

# Curriculum Vitae

**Assaf Naor**

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## Personal Data:

**Date of Birth:** May 7, 1975.

**Citizenship:** Israeli, Czech, permanent resident of USA.

## Employment:

- **2002–2004:** Post-doctoral Researcher, Theory Group, Microsoft Research.
- **2004–2007:** Permanent Member, Theory Group, Microsoft Research.
- **2005–2007:** Affiliate Assistant Professor of Mathematics, University of Washington.
- **2006–2009:** Associate Professor of Mathematics, Courant Institute of Mathematical Sciences, New York University (on leave Fall 2006).
- **2008–2015:** Associated faculty member in computer science, Courant Institute of Mathematical Sciences, New York University (on leave in the academic year 2014–2015).
- **2009–2015:** Professor of Mathematics, Courant Institute of Mathematical Sciences, New York University (on leave in the academic year 2014–2015).
- **2014–present:** Professor of Mathematics, Princeton University.
- **2016:** Henry Burchard Fine Professor of Mathematics, Princeton University.

## Education:

- **1993–1996:** Studies for a B.Sc. degree in Mathematics at the Hebrew University in Jerusalem. Graduated *Summa Cum Laude* in 1996.
- **1996–1998:** Studies for an M.Sc. degree in Mathematics at the Hebrew University in Jerusalem. M.Sc. thesis: “Geometric Problems in Non-Linear Functional Analysis,” prepared under the supervision of Joram Lindenstrauss. Graduated *Summa Cum Laude* in 1998.
- **1998–2002:** Studies for a Ph.D. degree at the Hebrew University in Jerusalem, under the supervision of Joram Lindenstrauss. Thesis title: “Linear and Non-Linear Geometric Problems in Banach Spaces.”

## Research Interests:

- Analysis,
- Probability,
- Quantitative geometry,
- Linear and non-linear geometric Banach space theory,
- Structure theory of metric spaces,
- Applications of the above to theoretical computer science, combinatorics and mathematical physics.

## Professional Activities:

- Director of the Algorithms and Geometry (A&G) think tank at the Simons Foundation (2013–present).
- Member of the Center for Computational Intractability (CCI) at Princeton University (2008–present).

- **Editorial:**

- Current:

- \* *Journal of the American Mathematical Society (JAMS):*

- Editor (2014–present).

- Associate editor (2007–2014).

- \* *International Mathematics Research Notices (IMRN)*, editor (2008–present).

- \* *Canadian Journal of Mathematics*, associate editor (2014–present).

- \* *Mathematika*, editor (2011–present).

- \* *Analysis and Geometry in Metric Spaces*, editor (2016–present).

- \* *Journal of Topology and Analysis (JTA)*, editor (2007–present).
- \* *Theory of Computing (TOC)*, editor (2005–present).
- Past:
  - \* *Probability Theory and Related Fields (PTRF)*, editor (2012–2015).
  - \* Program committee member of the following computer science conferences:
    - *International Workshop on Randomization and Computation (RANDOM) 2014*.
    - *Symposium on the Theory of Computing (STOC) 2010*.
    - *Symposium on Discrete Algorithms (SODA) 2007*.
    - *Symposium on the Theory of Computing (STOC) 2006*.
  - \* *Proceedings of the National Academy of Sciences (PNAS)*, editor of Special Feature on Quantitative Geometry.
  - \* *Israel Journal of Mathematics*, editor of volume in the memory of Joram Lindenstrauss.

- **Committees and advisory boards:**

- Member of the Scientific Board of the Prague Summer Schools on Discrete Mathematics (2015–present).
- Member of the speaker selection committee of the Current Events Bulletin session at the Joint Mathematics Meetings of 2016, 2017.
- Member of the Scientific Advisory Council for the Blavatnik National Awards (award years 2015, 2016, 2017).
- Member of the Scientific Nominating Committee of the Fields Institute (2014–present).
- Member of the Scientific Board of the American Institute of Mathematics (AIM) (2013–present).
- Member of the Scientific Advisory Panel of the Fields Institute (2013–present).
- Member of the Science Advisory Board of the Institute for Pure and Applied Mathematics (IPAM) (2008–present).
- Judge of the 2014 Blavatnik National Awards.
- Member of the speaker selection panel for ICM 2014, section on “Analysis and Applications.”
- Member of the nominating committee for the IPAM scientific advisory board (2011, 2013, 2015).
- Member of the committee of the Janos Bolyai International Mathematical Prize, Hungarian Academy of Sciences (2010, 2015).
- Delegate (Israel) to the General Assembly of the International Mathematical Union, Bangalore, India, 2010.
- Served on NSF grant panels (multiple years).
- Served on a review panel for the Simons Symposia, Simons Foundation, 2011

- Served on doctoral thesis committees of students in Princeton University, EPFL Lausanne, NYU (multiple years).
- Served on the following committees at Princeton University:
  - \* Mathematics Department Strategic Planning Committee (2014–2015, 2015–2016, 2016–2017).
  - \* Mathematics Department Graduate Admissions Committee (2016–2017)
  - \* Mathematics Department Junior Hiring Committee (2015–2016).
  - \* Mathematics department furniture committee (2016–2017).
  - \* Several tenure committees at the Computer Science Department (2015–2016).
  - \* Senior thesis committees of Kubrat Danailov (2015), Thomas Reeves (2016).
- Served on the following committees at the Courant Institute:
  - \* Planning and Development Committee (2007–2008)
  - \* Colloquium Committee (2008–2009).
  - \* Fellowships Committee (2008–2009, 2011–2012)
  - \* Appointments Committee (2013–2014).

• **Organization of special semesters, conferences and seminars:**

- Semester program on “Quantitative Linear Algebra” at the Institute for Pure and Applied Mathematics (IPAM), winter 2018.
  - \* Conference organization within this semester:
    - “Approximation Properties in Operator Algebras and Ergodic Theory,” April 30–May 5, 2018.
- Conference on “Geometric Functional Analysis and Applications” at MSRI, November 13–17, 2017.
- Conference on “Chaining Methods and their Applications to Computer Science” at Harvard University, June 22–23, 2016.
- Conference on “Analysis and Beyond: Celebrating Jean Bourgain’s work and its impact” at the Institute for Advanced Study, May 21–24, 2016.
- Third Annual Conference of the Algorithms and Geometry (A&G) think tank at the Simons Foundation, May 18, 2017.
- Second Annual Conference of the Algorithms and Geometry (A&G) think tank at the Simons Foundation, May 13, 2016.
- First Annual Conference of the Algorithms and Geometry (A&G) think tank at the Simons Foundation, May 15, 2015.
- Courant Institute Theory of Computing Seminar (2007–2014). Seminar web-site: [http://cs.nyu.edu/web/Calendar/colloquium/cs\\_theory\\_seminar/](http://cs.nyu.edu/web/Calendar/colloquium/cs_theory_seminar/).
- Semester program on “Quantitative Geometry” at MSRI, fall 2011.
  - \* Conference organization within this semester:
    - “Connections for Women in Quantitative Geometry,” August 18–19, 2011.

- “Introductory Workshop on Quantitative Geometry,” August 22–26, 2011.
- “Probabilistic Reasoning in Quantitative Geometry,” September 19–23, 2011.
- “Embedding Problems in Banach Spaces and Group Theory,” October 17–21, 2011.
- “Quantitative Geometry in Computer Science,” December 5–9, 2011.
- Semester program on “Discrete Analysis” at the Newton Institute, winter 2011.
  - \* Conference organization within this semester:
    - “Embeddings,” January 10–14, 2011.
- Workshop on “Probability in Asymptotic Geometry,” Texas A&M University, July 20–24, 2009.
- Workshop on “Quantitative and Computational Aspects of Metric Geometry” at IPAM, January 2009.
- Workshop on “Geometry and Algorithms” at the International Centre for Mathematical Sciences in Edinburgh, April 16–21, 2007.
- Workshop on “Algorithmic Convex Geometry” at the American Institute of Mathematics, November 2007.
- Special session on “Applications of the Arora-Rao-Vazirani Algorithm” at INFORMS 2006.
- Workshop on Metric Geometry and Geometric Embeddings of Discrete Metric Spaces at Texas A&M University, July 17–22, 2006.

- **Membership in professional societies:**

- Faculty Fellow at Rockefeller College, Princeton University.
- New York Academy of Sciences.
- American Mathematical Society.
- Association of Computing Machinery Special Interest Group on Algorithms and Computation Theory.

- **Refereeing:**

- Referee of research articles in the following journals (multiple times): Israel Journal of Mathematics, Geometric and Functional Analysis, Proceedings of the American Mathematical Society, Journal of Functional Analysis, Mathematiche Annalen, Random Structures and Algorithms, Annals of Probability, Journal of the Association of Computing Machinery, Advances in Mathematics, Arkiv der Mathematik, Journal of the American Mathematical Society, Combinatorica, ACM Transactions on Algorithms, International Mathematics Research Notices, SIAM Journal on Computing, Duke Mathematical Journal, London Mathematical Society, American Mathematics Monthly, Inventiones Mathematicae, Communications in Pure and Applied Mathematics, Discrete and Computational Geometry, Commentarii Mathematici Helvetici, Experimental Mathematics, Acta Mathematica,

Communications in Pure and Applied Mathematics, American Journal of Mathematics, Groups, Geometry and Dynamics, Annals of Mathematics Studies, Mathematische Zeitschrift, Comptes Rendus Mathématique, Revista Matemática Iberoamericana, Selecta Mathematica, Journal für die Reine und Angewandte Mathematik, Theory of Computing, Pacific Journal of Mathematics, Mathematical Proceedings of the Cambridge Philosophical Society, Transactions of the American Mathematical Society, Analysis and Geometry in Metric Spaces, Journal of the European Mathematical Society, ACM Transactions on Computation Theory, IEEE Transactions on Information Theory, Theoretical Computer Science, Geometriae Dedicata, Ergodic Theory and Dynamical Systems, Mathematical Research Letters, Journal of Combinatorial Theory Series B, Annals of Mathematics, Geometry & Topology, European Journal of Combinatorics, Discrete Mathematics, Journal of Differential Geometry, Discrete Analysis, Forum of Mathematics Sigma.

- Referee of research articles in the following conferences (multiple years): STOC, FOCS, RANDOM, SODA, CCC, SoCG, STACS, APPROX, ICALP, ESA.
- Reviewer of several grant proposals for the following agencies (multiple years): National Science Foundation (NSF), European Research Council (ERC), Israel Science Foundation (ISF), National Security Agency (NSA), Air Force Office of Scientific Research (AFOSR), German-Israeli Foundation for Scientific Research and Development (GIF), Swiss National Science Foundation (SNSF), Czech Science Foundation (GAČR), Deutsche Forschungsgemeinschaft (German Research Foundation; DFG), China Israel Research Program (CIRP).

## **Honors:**

- **Awards:**

- Henry Burchard Fine Professor of Mathematics, Fall 2016.
- Fellow of the American Mathematical Society, 2012.
- Blavatnik award, 2012.
- Pazy Memorial Research Award, 2011.
- Bôcher Memorial Prize, 2011.
- Salem Prize, 2008.
- Packard Fellowship, 2008.
- European Mathematical Society Prize, 2008.
- Bergmann Memorial Award, 2007.
- The Clore Scholarship, 2000.
- The Klein prize for excellence in teaching (Hebrew University), 1998.
- Israeli parliament (Knesset) award for academic studies, 1998.
- The Intel prize for B.Sc. students for the academic year, 1996.
- Hebrew University Rector Prize (1995 and 1997), and the Hebrew University Dean of Natural Sciences Faculty Award (1998).

- **Special lectures:**

- Plenary lecture, International Congress of Mathematicians, 2018.
- Connecticut Valley Colloquium Lectures, University of Massachusetts Amherst, 2016.
- Blyth Lectures, University of Toronto, 2016.
- Wolfe Lecture in Mathematics, Rice University, 2014.
- Minerva Distinguished Lecture Series in Mathematics, Princeton University, 2013.
- Frontiers in Mathematics Lecture Series, Texas A&M University, 2013.
- Main speaker, Rivière-Fabes Symposium in Analysis and PDE, 2013.
- Plenary speaker, annual meeting of the Australian Mathematical Society, 2012.
- Distinguished Lecture Series, Fields Institute, 2012.
- Takagi Lectures, Mathematical Society of Japan, 2012.
- Invited address, National AMS Meeting, 2012.
- Zygmund-Calderón Lectures, University of Chicago, 2011.
- Seymour Sherman Memorial Lecture, University of Indiana, 2011.
- Séminaire Bourbaki, Paris, 2011.
- Invited Speaker, International Congress of Mathematicians, Hyderabad, 2010.
- Plenary talk, annual meeting of the Israel Mathematics Union, 2008.
- Plenary talk, Clay Research Conference, Cambridge MA, 2008.
- Plenary address, Joint meeting of the American Mathematical Society and the New Zealand Mathematical Society, Wellington New Zealand, 2007.
- Norbert Wiener Lectures, MIT, 2007.
- Kuwait Foundation Lecture, Cambridge University, 2007.
- Plenary address, Southeast Section Meeting of the American Mathematical Society, 2005.

- **Funding:**

- Simons collaboration grant, 2014–2021.
- Simons Fellowship, 2012–2013.
- BSF grant 2010021, 2011–2015.
- Packard Fellowship, 2008–2013.
- NSF “Expeditions in Computing Grant” (CCF-0832795), 2008–2013.
- BSF grant 2006009, 2007–2011.
- NSF grant CCF-0635078, 2006–2009.
- European Union Marie Curie fellowship, 2001.

- **Special visiting positions:**

- von Neumann Fellow, Institute for Advanced Study, 2017–2018.
- Visiting Fellow, Princeton University, 2013.
- Poste Rouge du CNRS, Université de Paris Est Marne-la-Vallée, 2012.
- Simons Visiting Professor, MSRI, 2011.
- Professeur invité, École normale supérieure, Paris, 2011.
- Weston Visiting Professorship, Weizmann Institute, 2009.
- Distinguished visitor, University of California at San Diego, 2008.

## Teaching Experience:

- Courses taught at Princeton University:
  - “Advanced Topics in Analysis: Metric Embeddings and Geometric Inequalities” (spring 2016).
  - “Honors Analysis in a Single Variable” (fall 2015).
  - “Advanced Topics in Analysis: Embeddings and Extensions” (spring 2015).
- Courses taught at the Courant Institute of Mathematical Sciences:
  - “Topics in geometric nonlinear functional analysis” (spring 2014).
  - “Embeddings of discrete spaces” (spring 2012).
  - “Analysis 1” (spring 2011).
  - “Topics in the local theory of Banach spaces” (fall 2010).
  - “Algebra 1” (fall 2008, fall 2009, spring 2012, fall 2013).
  - “Concentration of measure” (fall 2008).
  - “The local theory of metric spaces and its algorithmic applications” (spring 2008).
  - “The local theory of Banach spaces” (fall 2007).
- Worked as a teaching assistant at the Hebrew University in Jerusalem in the academic years 1996-1997, 1997-1998, 1998-1999, 1999-2000, 2001-2002. This work involved teaching frontal recitation classes, and grading homework and exams. The courses taught were:
  - First year linear algebra (linear algebra 1 and linear algebra 2).
  - Differential and integral calculus for economics students.
  - Complex function theory (for third year students).
  - Probability 2 (advanced probability theory for second/third year students).
  - Basic concepts in analysis (an advanced analysis course for M.Sc. students. This is a two-semester course that was taught for two years in a row).
  - First year infinitesimal calculus (infinitesimal calculus 1 and infinitesimal calculus 2).
  - Advanced calculus 1 (for second year students).



- Invited mini-courses and tutorials:
  - Invited tutorial, Workshop on Linear Analysis and probability, Texas A&M University, July 2003. The tutorial on metric space theory was directed toward graduate students in Mathematics and Theoretical Computer Science.
  - Invited tutorial, IPAM workshop on Multiscale Geometry and Analysis in High Dimensions, UCLA, September 2004.
  - Invited tutorial, Doc-Course on Harmonic Analysis in Computer Science and Combinatorics, Charles University, Prague, September 2006.
  - Invited mini-course, Spring school États de la recherche Géométrie et Probabilités en interaction, Toulouse France, May 2008.
  - Invited mini-course, LMS/EPSRC Short Instructional Course, Cambridge University, July 2009.
  - Invited mini-course, Concentration Week on Geometric Functional Analysis, Texas A&M University, July 2016.

### Advising:

- **Ph.D. students:**
  - Alexandros Eskenazis (Princeton University, 2014–present).
  - Steven Heilman (Courant Institute of Mathematical Sciences, 2008–2013).
  - Sean Li (Courant Institute of Mathematical Sciences, 2009–2014)
  - Ohad Giladi (Courant Institute of Mathematical Sciences, 2007–2011).
- **M.Sc. students:**
  - Hassane Kone (Courant Institute of Mathematical Sciences, 2008–2009).
- **Undergraduate research advisees:**
  - Aukosh Jagannath (Courant Institute of Mathematical Sciences, 2013).
  - Frederic Koehler (Princeton University, 2015).
- **Post-doctoral advisees:**
  - Alexandr Andoni (Center for Computational Intractability, affiliated with the Courant Institute of Mathematical Sciences, 2009–2010).
  - Per Austrin (Courant Institute of Mathematical Sciences, 2009–2010).
  - Jop Briët (Courant Institute of Mathematical Sciences, funded by Netherlands Rubicon grant, 2013-2015).
  - Daniel Dadush (Simons Postdoc at the Courant Institute of Mathematical Sciences, 2012–2014).
  - Arie Israel (NSF postdoctoral fellowship at the Courant Institute of Mathematical Sciences, 2011–2014).

- Paata Ivanisvili (A&G postdoc at Princeton, 2017–2019).
- William Leeb (A&G postdoc at Princeton, 2015–2017).
- Ofer Neiman (Courant Institute of Mathematical Sciences and Center for Computational Intractability, 2009–2011).
- Grigoris Paouris (Courant Institute of Mathematical Sciences, 2008–2009).
- Konstantin Tikhomirov (Instructor and A&G postdoc at Princeton, 2016–2019).
- Tomasz Tkocz (A&G postdoc at Princeton, 2015–2017).

- **Interns:**

- Nir Avni (Microsoft Research intern, 2005).
- James R. Lee (Microsoft Research intern, 2003 and 2004).
- Konstantin Makarychev (Microsoft Research intern, 2005).
- Yury Makarychev (Microsoft Research intern, 2005 and 2006).
- Lior Silberman (Microsoft Research intern, 2004).

## Publications and preprints:

### Journal papers:

- **Heat flow and quantitative differentiation** (with T. Hytönen). To appear in Journal of European Mathematical Society.
- **Snowflake universality of Wasserstein spaces** (with A. Andoni and O. Neiman). To appear in Annales scientifiques de l'École normale supérieure.
- **Restricted invertibility revisited** (with P. Youssef). To appear in Journey Through Discrete Mathematics. A Tribute to Jiří Matoušek.
- **Discrete Riesz transforms and sharp metric  $X_p$  inequalities**. Annals of Mathematics, Volume 184 (2016), Issue 3, pages 991–1016.
- **Quantitative affine approximation for UMD targets** (with T. Hytönen and S. Li). Discrete Analysis 2016:6.
- **Metric  $X_p$  inequalities** (with G. Schechtman). Forum of Mathematics, Pi 4 (2016), e3.
- **Pythagorean powers of hypercubes** (with G. Schechtman). Annales de l'Institut Fourier 66 no. 3 (2016), pages 1093–1116.
- **Uniform nonextendability from nets**. Comptes Rendus de l'Académie des Sciences - Series I - Mathematics 353 (2015), no. 11, 991–994.
- **On Lipschitz extension from finite subsets** (with Y. Rabani).
- **Expanders with respect to Hadamard spaces and random graphs** (with M. Mendel). Duke Mathematical Journal 164 (2015), no. 8, 1471–1548.

- **Efficient rounding for the noncommutative Grothendieck inequality** (with O. Regev and T. Vidick). Theory of Computing, Volume 10 (2014) Article 11 pages 257–295.
- **Comparison of metric spectral gaps.** Analysis and Geometry in Metric Spaces 2 (2014), pages 1-52.
- **The Grothendieck constant is strictly smaller than Krivine’s bound** (with M. Braverman, K. Makarychev and Y. Makarychev). Forum of Mathematics, Pi, Volume 1/2013, e4.
- **A doubling subset of  $L_p$  for  $p > 2$  that is inherently infinite dimensional** (with V. Lafforgue). Geometriae Dedicata Volume 172 (2014), Issue 1, pages 387–398.
- **Vertical versus horizontal Poincaré inequalities on the Heisenberg group** (with V. Lafforgue). Israel Journal of Mathematics Volume 203 (2014), Issue 1, pages 309–339.
- **Solution of the propeller conjecture in  $\mathbb{R}^3$**  (with S. Heilman and A. Jagannath). Discrete and Computational Geometry Volume 50, Issue 2 (2013), pages 263–305.
- **Spectral calculus and Lipschitz extension for barycentric metric spaces** (with M. Mendel). Analysis and Geometry in Metric Spaces, 1 (2013), pages 163–199.
- **Pisier’s inequality revisited** (with T. Hytönen). Studia Mathematica, 215 (2013), 221–235.
- **Nonlinear spectral calculus and super-expanders** (with M. Mendel). Publications mathématiques de l’IHÉS, Volume 119, Issue 1 (2014), pages 1–95.
- **Krivine schemes are optimal** (with O. Regev). Proceedings of the American Mathematical Society, 142 (2014), no. 12, 4315–4320.
- **Locally decodable codes and the failure of cotype for projective tensor products** (with J. Briët and O. Regev). Electronic Research Announcements in Mathematical Sciences, volume 19 (2012), pages 120–130.
- **An introduction to the Ribe program.** Japanese Journal of Mathematics 7 (2012), no. 2, 167–233.
- **Discretization and affine approximation in high dimensions** (with S. Li). Israel Journal of Mathematics, Volume 197, Issue 1 (2013), 107–129.
- **Ultrametric skeletons** (with M. Mendel). Proceedings of the National Academy of Sciences (2013), 110 (48), 19251–19255.
- **Ultrametric subsets with large Hausdorff dimension** (with M. Mendel). Inventiones Mathematicae, Volume 192, Issue 1 (2013), Page 1-54.
- **Bourgain’s discretization theorem** (with O. Giladi and G. Schechtman). Annales Mathématiques de la Faculté des Sciences de Toulouse vol. XXI, no. 4 (2012), pp. 817-837.

- **Sharp quantitative nonembeddability of the Heisenberg group into superreflexive Banach spaces** (with T. Austin and R. Tessera). *Groups, Geometry, and Dynamics*, 7 (2013), no. 3, 497–522.
- **Assouad’s theorem with dimension independent of the snowflaking** (with O. Neiman). *Revista Matemática Iberoamericana*, volume 28, issue 4 (2012), pages 1123–1142.
- **On the Banach space valued Azuma inequality and small set isoperimetry of Alon-Roichman graphs**. *Combinatorics, Probability and Computing*, volume 21, issue 04, pages 623 - 634, 2012.
- **Absolutely minimal Lipschitz extension of tree-valued mappings** (with S. Sheffield). *Mathematische Annalen*, volume 354, issue 3 (2012), pages 1049–1078.
- **Markov convexity and local rigidity of distorted metrics** (with M. Mendel). *Journal of the European Mathematical Society*, volume 15, issue 1 (2013), 287–337.
- **Grothendieck-type inequalities in combinatorial optimization** (with S. Khot). *Communications in Pure and Applied Mathematics Volume 65, Issue 7*, pages 992-1035, 2012.
- **Approximate kernel clustering** (with S. Khot). *Mathematika* 55 (2009), no. 1-2, 129-165.
- **Scale-oblivious metric fragmentation and the nonlinear Dvoretzky theorem** (with T. Tao). *Israel Journal of Mathematics* 192 (2012), 489-504.
- **Sparse quadratic forms and their geometric applications (after Batson, Spielman and Srivastava)**, séminaire Bourbaki, exposé no. 1033, 2011.
- **Overlap properties of geometric expanders** (with J. Fox, M. Gromov, V. Lafforgue and J. Pach). *Journal für die reine und angewandte Mathematik* 671, 49–83 (2012).
- **Compression bounds for Lipschitz maps from the Heisenberg group to  $L_1$**  (with J. Cheeger, B. Kleiner). *Acta Mathematica*, Volume 207, Issue 2 (2011), 291–373.
- **Poincaré inequalities, embeddings, and wild groups** (with L. Silberman). *Compositio Mathematica*, 147 (2011), no. 5, 1546-1572.
- **Improved bounds in the metric cotype inequality for Banach spaces** (with O. Giladi and M. Mendel). *Journal of Functional Analysis* 260 (2011) 164–194.
- **$L_p$  compression, traveling salesmen, and stable walks**, (with Y. Peres). *Duke Mathematical Journal*, 157 (2011), no. 1, 53-108.
- **Sharp kernel clustering algorithms and their associated Grothendieck inequalities** (with S. Khot). *Random Structures Algorithms* 42 (2013), no. 3, 269-300.
- **$L_1$  embeddings of the Heisenberg group and fast estimation of graph isoperimetry**. *Proceedings of the International Congress of Mathematicians. Volume III*, 1549-1575, Hindustan Book Agency, New Delhi, 2010.

- **Random martingales and localization of maximal inequalities** (with T. Tao). *Journal of Functional Analysis* 259 (2010) 731-779.
- **An application of metric cotype to quasisymmetric embeddings**. *Progress in Mathematics* 297, 175–178 (2012).
- **Approximate kernel clustering** (with S. Khot). *Mathematika* 55 (2009), no. 1-2, 129–165.
- **The Johnson-Lindenstrauss lemma almost characterizes Hilbert space, but not quite** (with W. B. Johnson). *Discrete and Computational Geometry* volume 43, issue 3 (2010), pages 542-553.
- **Maximum gradient embeddings and monotone clustering** (with M. Mendel). *Combinatorica* 30 number 5 (2010), 581–615.
- **The Euclidean distortion of the lamplighter group** (with T. Austin and A. Valette). *Discrete and Computational Geometry*, volume 44, issue 1 (2010), pages 55–74.
- **The UGC hardness threshold of the  $L_p$  Grothendieck problem** (with G. Kindler and G. Schechtman). *Mathematics of Operations Research*, volume 35, number 2 (2010), 267–283.
- **Linear equations modulo 2 and the  $L_1$  diameter of convex bodies** (with S. Khot). *SIAM Journal on Computing* 38 (2008), no. 4, 1448–1463.
- **Embeddings of discrete groups and the speed of random walks** (with Y. Peres). *International Mathematics Research Notices* 2008, Art. ID rnn 076, 34 pp.
- **The wreath product of  $\mathbb{Z}$  with  $\mathbb{Z}$  has Hilbert compression exponent  $\frac{2}{3}$**  (with T. Austin and Y. Peres). *Proceedings of the American Mathematical Society* 137 (2009), no. 1, 85–90.
- **Ramsey partitions and proximity data structures** (with M. Mendel). *Journal of the European Mathematical Society* 9 (2007), no. 2, 253–275.
- **Frechet embeddings of negative type metrics** (with S. Arora and J. R. Lee). *Discrete and Computational Geometry* 38 (2007), no. 4, 726–739.
- **Parity check matrices and product representations of squares** (with J. Verstraete). *Combinatorica* 28 (2008), no. 2, 163–185.
- **Planar Earthmover is not in  $L_1$**  (with G. Schechtman). *SIAM Journal on Computing* 37 (2007), no. 3, 804–826.
- **Trees and Markov convexity** (with J. R. Lee and Y. Peres). *Geometric and Functional Analysis (GAFA)* 18-5 (2008), 1609-1659.
- **Euclidean distortion and the Sparsest Cut** (with S. Arora and J. R. Lee). *Journal of the American Mathematical Society* 21 (2008), no. 1, 1–21.

- **Markov chains in smooth Banach spaces and Gromov hyperbolic metric spaces** (with Y. Peres, O. Schramm and S. Sheffield). *Duke Mathematical Journal* 134(1), 165-197 (2006).
- **Metric cotype** (with M. Mendel). *Annals of Mathematics* 168 (2008), no. 1, 247-298.
- **Nonembeddability theorems via Fourier analysis** (with S. Khot). *Mathematische Annalen* 334, number 4, 821-852 (2006).
- **Scaled Enflo type is equivalent to Rademacher type** (with M. Mendel). *Bulletin of the London Mathematical Society* 39 (2007), no. 3, 493–498.
- **Nearest neighbor preserving embeddings** (with P. Indyk). *ACM Transactions on Algorithms* 3 (2007), no. 3, Art. 31, 12 pp.
- **On the Turán Number of the Hexagon** (with Z. Füredi and J. Verstraete), *Advances in Mathematics* 203(2), 476-496 (2006).
- **Some applications of Ball’s extension theorem** (with M. Mendel), *Proceedings of the American Mathematical Society* 134 (2006), 2577-2584.
- **Quadratic forms on graphs** (with N. Alon, K. Makarychev and Y. Makarychev), *Inventiones Mathematicae* 163, number 3, 499-522.
- **Quasisymmetric embeddings, the observable diameter, and expansion properties of graphs** (with Y. Rabani and A. Sinclair), *Journal of Functional Analysis* 227(2), 273-303 (2005).
- **Rigorous location of phase transitions in hard optimization problems** (with D. Achlioptas and Y. Peres), *Nature* 435, 759-764 (2005).
- **Measured descent: A new embedding method for finite metrics** (with R. Krauthgamer, J. R. Lee and M. Mendel), *Geometric and Functional Analysis (GAFA)* 15(4), 839-858 (2005).
- **Extending Lipschitz functions via random metric partitions** (with J. R. Lee), *Inventiones Mathematicae* 160 (2005), no. 1, 59-95.
- **On Metric Ramsey-type Dichotomies** (with Y. Bartal, N. Linial and M. Mendel), *Journal of the London Mathematical Society* 71, no. 2, 289-303 (2005).
- **A Note on Bipartite Graphs without a  $2k$ -Cycle** (with J. Verstraete). *Probability, Combinatorics and Computing* 14 (5-6), 845-849 (2005).
- **Limitations to Frechet’s Metric Embedding Method** (with Y. Bartal, N. Linial and M. Mendel), *Israel Journal of Mathematics* 151 (2006) 111-124.
- **Metric structures in  $L_1$ : Dimension, snowflakes, and average distortion** (with J. R. Lee and M. Mendel). *European Journal of Combinatorics* 26(8), 1180-1190.
- **Solution of Shannon’s Problem on the Monotonicity of Entropy** (with K. Ball, F. Barthe and S. Artstein), *Journal of the American Mathematical Society* 17, 975-982 (2004).

- **The Two Possible Values of the Chromatic Number of a Random Graph** (with D. Achlioptas). *Annals of Mathematics* 162(3), 1333-1349 (2005).
- **Approximating the Cut-Norm via Grothendieck's Inequality** (with N. Alon). *SIAM Journal on Computing* 35, issue 4 (STOC 2004 special issue), 787-803 (2006).
- **On Metric Ramsey Type Phenomena** (with Y. Bartal, N. Linial and M. Mendel), *Annals of Mathematics* 162(2), 643-709 (2005).
- **Embedding the Diamond Graph in  $L_p$  and Dimension Reduction in  $L_1$**  (with J. R. Lee), *Geometric and Functional Analysis (GAFA)* 14(4), 745-747 (2004).
- **Euclidean Quotients of Finite Metric Spaces** (with M. Mendel), *Advances in Mathematics* 189(2), 451-494 (2004).
- **A Probabilistic Approach to the Geometry of the  $\ell_p^n$  Ball** (with F. Barthe, O. Guedon and S. Mendelson), *Annals of Probability* 33 (2005), no. 2, 480-513.
- **Entropy Jumps in the Presence of a Spectral Gap** (with K. Ball and F. Barthe), *Duke Mathematical Journal* 119, No. 1, 41-63 (2003).
- **On the Rate of Convergence in the Entropic Central Limit Theorem** (with K. Ball, F. Barthe and S. Artstein), *Probability Theory and Related Fields* 129, 381-390 (2004).
- **Absolute Lipschitz extendability** (with J. R. Lee), *Comptes Rendus de l'Academie des Sciences - Series I - Mathematics* 338(11): 859-862, 2004.
- **On the maximum satisfiability of random formulas** (with D. Achlioptas and Y. Peres). *Journal of ACM* 54 (2007), no. 2, Art. 10, 21 pp.
- **Low Dimensional Embeddings of Ultrametrics** (with Y. Bartal, N. Linial and M. Mendel), *European Journal of Combinatorics*, 25 (2004), no. 1, 87-92.
- **Projecting the Surface Measure of the Sphere of  $\ell_p^n$**  (with D. Romik), *Annales de l'Institut Henri Poincaré (B), Probability and Statistics* 39 (2003), 241-261.
- **Lipschitz Sums of Convex Functions** (with M. Csörnyei), *Studia Mathematica* 158 (2003), 269-286.
- **On Some Low Distortion Metric Ramsey Problems** (with Y. Bartal, N. Linial and M. Mendel), *Discrete and Computational Geometry* 33(1), 27-45 (2005).
- **Girth and Euclidean Distortion** (with N. Linial and A. Magen), *Geometric and Functional Analysis (GAFA)* 12 (2002), no. 2, 380-394.
- **Remarks on Non Linear type and Pisier's Inequality** (with G. Schechtman), *Journal für die reine und angewandte mathematik (Crelle's Journal)* 552 (2002) 213-236.
- **Hyperplane Projections of the Unit Ball of  $\ell_p^n$**  (with F. Barthe), *Discrete and Computational Geometry* 27 (2002), no. 2, 215- 226.

- **Boolean Functions whose Fourier Transform is Concentrated on the First Two Levels** (with E. Friedgut and G. Kalai), *Advances in Applied Mathematics* 29, no. 3, (2002) 427-437.
- **A Note on Simultaneous Polar and Cartesian Decomposition** (with F. Barthe and M. Csörnyei), *Geometric Aspects of Functional Analysis*, Springer Lecture Notes in Mathematics 1807, 1-19.
- **The Surface Measure and Cone Measure on the Sphere of  $\ell_p^n$** , *Transactions of the AMS* 359 (2007), no. 3, 1045–1079.
- **A Phase Transition Phenomenon Between the Isometric and Isomorphic Extension Problems for Holder Functions Between  $L_p$  Spaces**, *Mathematika* 48 (2001), 253-271.
- **Isomorphic Embedding of  $\ell_p^n$ ,  $1 < p < 2$ , into  $\ell_1^{(1+\epsilon)n}$**  (with A. Zvavitch), *Israel Journal of Mathematics* 122 (2001), 371-380.

#### Computer science conference proceedings:

- **Girth and Euclidean Distortion** (with N. Linial and A. Magen). STOC 2002.
- **On metric Ramsey-type phenomena** (with Y. Bartal, N. Linial and M. Mendel). STOC 2003.
- **On the maximum satisfiability of random formulas** (D. Achlioptas and Y. Peres). FOCS 2003.
- **Metric structures in  $L_1$ : Dimension, snowflakes, and average distortion** (with J. R. Lee and M. Mendel). LATIN 2004.
- **Approximating the Cut-Norm via Grothendieck's Inequality** (with N. Alon). STOC 2004.
- **The Two Possible Values of the Chromatic Number of a Random Graph** (with D. Achlioptas). STOC 2004.
- **Measured descent: A new embedding method for finite metrics** (with R. Krauthgamer, J. R. Lee and M. Mendel). FOCS 2004.
- **Quadratic forms on graphs** (with N. Alon, K. Makarychev and Y. Makarychev). STOC 2005.
- **Euclidean distortion and the Sparsest Cut** (with S. Arora and J. R. Lee). STOC 2005.
- **Improved bounds on the size of sparse parity check matrices** (with J. Verstraete). ISIT 2005.
- **Nonembeddability theorems via Fourier analysis** (with S. Khot). FOCS 2005.
- **Metric cotype** (with M. Mendel). SODA 2006.



- **Trees and Markov convexity** (with J. R. Lee and Y. Peres). SODA 2006.
- **Lower bounds on Locality Sensitive Hashing** (with R. Motwani and R. Panigrahi). SoCG 2006.
- **Ramsey partitions and proximity data structures** (with M. Mendel). FOCS 2006.
- $L_p$  **metrics on the Heisenberg group and the Goemans-Linial conjecture** (with J. R. Lee). FOCS 2006.
- **Planar Earthmover is not in  $L_1$**  (with G. Schechtman). FOCS 2006.
- **Maximum gradient embeddings and monotone clustering** (with M. Mendel). APPROX 2007.
- **Linear equations modulo 2 and the  $L_1$  diameter of convex bodies** (with S. Khot). FOCS 2007.
- **The UGC hardness threshold of the  $L_p$  Grothendieck problem** (with G. Kindler and G. Schechtman). SODA 2008.
- **Markov convexity and local rigidity of distorted metrics** (with M. Mendel). SoCG 2008.
- **Approximate kernel clustering** (with S. Khot). FOCS 2008.
- **The Johnson-Lindenstrauss lemma almost characterizes Hilbert space, but not quite** (with W. B. Johnson). SODA 2009.
- **A  $(\log n)^{\Omega(1)}$  integrality gap for the Sparsest Cut SDP** (with J. Cheeger and B. Kleiner). FOCS 2009.
- **Sharp kernel clustering algorithms and their associated Grothendieck inequalities** (with S. Khot). SODA 2010.
- **Towards a calculus of non-linear spectral gaps** (with M. Mendel). SODA 2010.
- **Overlap properties of geometric expanders** (with J. Fox, M. Gromov, V. Lafforgue and J. Pach). SODA 2011.
- **The Grothendieck constant is strictly smaller than Krivine's bound** (with M. Braverman, K. Makarychev and Y. Makarychev). FOCS 2011.
- **Solution of the propeller conjecture in  $\mathbb{R}^3$**  (with S. Heilman and A. Jagannath). STOC 2012.
- **Efficient rounding for the noncommutative Grothendieck inequality** (with O. Regev and T. Vidick). STOC 2013.
- **Expanders with respect to Hadamard spaces and random graphs** (with M. Mendel). ITCS 2014.

- **Impossibility of sketching of the 3D transportation metric with quadratic cost** (with A. Andoni and O. Neiman). ICALP 2016.
- **Probabilistic clustering of high dimensional norms.** SODA 2017.
- **The integrality gap of the Goemans–Linial SDP relaxation for Sparsest Cut is at least a constant multiple of  $\sqrt{\log n}$**  (with R. Young). STOC 2017.
- **A spectral gap precludes low-dimensional embeddings.** SoCG 2017.

Preprints:

- **Metric decomposition, smooth measures, and clustering** (with J. R. Lee).
- **On the bi-Lipschitz structure of Wasserstein spaces** (with T. Austin).
- **An approximation scheme for quadratic form maximization on convex bodies** (with G. Schechtman).
- **On isomorphic dimension reduction in  $\ell_1$**  (with A. Andoni and Ofer Neiman).
- **On absolute Lipschitz extendability** (with M. Mendel).
- **A weighted Sobolev embedding on the discrete torus and nonexistence of gentle partitions of unity** (with M. Mendel and Y. Rabani).
- **Obstructions to metric embeddings of Schatten classes** (with G. Schechtman).
- **Lipschitz almost-extension and nonexistence of uniform embeddings of balls in Schatten classes** (with G. Schechtman).
- **The binary tensor conductance of  $M_n(\mathbb{Z}_m)$**  (with G. Schechtman).
- **Impossibility of almost extension.**
- **Separating decompositions in high dimensions, extremal hyperplane projections, and Lipschitz extension.**
- **Universalizing permutation groups.**
- **Vertical perimeter versus horizontal perimeter** (with R. Young).
- **A spectral gap precludes low-dimensional embeddings.**

## Invited Talks and Visiting Positions:

- Invited talk, International Workshop on Geometric Convex Analysis, Technion, Israel. March 2000.
- Invited talk, International Functional Analysis Meeting, Valencia, Spain. July 2000.
- Invited talk, Functional analysis session of the Israeli Mathematical Union meeting, Weizmann Institute, Israel. June 2001.
- Three invited talks, Workshop on Linear Analysis and Probability and SUMMIRFAS conference, College Station, Texas. July-August 2001.
- Invited Talk, Conference on Convex Geometric Analysis, Crete, Greece. August 2001.
- Invited talk, GAFA seminar, Tel-Aviv, Israel. November 2001.
- Invited talk, analysis seminar, Technion, Israel. December 2001.
- Invited talk, analysis seminar, University of Paris 6, Paris France. January 2002.
- Invited talk, analysis seminar, University of Marne-la-Valee, France. January 2002.
- Visiting researcher, Australian National University, Canberra, Australia. February 2002.
- Invited talk, Workshop on Discrete Metric Spaces and their Algorithmic Applications, Haifa University, March 2002.
- Invited talk, Conference on Geometric and Topological Aspects of Functional Analysis, Haifa University, May, 2002.
- Invited talk, analysis seminar, University of Marne-la-Valee, France. May 2002.
- Two invited talks, thematic program on asymptotic geometric analysis, Pacific Institute of Mathematics, Vancouver BC, Canada. July-August 2002.
- Invited talk, Combinatorics/Geometry seminar, University of Washington, Seattle WA, USA. October 2002.
- Short term visitor (November 1-15 2002), Institute for Advanced Study, Princeton NJ, USA. Invited talk at the Theoretical Computer Science and Discrete Mathematics seminar.
- Invited talk, Probability Seminar, University of Washington, Seattle WA, USA. November 2002.
- Invited talk, national meeting of the American Mathematical Society, special session on Banach spaces and convex geometry, Baltimore MD, USA, January 2003.
- Visiting fellow, Research School of Information Sciences and Engineering, The Australian National University, Canberra, Australia, February 2003.
- Mathematics colloquium talk, The Australian National University, Canberra, Australia, February 2003.
- Invited talk, Conference on Banach Spaces and Convex Geometric Analysis, Kiel, Germany, April 2003.
- Invited tutorial, Workshop on linear analysis and probability, College Station Texas, July 2003.
- Two invited talks, Workshop on discrete metric spaces and their algorithmic application, Princeton, August 2003.
- Invited talk, session on analysis on singular spaces, sectional AMS meeting, Boulder CO, October 2003.
- Invited talk, probability seminar, U. C. Berkeley, October 2003.
- Invited talk, complex analysis seminar, University of Washington, October 2003.
- Invited talk, theory of computing seminar, MIT, October 2003.
- Invited talk, theory of computing seminar, University of Washington, November 2003.
- Visiting fellow, Research School of Information Sciences and Engineering, The Australian National University, Canberra, Australia, November 2003.
- Invited talk, Geometry seminar, New York University, March 2004.
- Invited talk at the Pacific Northwest Theory of Computing Day, Microsoft, May 2004.
- Invited talk, Columbia Applied Probability Day, Columbia University, May 2004.
- Invited talk, GAFA seminar, Tel-Aviv University, May 2004.

- Invited talk, Workshop on Mathematical Foundations of Computer Science, ETH Zürich, May 2004.
- Invited talk, Workshop on Recent Developments in Finite Metric Spaces: Theory and Algorithmic Applications, Haifa University, June 2004.
- Invited talk, conference on Mathematical Foundations of Learning Theory, Barcelona, June 2004.
- Invited talk, Banff workshop on Convex Geometric Analysis, July 2004.
- Invited tutorial, IPAM workshop on Multiscale Geometry and Analysis in High Dimensions, UCLA, September 2004.
- Invited talk, mathematics colloquium, Georgia Institute of Technology, October 2004.
- Invited talk, combinatorics and optimization seminar, University of Waterloo, October 2004.
- Invited talk, IPAM workshop Multiscale structures in the analysis of High-DimensionalData, UCLA, October 2004.
- Invited talk, analysis seminar, Caltech, October 2004.
- Invited talk, probability seminar, U. C. Berkeley, November 2004.
- Invited talk, theory of computing seminar, University of Washington, November 2004.
- Invited talk, Applied and Computational Mathematics Colloquium, CALTECH, November 2004.
- Invited talk, IPAM workshop on Math Analysis and Multiscale Geometric Analysis, UCLA, November 2004.
- Invited talk, theory of computing seminar, U. C. Berkeley, December 2004.
- Invited talk, mathematics colloquium, U. C. Berkeley, December 2004.
- Invited talk, Conference on Harmonic Analysis, Ergodic Theory and Probability (a conference in honor of I. Katznelson's 70th Birthday), Stanford, December 2004.
- Invited talk, probability seminar, University of Washington, February 2005.
- Invited talk, algorithms seminar, Stanford University, February 2005.
- Invited talk, mathematics colloquium, Courant Institute, New York University, March 2005.
- Invited talk, analysis seminar, Weizmann Institute, March 2005.
- Invited talk, mathematics colloquium, Hebrew University, Jerusalem, March 2005.
- Invited talk, GAFA seminar, Tel-Aviv University, April 2005.
- Invited talk, analysis seminar, Stanford University, April 2005.
- Invited talk, applied mathematics colloquium, MIT, April 2005.
- Invited talk, analysis seminar, MIT, April 2005.
- Invited talk, applied mathematics colloquium, Harvard University, April 2005.
- Invited talk, analysis seminar, UCLA, May 2005.
- Invited talk, Contemporary Ramifications of Banach Space Theory (conference in honor of Joram Lindenstrauss and Lior Tzafriri), Hebrew University, Jerusalem, June 2005.
- Invited talk, Asymptotic Geometric Analysis (conference in honor of Nicole Tomczak-Jaegermann), Dead Sea, June 2005.
- Invited talk, conference in honor of Haskell Rosenthal, Texas A&M University, August 2005.
- Invited talk, mathematics colloquium, University of Minnesota, September 2005.
- Invited talk, Industrial Problems Seminar, University of Minnesota, September 2005.
- Plenary address, Southeast Section Meeting of the American Mathematical Society, October 2005.
- Short-term member, Institute for Advanced Study, October 2005.
- Invited talk, computer science/discrete mathematics seminar, Institute for Advanced Study, October 2005.
- Invited talk, mathematics colloquium, Princeton University, October 2005.
- Invited talk, analysis seminar, Weizmann Institute, December 2005.
- Invited talk, mathematics colloquium, Hebrew University, December 2005.

- Invited talk, national AMS meeting, special session on extensions of functions, San Antonio, January 2006.
- Invited tutorial, Doc-Course on Harmonic Analysis in Computer Science and Combinatorics, Charles University, Prague, September 2006.
- Invited talk, probability seminar, NYU, March 2006.
- Plenary talk, Banach Spaces and their Applications in Analysis (conference in honor of Nigel Kalton), Miami University, Ohio, May 2006.
- Plenary talk, annual meeting of the European network on Phenomena of High Dimensions, Institut Henri Poincaré, Paris France, June 2006.
- Invited talk, conference on Random Graphs and Large-Scale Real-World Networks, Institute for Mathematical Sciences, Singapore, June 2006.
- Invited educational talk, conference on Asymptotic Geometry and its applications, Institut Henri Poincaré, Paris France, July 2006.
- Plenary talk, conference on Asymptotic Geometry and its applications, Institut Henri Poincaré, Paris France, July 2006.
- Two educational talks, workshop on Metric Geometry and Geometric Embeddings of Discrete Metric Spaces, Texas A&M University, July 2006.
- Invited talk, workshop on Metric Geometry and Geometric Embeddings of Discrete Metric Spaces, Texas A&M University, July 2006.
- Plenary talk at the conference “Banach space theory: classical topics and new directions,” Caceres Spain, September 2006.
- Invited talk, analysis seminar, UCLA, October 2006.
- Invited talk, Oberwolfach workshop “Probability, combinatorics, and computing,” November 2006.
- Invited talk, EXCILL: Extremal Combinatorics at Illinois, University of Illinois at Urbana-Champaign, November 2006.
- Invited talk, Oberwolfach workshop “Konvexgeometrie,” December 2006.
- Kuwait Foundation Lecture, University of Cambridge, Cambridge UK, February 2007.
- Invited talk, combinatorics seminar, University of Cambridge, Cambridge UK, February 2007.
- Invited mini-course, research semester on limits of graphs in group theory and computer science, Bernoulli Center, EPFL Lausanne, March 2007.
- Invited talk, Colloquium on Combinatorial Computing, CUNY Graduate Center, New York, April 2007.
- Invited talk, discrete mathematics seminar, Princeton University, April 2007.
- Invited talk, Theory of Computation Colloquium, MIT, May 2007.
- Invited talk, theory seminar, Princeton University, May 2007.
- Invited speaker, C&O@40 conference, University of Waterloo, June 2007.
- Consulting researcher at Microsoft Research, June-July 2007.
- Invited speaker, Conference on Real Analysis, Geometric Measure Theory, PDE and Banach Spaces, Warwick University, August 2007.
- Invited talk, Mathematics Colloquium, Brooklyn Polytechnic University, September 2007.
- Invited talk, Discrete Mathematics Seminar, Columbia University, October 2007.
- Norbert Wiener Lecture Series, MIT, October 2007.
- Invited talk, Mathematics Colloquium, Stanford University, November 2007.
- Plenary address, Joint meeting of the American Mathematical Society and the New Zealand Mathematical Society, Wellington New Zealand, December 2007.
- Invited talk, Open University of Israel Theory Day, Israel, March 2008.
- Invited talk, IAS discrete mathematics and theoretical computer science seminar, Princeton, April 2008.

- Invited talk, mathematics colloquium, UCSD, San Diego, April 2008.
- Plenary talk, Clay Research Conference, Cambridge MA, May 2008.
- Invited mini-course at the spring school États de la recherche Géométrie et Probabilités en interaction, Université Paul-Sabatier, Toulouse France, May 2008.
- Plenary talk, annual meeting of the Israel Mathematics Union, May 2008.
- Invited talk, Symposium on geometry of Banach spaces in memory of Lior Tzafriri, Hebrew University, Jerusalem Israel, May 2008.
- Invited talk, Geometric Functional Analysis and Probability Seminar, Weizmann Institute, Rehovot Israel, June 2008.
- Invited address, 5th European Congress of Mathematics, Amsterdam, July 2008.
- Invited talk, Oberwolfach meeting on Discrete Geometry, September 2008.
- Invited talk, Mathematics Colloquium, Brooklyn Polytechnic University, October 2008.
- Invited talk, IBM T.J. Watson Research Center, October 2008.
- Plenary talk, New York Area Theory Day, December 2008.
- Invited talk, Mathematics Colloquium, Rutgers University, December 2008.
- Invited talk, IPAM workshop “Quantitative and Computational Aspects of Metric Geometry,” January 2009.
- Invited talk, Mathematics Colloquium, Columbia University, January 2009.
- Invited talk, Computer Science and Discrete Mathematics Seminar, Institute for Advanced Study, February 2009.
- Invited talk, Geometric Functional Analysis and Probability Seminar, Weizmann Institute, March 2009.
- Invited talk, Discrete Analysis Seminar, Cambridge University, March 2009.
- Invited talk, Lior Tzafriri Memorial Meeting, Hebrew University, March 2009.
- Invited talk, Probability Seminar, MIT, April 2009.
- Invited talk, Combinatorics and Probability Seminar, University of Pennsylvania, April 2009.
- Invited talk, International Conference on Metric and Differential Geometry, Chern Institute of Mathematics, Tianjin, and the Capital Normal University, Beijing, May 2009.
- Visiting researcher, Microsoft Research, Redmond WA, June 2009.
- Invited talk, Microsoft Research Theory Group, Redmond WA, June 2009.
- Invited talk, conference on Affine Isometric Actions of Discrete Groups, Ascona Switzerland, June 2009.
- Visiting researcher, “Methods for Discrete Structures” program, Technische Universität Berlin, July-August 2009.
- Invited talk, Mathematics Colloquium, Technische Universität Berlin, July 2009.
- Invited min-course, LMS/EPSRC Short Instructional Course, Cambridge University, July 2009.
- Invited talk, Annual Packard Fellows Meeting, Monterey CA, September 2009.
- Invited talk, Mathematics Colloquium, Brooklyn Polytechnic University, September 2009.
- Invited talk, Mathematics Colloquium, Courant Institute, New York University, October 2009.
- Invited talk, workshop on Analytical Methods in Combinatorics, Additive Number Theory and Computer Science, IPAM, UCLA, December 2009.
- Invited talk, Probability Seminar, IMPA, Rio de Janeiro, January 2010.
- Invited talk, Mathematics Colloquium, Princeton University, March 2010.
- Invited talk, Discrete Mathematics Seminar, Princeton University, April 2010.
- Invited talk, Mathematics Colloquium, Harvard University, April 2010.
- Invited talk, Probability Seminar, Cornell University, April 2010.
- Professeur invité, Université Paris 6, May-June 2010.

- Invited talk, conference on “Probability and Geometry in High Dimensions,” Paris, May 2010.
- Invited talk, functional analysis seminar, Université Paris 6, May 2010.
- Invited talk, operator algebras seminar, Université Paris 7, May 2010.
- Invited talk, topology and dynamics seminar, Université Paris-Sud 11, June 2010.
- Invited talk, conference on “Groups and Large Scale Geometry,” Clermont-Ferrand, June 2010.
- Plenary speaker, SUMIRFAS 2010, Texas A&M University, July 2010.
- Plenary speaker, conference on “Perspectives in High Dimensions,” Case Western Reserve University, August 2010.
- Invited talk, International Congress of Mathematicians, Hyderabad India, August 2010.
- Invited talk, mathematics colloquium, Brooklyn Polytechnic University, October 2010.
- Invited talk, mathematics colloquium, Yale University, October 2010.
- Invited talk, computer science and discrete mathematics seminar, Institute for Advanced Study, December 2010.
- Invited talk, workshop on embeddings, Newton Institute for Mathematical Sciences, January 2011.
- Invited talk, workshop on metric embeddings, algorithms and hardness of approximation, Institut Henri Poincaré, January 2011.
- Invited talk, Séminaire Bourbaki, January 2011.
- Invited talk, geometry seminar, Indiana University Bloomington, February 2011.
- Invited talk, Seymour Sherman Memorial Lecture Series, Indiana University Bloomington, February 2011.
- Invited talk, discrete geometry and combinatorics seminar, University College London, March 2011.
- Invited talk, monthly meeting of the Center for Computational Intractability, Princeton NJ, April 2011.
- Zygmund-Calderón lecture series (3 lectures), University of Chicago, April 2011.
- Plenary address, conference for the 75th anniversary of the Courant Institute, May 2011.
- Invited talk, annual meeting of the Isaac Newton Institute Correspondents, June 2011.
- Professeur invité, Ecole Normale Supérieure, June-July 2011.
- Invited talk, séminaire d’analyse fonctionnelle, Université Paris 6, June 2011.
- Invited talk, Rényi Institute of Mathematics, Budapest, July 2011.
- Invited talk, analysis seminar, Princeton University, September 2011.
- Invited talk, mathematics colloquium, Princeton University, September 2011.
- Invited talk, workshop on Probabilistic Reasoning in Quantitative Geometry, September 2011.
- Invited talk, Bay Area Discrete Mathematics Day, U. C. Davis, October 2011.
- Invited talk, mathematics colloquium, UCLA, November 2011.
- Invited talk, Bay Area Differential Geometry Seminar, November 2011.
- Invited talk, probability seminar, U. C. Berkeley, November 2011.
- Invited talk, Southern California Analysis and PDE Conference, U. C. Irvine, December 2011.
- Invited talk, mathematics colloquium, Hebrew University in Jerusalem, December 2011.
- Invited talk, discrete mathematics seminar, Columbia University, February 2012.
- Invited talk, Mathematics Colloquium, Columbia University, February 2012.
- Invited talk, Special Guest Lecture, Yale University, February 2012.
- Invited talk, Mathematics Colloquium, Brooklyn Polytechnic University, March 2012.
- Invited talk, probability seminar, Harvard University, April 2012.
- Invited talk, combinatorics seminar, MIT, April 2012.
- Invited talk, Mathematics Colloquium, Stony Brook University, April 2012.

- Takagi lecture series (2 lectures), Kyoto University, May 2012.
- Invited talk, conference on “Phenomena in high dimensions in geometric analysis, random matrices and computational geometry,” Roscoff France, June 2012.
- Distinguished lecture series (3 lectures), Fields Institute, August 2012.
- Plenary talk, annual meeting of the Australian Mathematical Society, Ballarat Australia, September 2012.
- Plenary talk, Journées GDR “Analyse Fonctionnelle, Harmonique et Probabilité,” Université de Paris Est Marne-la-Vallée, October 2012.
- Invited talk, Séminaire Analyse Fonctionnelle, Université Paris 6, November 2012.
- Invited talk, Geometry-Dynamics seminar, Lille University, November 2012.
- Plenary talk, Oberwolfach workshop Convex Geometry and its Applications, December 2012.
- Invited talk, Simons Symposium in New Approaches in Approximation Algorithms, January 2013.
- Invited talks, meeting of the Center for Computational Intractability (Princeton) on Grothendieck Inequalities (two talks), March 2013.
- Invited talk, Mathematics Colloquium, Brooklyn Polytechnic University, March 2013.
- Invited talk, IPAM workshop on Analysis on Metric Spaces, UCLA, March 2013.
- Invited talk, Columbia-Princeton Probability Day, Princeton University, March 2013.
- Invited talk, Mathematics Colloquium, Yale University, April 2013.
- Main speaker, Rivière-Fabes Symposium in Analysis and PDE (two talks), University of Minnesota, April 2013.
- Frontiers in Mathematics Lecture Series (three talks), Texas A&M University, May 2013.
- Invited talk, conference on “Banach Spaces: Geometry and Analysis,” Hebrew University at Jerusalem, May 2013.
- Invited talk, memorial day for Joram Lindenstrauss, Israeli Academy of Sciences and Humanities, June 2013.
- Invited talk, Erdős Memorial Conference, Budapest, July 2013.
- Invited talk, Microsoft Research Theory Group, Redmond WA, July 2013.
- Invited talk, workshop on “Metric Geometry, Geometric Topology and Groups,” Banff International Research Station, August 2013.
- Invited talk, Packard Fellows 25th anniversary meeting, Denver, September 2013.
- Minerva Distinguished Lecture Series in Mathematics (three talks), Princeton University, October 2013.
- Invited talk, Charles River Lectures on Probability and Related Topics, MIT, October 2013.
- Invited talk, conference on “Neo-Classical Methods in Discrete Analysis,” Simons Institute, Berkeley, December 2013.
- Invited talk, conference on Innovations in Theoretical Computer Science (ITCS), Princeton, January 2014.
- Invited talk, special session at the national AMS meeting on “Banach Spaces, Metric Embeddings, and Applications,” Baltimore, January 2014.
- Invited talk, conference on Semidefinite Programming and Graph Algorithms, ICERM, Brown University, February 2014.
- Invited talk, Mathematics–Computer Science colloquium, Université Paul Sabatier, Toulouse, February 2014.
- Invited talk, Mathematics Colloquium, University of Chicago, March 2014.
- Invited talk, Mathematics Colloquium, Brooklyn Polytechnic University, March 2014.
- Invited talk, Applied Mathematics Colloquium, Harvard University, April 2014.
- Wolfe Lecture in Mathematics, Rice University, April 2014.
- Invited talk, workshop on Real Analysis, Harmonic Analysis and Applications. Oberwolfach, Germany, July 2014.
- Invited talk, Mathematics Colloquium, University of Pittsburgh, September 2014.



- Invited talk, annual meeting of the Simons Foundation Division for Mathematics and Physical Sciences, New York, October 2014.
- Invited talk, Computer Science and Discrete Mathematics Seminar, Institute for Advanced Study, October 2014.
- Invited talk, Functional Analysis Seminar, UCLA, November 2014.
- Invited talk, conference on “The many facets of entropy: Kinetic Theory, Optimal Transport, Geometry,” Fields Institute, Toronto, November 2014.
- Invited talk, Rényi Institute of Mathematics, Budapest, December 2014.
- Invited talk, What’s Happening in Fine Hall Lecture Series, Princeton, April 2015.
- Invited talk, Mathematics Colloquium, University of Pennsylvania, April 2015.
- Plenary speaker, conference on “Relations Between Banach Space Theory and Geometric Measure Theory,” University of Warwick, June 2015.
- Invited talk, Mathematics Colloquium, University of Athens, June 2015.
- Invited talk, Mathematics Colloquium, University of Crete, July 2015.
- Invited talk, conference on “Combinatorics: Challenges and Applications,” Tel Aviv University, January 2016.
- Blyth Lectures (three talks), University of Toronto, March 2016.
- Invited talk, Simons Symposium on Analysis of Boolean Functions, Munich, April 2016.
- Invited talk, Colloquium of The Program in Applied and Computational Mathematics (PACM), Princeton University, April 2016.
- Invited talk, Connecticut Valley Colloquium series, University of Massachusetts Amherst, April 2016.
- Invited talk, Zürich colloquium in mathematics, ETH Zürich, May 2016.
- Invited talk, Seminar on stochastic processes, ETH Zürich, May 2016.
- Invited lecture series (three talks), conference on Geometric Functional Analysis, Texas A&M University, July 2016.
- Plenary speaker, Barcelona Analysis Conference, September 2016.
- Invited talk, Geometric Functional Analysis and Probability Seminar, Weizmann Institute, September 2016.
- Invited talk, Geometric Analysis and Topology Seminar, Courant Institute, November 2016.
- Invited talk, Combinatorics Seminar, Stanford University, December 2016.
- Invited talk, Geometric Functional Analysis and Probability Seminar, Weizmann Institute, January 2017.
- Invited talk, SODA 2017, Barcelona, January 2017.
- Invited talk, Discrete Math Seminar, Rutgers University, April 2017.
- Invited talk, Special Session on “Banach Space Theory and Metric Embeddings” at the Spring Eastern Sectional Meeting of the American Mathematical Society, City University of New York, May 2017.
- Invited talk, IAS Program for Women and Mathematics, Princeton, May 2017.
- Invited talk, conference on “Elegance in probability,” Tel Aviv University, September 2017.
- Invited talk, Scientific Colloquium, Renaissance Technologies, October 2017.
- Main speaker, North British Functional Analysis Seminar, International Centre for Mathematical Sciences in Edinburgh, April 2018.
- Plenary lecture, International Congress of Mathematicians, 2018.