random planar maps with large faces. In XVIth International Congress on Mathematical Physics, 470–474, World Sci. Publ., Hackensack, NJ, 2010.
4. G. Miermont, Random maps and continuum random 2-dimensional geometries (2012). 6th European Congress of Mathematics, Kraków, 2–7 July, 2012, pp. 659–673, EMS Publishing House, 2014.

Preprints

1. L. Addario-Berry, N. Broutin, C. Goldschmidt and G. Miermont, The scaling limit of the minimum spanning tree of the complete graph. arXiv:1301.1664
2. M. Heydenreich, R. van der Hofstad, T. Hulshof and G. Miermont, Backbone scaling limit of the high-dimensional IIC. arXiv:1301.3486
3. O. Angel, B. Kolesnik and G. Miermont, On the stability of geodesics in the Brownian map (2015). arXiv:1502.04576
4. X. Chen, G. Miermont, Long Brownian bridges in hyperbolic spaces converge to Brownian trees (2016). arXiv:1609.01907
5. O. Bernardi, N. Curien and G. Miermont, A Boltzmann approach to percolation on random triangulations (2017). hal-01517947