

# Michael Damron

Princeton University  
Department of Mathematics  
Fine Hall, Washington Rd.  
Princeton, NJ 08544

Phone: (347) 419-0763  
Email: [mdamron@princeton.edu](mailto:mdamron@princeton.edu)  
Homepage: <http://www.math.princeton.edu/~mdamron>

## Education

B.S.E. Computer Engineering, B.S. Mathematics, University of Florida, 2004.

Ph.D. Mathematics, New York University, 2009.

Advisors: Charles Newman and Daniel Stein

Thesis title: 2d invasion percolation and a rill erosion model

## Employment

Princeton University

NSF Postdoctoral Research Fellow, 2009-2012

Instructor, 2010-2012

New York University

Research/Teaching Assistant, 2005-2009.

## Awards and honors

NSF Postdoctoral Research Fellowship, 2009-2012

Wilhelm Magnus memorial prize, NYU, 2009

for significant contributions to the mathematical sciences

Outstanding teaching assistant award, NYU, 2009, university-wide award

MacCracken Fellowship, NYU, 2005-2009

## Recent talks given

### *Invited conference talks*

Limit shapes outside the percolation cone, Lecture

Johns Hopkins University, Applied math colloquium (Oct. 2011)

Cornell probability summer school (Jul. 2011)

Non-polygonal limit shapes in first-passage percolation, Lecture

Conference on probability theory (NYU Abu Dhabi, Jan. 2011)

Ground states of the 2d EA model, 3-part mini course

Statistical mechanics on random structures (Banff, Nov. 2009)

Order, disorder and double disorder (EURANDOM, Aug. 2009)

2d invasion percolation, Lecture

Scaling limits in statistical mechanics models (Oberwolfach, Aug. 2009)

Workshop on percolation and related topics (Cornell University, Apr. 2009)

### *Invited seminar talks*

A simplified proof of the relation between scaling exponents in first passage percolation, Lecture

Courant institute probability seminar (NYU, Dec. 2011)

Mathematical physics seminar (Princeton and IAS, Nov. 2011)

Probability seminar (University of Chicago, Nov. 2011)

Probability seminar (Université de Montreal, Nov. 2011)

Analysis and probability seminar (University of Connecticut, Sep. 2011)

Probability seminar (Duke University, Sep. 2011)

Limit shapes outside the percolation cone, Lecture

Probability and discrete mathematics seminar (University of Pennsylvania, Oct. 2011)

Non-polygonal limit shapes in first-passage percolation, Lecture

Cornell probability seminar (Mar. 2011)

Ground states of the 2d EA model, Lecture

Analysis and mathematical physics seminar (IAS, Nov. 2010)

2d invasion percolation

Cornell probability seminar (Feb. 2009)

Courant institute probability seminar (NYU, Oct. 2008)

Columbia probability seminar (Sep. 2008)

## Publications

### *Preprints/In progress*

(with A. Auffinger) The universal scaling relation for polymers in a random environment and related models. *In preparation.*

(with L.-P. Arguin) On the number of ground states for the Edwards-Anderson spin glass model. *In preparation.*

(with A. Auffinger) A simplified proof of the relation between scaling exponents in first-passage percolation. *arXiv: 1109.0523*

(with A. Auffinger) Limit shapes outside the percolation cone. *arXiv: 1105.4172*

### Journal publications

(with L.-P. Arguin) Short-range spin glasses and Random Overlap Structures. *J. Stat. Phys.* **143** (2011), 226-250.

(with M. Hochman) Examples of non-polygonal limit shapes in i.i.d. first-passage percolation and infinite coexistence in spatial growth models. *To appear in Ann. Appl. Probab.*

(with A. Sapozhnikov) Limit theorems for 2d invasion percolation. *To appear in Ann. Probab.*

(with L.-P. Arguin, C. Newman and D. Stein) Uniqueness of ground states for short-range spin glasses in the half-plane. *Commun. Math. Phys.* **300** (2010), 641-657.

(with A. Sapozhnikov) Outlets of 2d invasion percolation and multiple-armed incipient infinite clusters. *Probab. Theory Relat. Fields* **150** (2011), 257-294.

(with A. Sapozhnikov and B. Vágvölgyi) Relations between invasion percolation and critical percolation in two dimensions. *Ann. Probab.* **37** (2009), 2297-2331.

(with C.L. Winter) A non-Markovian model of rill erosion. *Netw. Heterog. Media* **4** (2009), 731-753.

### Editorial service

Refereed journal articles for:

- Communications in Mathematical Physics
- Communications on Pure and Applied Mathematics
- Annals of Probability
- Statistics and Probability Letters

Reviewed articles for Mathscinet

### Undergraduate/High school service

REU: A numerical approach to two and three dimensional invasion percolation

Scott Yang, NYU, Summer 2009. (Currently a Ph.D. student at UT Austin.)

REU: SLE and the disordered ferromagnet

Michael Khanarian, NYU, Summer 2011.

Initial instructor for the Mathematics for Life program.

Introduction to proof-based math for minority and female high school students, NYU, Summer 2005.

## Courses Taught

Non-math majors: Calculus (NYU), Discrete Math (NYU)

Math majors: Analysis in a single variable (Princeton), Honors linear algebra (Princeton), Intro to Analysis (NYU)

Masters students: Intro to Analysis (NYU, TA)

## References

Charles Newman, Professor of Mathematics, NYU

Daniel Stein, Professor of Mathematics and Physics, NYU

Sourav Chatterjee, Professor of Mathematics, NYU

Vladas Sidoravicius, Professor of Mathematics, IMPA and Leiden University