

# Curriculum Vitae

Asaf Ferber

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## Affiliation:

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## Research interests:

My current research mainly focusses (but not restricted) to the following topics: Extremal and Probabilistic Graph Theory, Random graphs and hypergraphs, Random matrices, and probability.

## Education:

- July 2017 - current: An Instructor at MIT.
- July 2015 - 2017: A Gibbs Assistant Professor at Yale University and a research affiliated visitor at MIT.
- January 2015 up to July 2015: A postdoc at Yale University and a visitor at MIT.
- December 2014: Postdoc at Tel Aviv University.
- 2013-2014: Postdoc in the group of Prof. Angelika Steger at the Institute of Theoretical Computer Science, ETH Zürich.
- 2009-2013: PhD, Mathematics, School of Mathematical Sciences, Tel Aviv University. Title of PhD thesis: Positional games on graphs. Name of supervisor: Prof. Michael Krivelevich.

- 2006-2009: MSc, Mathematics, School of Mathematical Sciences, Tel Aviv University. Title of MSc thesis: On almost-precipitous ideals. Name of supervisor: Prof. Moti Gitik. Summa cum laude.
- 2002-2006: BSc, Mathematics, Raymond and Beverly Sackler Faculty of Exact Sciences. Place of study: Tel Aviv University.

## Recent talks at workshops, conferences and seminars:

- Mittagseminar, ETH, Zürich, 2017.
- Oberwolfach, 2017.
- Combinatorics Seminar, MIT, 2016.
- Atlanta Lecture Series in Combinatorics and Graph Theory, Emory University, 2016.
- Combinatorics Seminar, Rutgers, 2016.
- Mittagseminar, ETH, Zürich, 2016.
- Combinatorics Seminar, Tel Aviv University, 2016.
- Combinatorics Seminar, Hebrew University, 2016.
- Geometric Functional Analysis and Probability Seminar, Weizmann Institute, 2016.
- Algorithms, Combinatorics and Optimization Seminar, Carnegie Mellon University, 2015.
- Combinatorics Seminar, Yale, fall 2015.
- Combinatorics Seminar, MIT, fall 2015.
- A workshop in Combinatorics, Birmingham, England, 2015.
- Methods and Challenges in Extremal and Probabilistic Combinatorics, BIRS, Banff, 2015.
- Combinatorics Seminar, Yale, Spring 2015.
- Combinatorics Seminar, MIT, 2014.
- SIAM, Minneapolis, 2014.
- Combinatorics Seminar, Cambridge, 2014.
- Combinatorics Seminar, Tel Aviv University, 2014.
- Combinatorics Seminar, Szeged, Hungary, 2014.

- Combinatorics Seminar, Bar-Ilan University, 2014.
- Workshop “Probability and Graphs”, Eindhoven, 2014.
- RSA conference, Poznan, 2013.
- Combinatorics Seminar, Tel Aviv University, 2013.
- Mittagseminar, ETH, 2013.
- Combinatorial Theory Seminar, University of Oxford, 2012.
- Combinatorics Seminar, University of Birmingham, 2012.
- 4th Emléktábla workshop, Hungary, 2012.
- CS colloquium, Ben-Gurion University, 2012.
- Algorithms, Combinatorics and Optimization Seminar, Carnegie Mellon University, 2012.
- Combinatorics Seminar, Bar-Ilan University, 2012.
- Combinatorics Seminar, Free University of Berlin, 2012.
- Combinatorics Seminar, Tel Aviv University, 2012.
- Workshop on Discrete Mathematics: Methods, Challenges and Applications, Eilat, 2012.

## Awards:

- NSF grant 6935855 (170,000USD for three years, starting at June 2017).
- NSF travel award for participating in an Oberwolfach workshop, 2017.
- NSF travel award for participating in the Mathematical Congress of the Americas (Montreal, July 2017).
- Excellent teacher, School of Mathematical Sciences, Tel Aviv University, 2013.
- Best teacher, Faculty of Engineering, Tel Aviv University, 2013.
- Excellent PhD student’s scholarship, Faculty of Exact Sciences, Tel Aviv University, 2012.
- Prize for excellence in PhD studies, School of Mathematical Sciences, Tel Aviv University, 2011.

## Published/submitted papers:

- (1) Moti Gitik and Asaf Ferber, On almost precipitous ideals, *Archive for Mathematical Logic*: Volume 49, Issue 3 (2010), Page 301–328.
- (2) Sonny Ben-Shimon, Asaf Ferber, Dan Hefetz and Michael Krivelevich, Hitting time results for Maker-Breaker games, *Random Structures and Algorithms*, 41 (2012), 23–46. An extended abstract appeared in the Proceedings of the 22nd ACM-SIAM Symposium on Discrete Algorithms (SODA'11), 900–912, 2011.
- (3) Asaf Ferber, Dan Hefetz and Michael Krivelevich, Fast embedding of spanning trees in biased Maker-Breaker games, *European Journal of Combinatorics*, 33 (2012), 1086-1099.
- (4) Asaf Ferber and Dan Hefetz, Winning strong games through fast strategies for weak games, *The Electronic Journal of Combinatorics*, 18(1) 2011, P144.
- (5) Dennis Clemens, Asaf Ferber, Michael Krivelevich and Anita Liebenau, Fast winning strategies in Maker-Breaker games on sparse random boards, *Combinatorics, Probability and Computing*, 21 (2012), 897–915.
- (6) Asaf Ferber and Dan Hefetz, Weak and strong  $k$ -connectivity games, *European Journal of Combinatorics* (2014), 169–183.
- (7) Asaf Ferber, Roman Glebov, Michael Krivelevich, Hong Liu, Cory Palmer, Tomas Valla and Mate Vizer, The biased odd cycle game, *Electronic Journal of Combinatorics*, 20(2) (2013), P9.
- (8) Asaf Ferber, Michael Krivelevich and Alon Naor, Avoider-Enforcer games played on edge disjoint hypergraphs, *Discrete Mathematics*, 313 (2013), 2932–2941.
- (9) A. Ferber, R. Hod, M. Krivelevich and B. Sudakov, Almost  $k$ -Steiner systems exist, *Journal of Combinatorial Designs* 22 (2014), 488–494.
- (10) Asaf Ferber, Rajko Nenadov, Andreas Noever, Ueli Peter, Nemanja Škorić, Robust hamiltonicity of random directed graphs, *SODA'15*.
- (11) Asaf Ferber, Closing gaps in problems related to Hamilton cycles in random graphs and hypergraphs, *Electronic Journal of Combinatorics*, Vol. 21, Issue 2 (2015), P1.61.
- (12) Michelle Delcourt and Asaf Ferber, On a conjecture of Thomassen, *Electronic Journal of Combinatorics*, Volume 22, Issue 3 (2015), 1–8.
- (13) Asaf Ferber, Michael Krivelevich and Humberto Naves, Generating random graphs in biased Maker-Breaker games, *Random Structures and Algorithms*, Volume 47, Issue 4 (2015), 615-634.

- (14) Asaf Ferber, Roman Glebov, Michael Krivelevich and Alon Naor, Biased games on random boards, *Random Structures and Algorithms*, 46 (2015), 651–676.
- (15) Dennis Clemens, Asaf Ferber, Roman Glebov, Dan Hefetz and Anita Liebenau, Building spanning trees quickly in Maker-Breaker games, *SIAM J. Discrete Math.* 29–3 (2015), pp. 1683–1705.
- (16) Asaf Ferber, Michael Krivelevich and Benny Sudakov, Counting and packing Hamilton l-cycles in dense hypergraphs, *Journal of Combinatorics*, 7 (2016), 135–157.
- (17) Asaf Ferber, Michael Krivelevich and Benny Sudakov, Counting and packing Hamilton cycles in dense graphs and oriented graphs, *Journal of Combinatorial Theory Series B* 122 (2017), 196–220.
- (18) Asaf Ferber, Rajko Nenadov and Ueli Peter, Universality of random graphs and rainbow embedding, *Random Structures and Algorithms* 48 (2016), 546–564.
- (19) Asaf Ferber and Michael Krivelevich, Rainbow Hamilton cycles in random graphs and hypergraphs, *Recent trends in combinatorics, IMA Volumes in Mathematics and its applications*, A. Beveridge, J. R. Griggs, L. Hogben, G. Musiker and P. Tetali, Eds., Springer 2016, 167–189.
- (20) Asaf Ferber, Michael Krivelevich, Benny Sudakov and Pedro Vieira, Finding Hamilton cycles in random graphs with few queries, *Random Structures and Algorithms* 49 (2016), 535–668.
- (21) Asaf Ferber, Michael Krivelevich, Benny Sudakov and Pedro Vieira, Finding paths in sparse random graphs requires many queries, *Random Structures and Algorithms* 50 (2017), 71–85.
- (22) David Conlon, Asaf Ferber, Rajko Nenadov and Nemanja Skorić, Almost-spanning universality in random graphs, *Random Structures and Algorithms*, to appear.
- (23) Asaf Ferber, Michael Krivelevich and Gal Kronenberg, Random turn games, *Electronic Journal of Combinatorics*, to appear.
- (24) Asaf Ferber, Gal Kronenberg and Eoin Long, Packing, Counting and Covering Hamilton cycles in random directed graphs, *Israel Journal of Mathematics*, to appear.
- (25) Asaf Ferber, Choongbum Lee and Frank Mousset, Packing bounded-degree spanning graphs from separable families, *Israel Journal of Mathematics*, to appear.
- (26) Asaf Ferber, Eoin Long and Benny Sudakov, Counting Hamilton decomposition in oriented graphs, *International Mathematics Research Notices*, to appear.
- (27) Asaf Ferber, Kyle Luh, Daniel Montealegre and Oanh Nguyen, Packing loose Hamilton cycles in random hypergraphs, *Combinatorics, Probability and Computation*, to appear.

- (28) Asaf Ferber and Van Vu, Packing perfect matchings in random hypergraphs, *Random Structures and Algorithms*, to appear.
- (29) Asaf Ferber and Eoin Long, Packing and Counting arbitrary Hamilton cycles in random directed graphs, *Random Structures and Algorithms*, to appear.
- (30) Asaf Ferber, Kyle Luh and Oanh Nguyen, *Bulletin of the London Mathematical Society*, to appear.
- (31) Asaf Ferber and Wojtek Samotij, Packing spanning trees in random graphs, submitted.
- (32) Asaf Ferber, Daniel Montealegre and Van Vu, Law of the Iterated Logarithm for random permanents, submitted.
- (33) Asaf Ferber, Daniel Montealegre and Van Vu, Law of the Iterated Logarithm for various graph parameters, submitted.
- (34) Asaf Ferber, Gal Kronenberg and Kyle Luh, Optimal Threshold for a Random Graph to be 2-Universal, submitted.
- (35) Afonso S. Bandeira, Asaf Ferber and Matthew Kwan, Resilience for the Littlewood-Offord problem, submitted.

## Teaching experience:

In MIT I have so far served as a TA in Principles of Discrete Applied Mathematics (18.200) and as an instructor of the Undergrads Combinatorics Seminar (18.204).

I served as a lecturer in the following courses at Yale University:

- Random Graphs (spring 2015).
- Introduction to functions of several variables MATH S118 (summer 2015).
- Discrete Math MATH 244 (fall 2015).
- Linear Algebra and its Applications (spring 2016).
- Introduction to random structures (spring 2016).

I served as a lecturer in the following courses at ETH, Zürich:

- Randomized algorithms and the probabilistic methods (fall 2014).
- Graphs and algorithms (spring 2014).

In Tel Aviv University, during my PhD, I was the lecturer of the following courses:

- Calculus I for engineers.
- Calculus II for engineers.
- Linear Algebra for engineers.
- Math for Biologists.

Teaching assistant (frontal lessons):

- Introduction to Combinatorics and Graph Theory.
- Calculus II for mathematicians.
- Linear Algebra II for mathematicians.
- Topology.
- Calculus I for engineers.
- Calculus II for engineers.