

## Dr Dan Hefetz PhD

Lecturer

[School of Mathematics \(/schools/mathematics/index.aspx\)](/schools/mathematics/index.aspx)

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### About

Dan Hefetz is a Lecturer in Mathematics, having previously worked as a Postdoctoral Research Fellow at Queen Mary University of London and at ETH Zurich.

His research interests are Positional Game Theory, Graph and Hypergraph Theory, Extremal Combinatorics, Algebraic and Probabilistic methods in Combinatorics and the theory of random and pseudo-random graphs.

- [Dr Dan Hefetz' personal web page \(http://web.mat.bham.ac.uk/D.Hefetz\)](http://web.mat.bham.ac.uk/D.Hefetz)

### Qualifications

- PhD (Computer Science, Tel Aviv University, 2007)
- MSc (Computer Science, Tel Aviv University, 2003)
- BSc (Mathematics and Computer Science, Tel Aviv University, 1999)

### Biography

Dan has received his BSc (magna cum laude), MSc (summa cum laude, under the supervision of Prof. Michael Tarsi) and PhD (under the supervision of Prof. Michael Krivelevich and Prof. Noga Alon) from Tel Aviv University. He then spent four years as a postdoctoral fellow, the first three at the Combinatorial Structures and Algorithms group of Prof. Angelika Steger at ETH Zurich, Switzerland, and the last year at the School of Mathematical Sciences at Queen Mary University of London (host: Prof. Peter Keevash). On September 2011, Dan joined the University of Birmingham as a lecturer in pure mathematics.

### Teaching

- Combinatorics and Communication Theory (Spring term)
- The impact of Mathematics (Spring term)

### Postgraduate supervision

Dan looks forward to supervising postgraduate students.

### Research

#### RESEARCH THEMES

Combinatorics, especially the theory of Positional Games as well as Extremal, Algebraic and Probabilistic Graph Theory.

#### RESEARCH ACTIVITY

The main research area of Dan Hefetz is Combinatorics. He has worked on random and pseudo-random graphs, extremal graph theory and positional games. For example (jointly with S. Ben-Shimon, A. Ferber and M. Krivelevich), he recently found the hitting time for the property of being Maker's win in the Hamilton cycle game on the edge set of the binomial random graph. This result generalises some classical results from the theory of random graphs and proves a conjecture of Stojaković and Szabó.

### Publications

- Hefetz D., Krivelevich M., Szabó T., (2007), Avoider-Enforcer games, Journal of Combinatorial Theory Ser. A. 114, pp. 840-853.
- Hefetz D., Krivelevich M., Szabó T., (2009), Hamilton cycles in highly connected and expanding graphs, Combinatorica, 29(5), pp. 547-568.
- Hefetz D., Krivelevich M., Stojaković M., Szabó T., (2009), Fast winning strategies in Maker-Breaker games, Journal of Combinatorial Theory, Ser. B. 99, pp. 39-47.
- Alon N., Hefetz D., Krivelevich M., (2010), Playing to retain the advantage, Combinatorics, Probability and Computing 19(4), pp. 481-491.
- Hefetz D., Krivelevich M., Stojaković M., Szabó T., (2010), Avoider-Enforcer: The rules of the game, Journal of Combinatorial Theory, Ser. A. 117, pp. 152-163.
- Ben-Shimon S., Ferber A., Hefetz D., Krivelevich M., (2011), Hitting time results for Maker-Breaker games, Proceedings of the 22nd ACM-SIAM Symposium on

- Hefetz D., (2011), On two generalizations of the Alon-Tarsi polynomial method, Journal of Combinatorial Theory, Ser. B. 101(6), pp. 403-414.

