

## TAMAR ZIEGLER - CURRICULUM VITAE

### Personal Information:

Full name: Tamar Ziegler  
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### Academic Appointments:

July 2013 - Professor, Hebrew University, Israel.  
Spring 2017 Simons Professor MSRI.  
2013 - 2014 Professor, Technion, Israel.  
2012 - 2013 Visiting Associate Professor, Stanford.  
2010 - 2012 Associate Professor, Technion, Israel.  
2007 - 2010 Senior Lecturer, Technion, Israel.  
2005 - 2007 Postdoc Assistant Professor at the University of Michigan.  
2005 - 2006 Member of the Institute for Advanced Study, Princeton NJ.  
2002 - 2005 Zassenhaus Assistant Professor at The Ohio State University.

### Academic Degrees:

2003 Ph.D. in mathematics, The Hebrew University.  
1998 M.Sc. in mathematics, The Hebrew University.  
1995 B.Sc. in mathematics, The Hebrew University, *summa cum laude*.

### Research Interests:

Ergodic theory, number theory.

### Theses:

Ph.D. Thesis *Nonconventional ergodic averages*. Advisor: H. Furstenberg.  
M.Sc. Thesis *An application of ergodic theory to a problem in geometric Ramsey theory*. Advisor: H. Furstenberg.

### Publications:

- (1) *An application of ergodic theory to a problem in geometric Ramsey theory*. [Israel Journal of Mathematics](#) 114 (1999) 271-288.
- (2) *A non-conventional ergodic theorem for a nilsystem*. [Ergodic Theory and Dynamical Systems](#) 25 (2005) 1357-1370.
- (3) *Nilfactors of  $\mathbb{R}^m$ -actions and configurations in sets of positive upper density in  $\mathbb{R}^m$* . [Journal d'Analyse Mathématique](#) 99 (2006) 249-266.
- (4) *Universal characteristic factors and Furstenberg averages*. [J. Amer. Math. Soc.](#) 20 (2007) 53-97.
- (5) *The primes contain arbitrarily long polynomial progressions*. Jointly with Terence Tao . [Acta Math.](#) 201 (2008) 213-305.

- (6) *An inverse theorem for the uniformity seminorms associated with the action of  $\mathbb{F}_p^\infty$ .* Jointly with Vitaly Bergelson and Terence Tao. [Geom. Funct. Anal. 19 \(2010\), No. 6, 1539-1596.](#)
- (7) *The inverse conjecture for the Gowers norm over finite fields via the correspondence principle.* Jointly with Terence Tao. [Analysis & PDE Vol. 3 \(2010\), No. 1, 1-20.](#)
- (8) *An inverse theorem for the Gowers  $U^4$  norm.* Jointly with Ben Green and Terence Tao. [Glasg. Math. J. 53 \(2011\), no. 1, 1-50.](#)
- (9) *The shifted primes and the multidimensional Szemerédi and polynomial van der Waerden theorems.* Jointly with Vitaly Bergelson, and Alexander Leibman. [C. R. Math. Acad. Sci. Paris 349 \(2011\), no. 3-4, 123-125.](#)
- (10) *An inverse theorem for the Gowers  $U^{s+1}$ .* Jointly with Ben Green and Terence Tao. [Electronic Research Announcements 18 \(2011\), 69 - 90.](#)
- (11) *Multiple recurrence and convergence along the primes.* Jointly with Trevor Wooley. [American Journal of Mathematics 134 \(2012\), no. 6, 1705-1732.](#)
- (12) *An inverse theorem for the Gowers  $U^{s+1}$  norm.* Jointly with Ben Green and Terence Tao. [Annals of Math, Volume 176 \(2012\), Issue 2, 1231-1372.](#)
- (13) *The inverse conjecture for the Gowers norm over finite fields in low characteristic.* Jointly with Terence Tao. [Ann. Comb. 16 \(2012\), 121-188.](#)
- (14) *Distjointness of Möbius from horocycle flows.* Jointly with Jean Bourgain and Peter Sarnak. [From Fourier Analysis and Number Theory to Radon Transforms and Geometry, Developments in Mathematics, Vol. 28.](#)
- (15) *Multiple recurrence and convergence results associated to  $\mathbb{F}_p^\omega$ -action.* Jointly with Vitaly Bergelson and Terence Tao. [Journal d'Analyse Mathématique, 2015, Volume 127, Issue 1, 329-378.](#)
- (16) *A multi-dimensional Szemerédi theorem for the primes via a correspondence principle.* Jointly with Terence Tao. [Israel Journal of Mathematics, 2015, Volume 207, Issue 1, 203-228.](#)
- (17) *Linear equations in primes and dynamics of nilmanifolds.* [Proceedings of ICM 2014, Volume 2, 569-589.](#)
- (18) *Narrow progressions in the primes.* Jointly with Terence Tao. [Analytic Number Theory, special issue in honor of the 60th birthday of Helmut Maier, 357-379.](#)
- (19) *Concatenation theorems for anti-Gowers-uniform functions and Host-Kra characteristic factors.* Jointly with Terence Tao. [Discrete Analysis 10.19086/da.850.](#)
- (20) *Polynomial patterns in primes.* Jointly with Terence Tao. To appear Forum of Mathematics, Pi.
- (21) *Approximate Cohomology.* Jointly with David Kazhdan. [Selecta Mathematica.](#)
- (22) *On the bias of cubic polynomials.* Jointly with David Kazhdan. [Selecta Mathematica.](#) Preprint available at [Arxiv 1701.02135.](#)
- (23) *Extending linear and quadratic functions from high rank varieties.* Jointly with David Kazhdan. Preprint available at [Arxiv 1712.01335.](#)
- (24) *Polynomial functions as splines.* Jointly with David Kazhdan. Preprint available at [Arxiv 1712.09047.](#)

#### Awards and Honors:

- Rector's Prize for Excellence in Research and Teaching , 2016.
- ERC Consolidator grant, 2016-2021.
- [Michael Bruno Memorial Award](#), 2015.

- [ICM 2014](#) invited talk.
- [CRM 30th anniversary](#), Barcelona 2014.
- [Wolfe Lecture in Mathematics](#), Rice University 2013.
- [EMS Lecturer of the year 2013](#).
- [Erdős prize](#), 2011.
- Taub research prize, 2011.
- ISF Grant, 2008 - 2012.
- Ostrowski Fellowship of the Ostrowski foundation in Basel, 2008.
- Landau Fellowship of the Taub Foundation, *Leader in Science and Technology* program, 2008-2010.
- Alon Fellowship for outstanding new faculty members in Israeli universities, 2008-2011.
- BSF grant jointly with Vitaly Bergelson, 2007 - 2011.
- Klein prize for excellence in teaching, 2000.
- Avraham Yehuda Urbach prize for excellence in research ,1997.

#### Plenary talks:

- [2017 Clay Research Conference](#), September 2017.
- [Joint International Meeting of AMS and IMU](#), June 2014.
- [General Meeting of European Women in Mathematics](#) Bonn, September 2013.
- [26th Nordic and 1st European-Nordic Congress of Mathematician](#), June 2013.
- [Additive combinatorics in Paris](#), July 2012.
- 27th Journées Arithmétique, June 2011.
- [Israel Mathematical Union](#), June 2011.
- [Canadian Mathematical Society Annual Winter meeting](#), December 2010.
- [Pseudorandomness in Mathematical Structures](#), IAS Princeton, June 2010.
- [Dynamical Systems and Number Theory](#), Edinburgh, May 2010.
- [Broader Connections](#), MSRI, August 2008 (a two lecture series).

#### Invited conference talks:

- [Recent developments in Analytic Number Theory](#). MSRI, May 2017.
- [Dynamics, Geometry and Number Theory](#). A conference in honor of Gregory Margulis' 70th birthday. Institut Henri Poincar (Paris) June, 2016.
- [Analysis and Beyond](#). Celebrating Jean Bourgain's Work and Impact. May 2016, IAS Princeton.
- [Combinatorics: Challenges and Applications](#). Celebrating Noga Alon's 60th Birthday January 2016, Tel Aviv University.
- [Ergodic Theory, Fractals and Groups](#) October 2015, IAS Jerusalem.
- [Connections for Women: Geometric and Arithmetic Aspects of Homogeneous Dynamics](#). MSRI, January 2015 (a two lecture series).
- In and Around Combinatorics, IAS January 2015.
- [Number Theory Days](#), ETH Zurich, March 2014.
- [Homogeneous Dynamics, Unipotent Flows and Applications](#), IAS, October 2013.
- [Group Theory, Number Theory, and Topology Day](#), University of Wisconsin, January 2013.
- [Fields Medal Symposium in honor of Elon Lindenstrauss](#), Toronto, September 2013.

- [Equidistribution in number theory and dynamics](#), ETH Zurich, March 2013.
- [Dynamics on Homogeneous Spaces and Number Theory Conference](#), OSU, September 2011.
- [16th Amitsur Symposium](#), June 2010.
- Graphs and Arithmetic workshop, CRM Montréal, March 2010.
- Action Now, Hebrew University, March 2009.
- [Discrete Rigidity Phenomena](#), MSRI, November 2008.
- [Introduction to Ergodic Theory and Additive Combinatorics](#), MSRI, August 2008.
- [Additive Combinatorics, Number Theory and Harmonic Analysis](#), Toronto, April 2008.
- Maryland Dynamics Conference, March 2007.
- Additive Combinatorics, Montreal, April 2006.
- Maryland Dynamics Conference, March 2005.

### Public Professional Activities:

- 2017 - Editor-in-Chief [Israel Journal of Mathematics](#).
- 2016 -2019: Associate Editor [Annals of Mathematics](#).
- 2016 - Editor [Discrete Analysis](#).
- 2014-2017: Editor [European Journal of Mathematics](#).
- 2014-2019: Editor [Electronic Research Announcements in Mathematical Sciences](#).
- Organizer [Workshop on Additive Combinatorics](#). Harvard, October 2017.
- Organizer [Ergodic Theory: Numbers, Fractals, and Geometry](#). Oxford, September 2017.
- Organizer [The third Israeli conference for women in mathematics](#). IIAS Jerusalem. Co-organized with S. Artstein, Liat Kessler, C. Perin.. September 2017.
- 2013-2017 Organizer [HUJI math colloquium](#).
- Organizer [Kavli Frontiers of Science Symposium](#). February 2017.
- Organizer [The second Israeli conference for women in mathematics](#). IIAS Jerusalem. Co-organized with S. Artstein, Y. Algom-Kfir. September 2016.
- Organizer [Kavli Frontiers of Science Symposium](#). February 2014.
- Organizer [IMA Annual Program Year Workshop Additive and Analytic Combinatorics](#). Co-organized with D. Conlon, E. Croot, V. Vu. Upcoming September 2014.
- Organizer [HUJI math colloquium](#). Co-organized with E. Lindenstrauss.
- Scientific organizer [Arbeitsgemeinschaft Ergodic Theory and Combinatorial Number Theory](#). Co-organized with Vitaly Bergelson, Nikos Frantzikinakis, Terence Tao, Oct 2012.
- Scientific organizer [Erwin Schrödinger International Institute program Combinatorics, Number theory and Dynamical systems](#), October - December 2011. Co-organized with M. Einsiedler, P. Grabner, C. Krattenthaler.
- 2011-2012: Organizer of the analysis seminar.
- 2009-2011: Organizer of department colloquium.
- 2009-2010: Committee for youth activities (including Tomba 2010).
- 2003-2005: Organizer of the ergodic theory and probability seminar at The Ohio State University.
- Seminar instructor at the Ross Program, summer 2005, The Ohio-State University.

