

# Curriculum Vitae

Asaf Nachmias — April 3rd, 2014

Assistant Professor,

Department of Mathematics, University of British Columbia.

Contact: asafnach@math.ubc.ca or 1-604-250-8851

Webpage: <http://math.ubc.ca/~asafnach/>

**Research interests:** Probability theory and statistical physics.

## Education and previous positions

- 2000-2003, B.Sc. in mathematics and computer science (summa cum laude), Tel-Aviv university, Israel.
- 2003-2004, M.Sc. in mathematics, supervised by Prof. Michael Krivelevich, Tel-Aviv university, Israel.
- 2004-2008 Ph.D. in mathematics, supervised by Prof. Yuval Peres, university of California at Berkeley.
- Summer 2005, Research intern in the theory group of Microsoft research, Redmond, WA.
- 2008-2010 Postdoc in the theory group of Microsoft research, Redmond, WA.
- 2010-2011 Postdoc in the department of mathematics, Massachusetts Institute of Technology.
- 2011— present Asst. Prof. department of mathematics, University of British Columbia.

**Grants** NSERC discovery grant #418203 and NSF grant #DMS-1231505.

## Students

- 2011-2013 Hanna Cairns, M.Sc. (now math Ph.D. student in Cornell).
- 2012-2014 Hongliang Lu, M.Sc. student.
- 2013— present, Tom Hutchcroft, Ph.D. student.

## Publications (available online at my webpage)

- (1) *Colouring powers of cycles from random lists* (with M. Krivelevich), **European Journal of Combinatorics** 25, 961–968, 2004.
- (2) *Colouring complete bipartite graphs from random lists* (with M. Krivelevich), **Random Structures and Algorithms** 29, 4, 436–449, 2006.
- (3) *The critical random graph, with martingales* (with Y. Peres), **Israel Journal of Mathematics**, 176, 29–43, 2010.
- (4) *Component sizes of the random graph outside the scaling window* (with Y. Peres), **Latin American Journal of Prob. and Math. Stat. (ALEA)**, 3, 133–142, 2007.
- (5) *Mixing time power laws at criticality*, (with Y. Long and Y. Peres), **Proc. of the 48th IEEE FOCS**, 2007.

- (6) *Critical random graphs: diameter and mixing time* (with Y. Peres),  
**Annals of Probability**, 36, no. 4, 1267–1286, 2008.
- (7) *Testing the expansion of a graph* (with A. Shapira),  
**Information and Computation**, 208, no. 4, 309–314, 2010.
- (8) *Mean-field conditions for percolation on finite graphs*,  
**Geometric and Functional Analysis (GAFA)**, 19, 1171–1194, 2009.
- (9) *Critical percolation on random regular graphs* (with Y. Peres),  
**Random Structures and algorithms**, 36, no. 2, 111–148, 2010.
- (10) *The Alexander-Orbach conjecture holds in high dimensions* (with Gady Kozma),  
**Inventiones Mathematicae**, 178, no. 3, 635–654, 2009.
- (11) *Is the critical percolation probability local?* (with Itai Benjamini and Y. Peres),  
**Probability Theory and Related Fields**, 149, no. 1-2, 261–269, 2011.
- (12) *A note about critical percolation on finite graphs* (with Gady Kozma),  
**Journal of Theoretical Probability**, 24, no. 4, 1087–1096.
- (13) *Arm exponents in high dimensional percolation* (with Gady Kozma),  
**Journal of the American Mathematical Society (JAMS)**, 24, 375–409, 2011.
- (14) *The evolution of the cover time* (with Martin Barlow, Jian Ding and Yuval Peres),  
**Combinatorics, Probability and Computing**, 20, 331–345, 2011.
- (15) *Non-concentration of return times* (with Ori Gurel-Gurevich),  
**Annals of Probability**, 41, no. 2, 848–870, 2013.
- (16) *A power law of order 1/4 for critical mean-field Swendsen-Wang dynamics* (with Yun Long, Weiyang Ning and Yuval Peres),  
**Memoirs of the AMS**, to appear, 87 pages.
- (17) *Hypercube percolation* (with Remco van der Hofstad),  
**Journal of the European Mathematical Society**, to appear, 71 pages.
- (18) *Recurrence of planar graph limits* (with Ori Gurel-Gurevich),  
**Annals of Mathematics**, 177 no. 2, 761–781, 2013.
- (19) *Non-amenable Cayley graphs of high girth have  $p_c < p_u$  and mean-field exponents* (with Yuval Peres),  
**Electronic Journal of Probability**, 17, no. 57, 1–8, 2012.
- (20) *Rate of Convergence for Cardy’s Formula* (with Dana Mendelson and Sam Watson),  
**Communications in Mathematical Physics**, to appear, 31 pages.
- (21) *Unlacing the lace expansion: a survey to hypercube percolation* (with Remco van der Hofstad), **Metrika**, to appear, 19 pages.
- (22) *Electrical resistance of the low dimensional critical branching random walk* (with Antal Jaraí), **Communications in Mathematical Physics**, to appear, 44 pages.
- (23) *Boundaries of planar graphs, via circle packings* (with Omer Angel, Martin Barlow and Ori Gurel-Gurevich), **Annals of Probability**, to appear, 28 pages, <http://arxiv.org/abs/1311.3363>.

- (24) *Random walks on stochastic hyperbolic half planar triangulations* (with Omer Angel and Gourab Ray), **submitted**, 30 pages, <http://arxiv.org/abs/1408.4196>.

### **Selected lectures and courses**

- *Hypathie* seminar, Marseilles, October 2009.
- Mathematics Colloquium, UCLA, October 2009.
- “Above the critical dimension” conference, Paris, December 2009.
- IMS Meeting, Chalmers university, Sweden, August 2010.
- Probability seminar, New York university, March 2011.
- CMS Meeting, Montreal, December 2012.
- “Percolation in high dimensions” mini-course in Oberwolfach, May 2013.
- “Random walks on random fractals” course in PIMS summer school in probability, June 2014.

### **Conference organization**

- “Random networks”, Oberwolfach, May 19-24, 2013.
- “Recent trends in stochastic analysis”, University of British Columbia, July 22-26, 2013.
- PIMS summer school in probability, University of British Columbia, June 2-27, 2014.
- “Probability on Trees and Planar Graphs”, Banff International Research Station, September 14-19, 2014.