

Mathieu Merle

born on May 11th 1979
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Curriculum vitæ

- **PIMS postdoctoral fellow** (since April 2007)
- **Postdoc at University of British Columbia** (since August 2006).
- **PhD thesis supervised by Jean-François Le Gall** (defense July 19th 2006), Ecole Normale Supérieure and Université Paris VI, mention : Très Honorable
Title : *Asymptotic results for super-Brownian motion and the voter model.*
Jury : R. ABRAHAM (referee), J. BERTOIN, R. DURRETT, J.-F. LE GALL (supervisor), E. PERKINS (referee), W. WERNER (president).

This PhD thesis first contains new limit theorems for the local times and additive functionals of super-Brownian motion. We then establish asymptotic results for hitting probabilities of the voter model, using its relations with super-Brownian motion.

- **MMFAI at Ecole Normale Supérieure and Université Paris VI** — a three year programm, leading to a Masters in Probability, Statistics and Applications (septembre 1999 — june 2002), mention : Bien, Masters rank : 1.
- **Admission at Ecole Normale Supérieure** July 1999, national rank 16.

Publications and preprints

Accepted for publication

- Local behaviour of local times of super-Brownian motion, *Ann. Inst. Henri Poincaré.* 42 (2006), pp 491-520
- On the occupation measure of super-Brownian motion, with J.-F. LE GALL, *Electronic Comm. Probab.* 11 (2006), pp. 252-265.
- Hitting probabilities of a distant point for the voter model, to appear in *Annals of Probability*, http://www.imstat.org/aop/future_papers.htm.

Submitted

- A random walk on \mathbb{Z} with drift driven by its occupation time at zero, in collaboration with I. BEN-ARI, A. ROITERSHTEIN, soumis a *Stoc. Proc. and Appl.*, <http://arxiv.org/abs/0711.4871>

- Scaling limit of the invasion percolation cluster on a regular tree, in collaboration with O. ANGEL, J. GOODMAN,
<http://www.math.ubc.ca/~merle/research.html>

Other research activities

Talks

- Local times of super-Brownian motion and their local behavior : Saint-Flour July 2004.
- Hitting probability of a far point for the voter model started with a single one, first results : UBC June 2005, Cornell June 2005.
- Hitting probability of a far point for the voter model started with a single one : ENS July 2006, UBC September 2006.
- Introduction to the Brownian snake : UBC October 2006.
- Voter, Lotka-Volterra models and super-Brownian motion : University of Toronto October 2007, Iowa State University November 2007.
- Scaling limit of the invasion percolation cluster on a regular tree : Iowa State University November 2007, UBC January 2008.

Summer schools attended

- Saint-Flour : July 2003 and July 2004.
- UBC : June 2004 and June 2005.
- Cornell : July 2005.
- Park city : July 2007.

Report

on an article submitted to the review Electronic Journal in Probability.

Organisation

of the probability seminar, UBC, 2007-2008.

Organisation of a reading group on determinantal processes, UBC, 2007.

Teaching

- Teaching Assistant at University Paris VI, (September 2003 — August 2006),
course : Functions (1st year and 2nd year)
- Courses taught at UBC (since September 2006) :
 - Matrix Algebra MATH 221 (2nd year course),
 - Probability with physical applications MATH 318 (3rd year course).

Languages

- Franch : mother tongue.
- English : fluent.
- German : fluent.