

## CURRICULUM VITAE

Amanda Redlich

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### EDUCATION

Ph.D. Mathematics, MIT, June 2010

Adviser: Peter Shor

B.A. Mathematics, University of Chicago, June 2005

Student, Budapest Semesters in Mathematics, Fall 2003

### POSITIONS HELD

Assistant professor, Department of Mathematics, Bowdoin College, July 2013 - present

Visiting assistant professor (sabbatical position), Tufts University, Sept. 2016-May 2017

Postdoctoral fellow, Network science and graph algorithms, Institute for Computational and Experimental Research in Mathematics, Brown University, February 2014-May 2014

Postdoctoral associate, Department of Mathematics, Rutgers University, September 2010 - May 2013

Research intern, Tata Research Development and Design Centre, Pune, India, Summer 2008

### RESEARCH INTERESTS

Combinatorics, theoretical computer science, probability.

### PUBLICATIONS

- Amanda Redlich: *A power-of-two-choices unbalanced allocation process*, SIAM J. Discrete Math, to appear.
- Robert DeMarco, Amanda Redlich: *Graph decomposition and parity*, J. Graph Theory 82 (4): 374386 (2016).
- J. Augustine, W. K. Moses Jr., A. Redlich, E. Upfal: *Ballanced allocation: Patience is not a virtue*, Proceedings of the Twenty-Seventh Annual ACM-SIAM Symposium on Discrete Algorithms, (2016) 655-671.
- Robert DeMarco, Jeffry Kahn, Amanda Redlich: *Modular statistics for subgraph counts in sparse random graphs*, Electronic J. of Combinatorics 22(1): P1.37 (2015).

- Shabnam Beheshti, Amanda Redlich: *Remarks on combinatorial aspects of the KP Equation*, Proceedings of the Second International Conference on Nonlinear and Modern Mathematical Physics, AIP Conf. Proc. 1562, 5 (2013).
- S. Patil, S. Roy, J. Augustine, A. Redlich, A. Deshpande, M. Gharote, S. Lodha, A. Mehrotra, H. Vin: *Minimizing Testing Overheads in Database Migration Lifecycle*. Proceedings of 16th International Conference on Management of Data (COMAD), 2010.
- Igor Pak, Amanda Redlich: *Long cycles in abc-permutations*. Functional Analysis and Other Mathematics 2(1): 87-92 (2008).
- David Eisenstat, Gary Gordon, Amanda Redlich: *Combinatorial properties of a rooted graph polynomial*. SIAM J. Discrete Math. 22(2): 776-785 (2008)
- D. Eisenstat, J. Feder, G. Francos, G. Gordon, A. Redlich: *Expected rank and randomness in rooted graphs*. Discrete Applied Mathematics 156(5): 746-756 (2008)

## SELECTED AWARDS

- National Science Foundation Mathematical Sciences Postdoctoral Research Fellowship  
September 2010-July 2013
- Graduate Student Appreciation Fellowship - MIT department-wide fellowship  
Spring 2009
- Akamai Presidential Fellowship - MIT-wide fellowship  
Fall 2005, Spring 2006

## SELECTED TALKS

- Topology et al. Seminar, Wesleyan University, Nov. 2016 - *Graph counting and combinatorial games: A logical connection*
- Special Session on Extremal and Probabilistic Combinatorics, AMS Fall Central Sectional Meeting, University of St. Thomas, Oct. 2016 - *The waiting game: Balanced allocation via random choices*
- MSCS Seminar, Macalester College, Oct. 2016 - *The best random choice*
- Special Session on New Developments in Graphs and Hypergraphs, AMS Fall Eastern Sectional Meeting, Bowdoin College, Sept. 2016 - *Strategic graph decompositions*
- SIAM Workshop on Network Science, Boston MA, July 2016 - *Designing exit frequency distance measures for biological networks*
- Randomized Structures and Algorithms, Carnegie Mellon University, July 2015 - *Power laws and the power of two choices*

- Colby-Bowdoin-Bates Math Colloquium, April 2015 - *There is method in madness: Increasing randomness to decrease randomness*
- ICERM, Providence RI, March 2014 - *Subgraphs in random graphs*
- Discrete Mathematics Days in the Northeast, Middletown CT, October 2013 - *Parity, first-order logic, and gluing and cutting graphs*
- IAS WAM Research Seminar, Princeton NJ, May 2013 - *Gluing graphs, ungluing graphs, and first-order logic with parity*
- DIMACS/CCICADA Interdisciplinary Seminar, Piscataway NJ, April 2013 - *Unbalanced allocations and cost minimization*
- Applied Communication Sciences, Basking Ridge NJ, April 2013 - *Logic, parity, and counting subgraphs in random graphs*
- Princeton Discrete Mathematics Seminar, Princeton NJ, March 2013 - *Graph constructions, graph decompositions, and random graphs*
- Bell Labs Mathematics Colloquium, Murray Hill NJ, Jan. 2013 - *Unbalanced allocations and cost minimization*
- Midwestern Graph Theory Conference LIII, Ames IA, Sept. 2012 - *Logic and graph decompositions*
- 2012 SIAM Conference on Discrete Mathematics, Halifax NS, June 2012 - *The power and weakness of two choices*
- Applied Mathematics Colloquium, Illinois Institute of Technology, Chicago IL, April 2012 - *Deterministic randomness*
- Penn Combinatorics and Probability Seminar, Philadelphia PA, March 2012 - *Deterministic random algorithms*
- Columbia Discrete Math Seminar, New York NY, March 2012 - *Logic, parity, and graph decompositions*

## SELECTED CONFERENCES AND WORKSHOPS ATTENDED

- SIAM Workshop on Network Science, July 2016
- ACM-SIAM Symposium on Discrete Algorithms, Jan. 2016
- Randomized Structures and Algorithms, Carnegie Mellon University, July 2015
- Graphical Models, Statistical Inference, and Algorithms, IMA, May 2015

- Stochastic Graph Models, ICERM, March 2014
- IdeaLab (homomorphic encryption), ICERM, July 2013
- IAS Women and Mathematics (combinatorics and graph theory), IAS, May 2013
- Third Abel Conference (in honor of Endre Szemerédi), IMA, Nov. 2012
- Midwestern Graph Theory Conference LIII, Iowa State, Sept. 2012
- 2012 SIAM Conference on Discrete Mathematics, Dalhousie, June 2012
- Combinatorics Conference in Lisboa, July 2011
- Randomized Structures and Algorithms, Emory, May 2011
- Combinatorics: Methods and Applications in Mathematics and Computer Science, Workshop III: Topics in Graphs and Hypergraphs, IPAM, Nov. 2009
- Combinatorics, Randomization, Algorithms and Probability, CRM, May 2009

## SERVICE

- NSF panelist
- Referee for Discrete Mathematics
- Reviewer for Mathematical Reviews/MathSciNet
- Organizer of Special Session on Combinatorics and Integrability, AMS Spring Eastern Sectional Meeting, April 2013
- Organizer of Rutgers Discrete Math Seminar, January 2011-May 2013
- Initial judge for Siemens Competition

## OTHER OUTREACH

- “Knitting with Numbers” - Afterschool program at Lewiston Middle School, October 2016 - present
- “Web of Friends” and “Knit Wits” - 4H Days workshops for 7-13 year olds, July 2016
- Judge, Association for Women in Mathematics essay contest - competition for 11 to 18 year olds, February 2015, 2016
- “Musical Numbers: Math Goes to Bollywood” - Math Club talk for general audience, Colby-Sawyer College, October 2015

- Mentor, Bowdoin Science Experience - introduced Bowdoin freshmen to mathematical research, August 2015
- “Deterministic randomness and unbalanced allocations” - talk for students at DIMACS REU, July 2013
- Initial judge, Siemens Competition - evaluated about 90 high school math projects over the course of four days, Oct. 2012
- “Composing and decomposing and de-de-composing graphs” - talk for students at Lafayette College REU, July 2012
- Co-led “Women in Mathematics” discussion panel - Museum of Mathematics, June 2012
- “Zeno’s Paradox” - mathematical conversation with second-grade Brownie troop, Piscataway NJ, January 2012
- York Tensor Scholars Talk “Möbius strips, tori, and Kitchener stitch” - York College, December 2010
- “Knitting Knerdery” - presentation at Cambridge Science Festival, May 2010
- “Knitting and Math” - Women in Mathematics Lecture Series (MIT series for a general audience), Jan. 2010
- “Truth Values” panelist - discussed real-world experiences as a mathematician, Central Square Theater, Cambridge MA, Sept. 2009

## TEACHING

- Probability - Bowdoin College  
Fall 2013, Spring 2015, Fall 2015, Spring 2016
- Multivariate Calculus - Bowdoin College  
Fall 2013, Fall 2014, Spring 2015, Fall 2015, Spring 2016
- Combinatorics and Graph Theory - Bowdoin College  
Fall 2014
- Multivariable Calculus - Rutgers University  
Fall 2011, 2012
- Combinatorics - Rutgers Young Scholars Program (program for talented teens)  
Summer 2011
- Introduction to Theory of Computation, (head) teaching assistant - taught recitation, created curriculum, and led other instructors for large introductory MIT class  
Fall 2006, 2007, 2008, 2009

- Summer Program in Undergraduate Research, head mentor - MIT math REU  
Summer 2009
- Research Science Institute, (head) mentor - MIT research program for talented high school students  
Summer 2006, 2007
- U. Chicago Young Scholars Program, teaching assistant - program for middle and high school students  
January 2002 - June 2005
- U. Chicago Seminars for Elementary Specialists And Mathematics Educators, teaching assistant - math and science program for public school teachers  
August 2002 - December 2004
- Math Center, Lincoln Land Community College - worked with students from 18 to 65 on math ranging from arithmetic to calculus  
January 1998-June 2001