Sasha Sodin - Curriculum Vitæ

July 10, 2014

Education

- 1997 – 2000: B.Sc. studies, School of Mathematical Sciences, Tel–Aviv University, *cum laude*
- 2002 – 2005: M.Sc. studies, School of Mathematical Sciences, Tel–Aviv University, *summa cum laude*
  Supervisor: Prof. V. Milman
- 2005 – 2010: Ph.D. studies, School of Mathematical Sciences, Tel–Aviv University
  Supervisor: Prof. V. Milman

Work experience

- 1999 – 2000: Grader, Tel–Aviv University
- 2006 – 2010: Teaching Assistant, Tel–Aviv University
- 2010 – 2012: Member, Institute for Advanced Study (Princeton)
- 2012 – 2014: Assistant Professor, Princeton University
- 2014 – : Associate Professor, Tel Aviv University

Publications

1. (joint with Sh. Artstein-Avidan, O. Friedland and V. Milman) Polynomial bounds for large Bernoulli sections of ℓ_1^N, Isr. Journal of Math., Vol. 156 (2006), pp. 141-156, arXiv:math/0601369
2. Tail-sensitive Gaussian asymptotics for marginals of concentrated measures in high dimension, Geometric aspects of functional analysis (Israel Seminar 2004 – 2005), pp. 271–295, Lecture Notes in Math., 1910, Springer, Berlin, 2007, arXiv:math/0501382
3. (joint with N. Alon, I. Benjamini and E. Lubetzky) Non-backtracking random walks mix faster, Commun. Contemp. Math., Vol. 9, No. 4 (August 2007), arXiv:math/0610550
4. Random matrices, non-backtracking walks, and orthogonal polynomials, J. Math. Phys., vol. 48 (2007), no. 12, 123503, arXiv:math-ph/0703043
5. (joint with Omer Friedland) An extension of the Bourgain–Lindenstrauss–Milman inequality, J. Funct. Anal., 251 (2007), 492–497, arXiv:0706.2483
6. (joint with Omer Friedland) Bounds on the concentration function in terms of Diophantine approximation, C. R. Math. Acad. Sci. Paris 345 (2007), no. 9, 513–518, arXiv:0706.2679
7. An isoperimetric inequality on the ℓ_p balls, Annales de l'Institut Henri Poincaré (B): Probability and Statistics, Vol. 44, no. 2 (2008), 362-373, arXiv:math/0607398

8. (joint with Shachar Lovett) Almost Euclidean sections of the N-dimensional cross-polytope using O(N) random bits, Commun. Contemp. Math., Vol. 10, No. 4 (2008), pp. 477–489, arXiv:math/0701102

9. (joint with Emanuel Milman) An isoperimetric inequality for uniformly log-concave measures and uniformly convex bodies, J. Funct. Anal., 254 (2008), pp 1235-1268, arXiv:math/0703857

10. The Tracy–Widom law for some sparse random matrices, J. Stat. Phys., Vol. 136, Issue 5 (2009), pp. 834–841, arXiv:0903.4295

11. (joint with Ohad N. Feldheim) A universality result for the smallest eigenvalues of certain sample covariance matrices, Geom. Funct. Anal. 20-1 (2010), 88-123, arXiv:0812.1961

12. The spectral edge of some random band matrices, Ann. of Math. 172 (2010), No. 3, 2223-2251, arXiv:0906.4047

13. (joint with Ohad N. Feldheim) One more proof of the Erdős–Turán inequality, and an error estimate in Wigner's law, in Concentration, Functional Inequalities and Isoperimetry, Contemporary Mathematics, vol. 545, Amer. Math. Soc., Providence, RI, 2011, pp. 69–75, arXiv:0901.1620

14. (joint with I. Benjamini and O. Schramm) Poisson asymptotics for random projections of points on a high-dimensional sphere, Isr. J. Math, vol. 181 (2011), no. 1, pp. 381–386, arXiv:0903.0107

15. (joint with Mira Shamis) On the Measure of the Absolutely Continuous Spectrum for Jacobi Matrices, J. Approx. Theory 163 (2011), pp.491-504, arXiv:1007.5033

16. An estimate for the average spectral measure of random band matrices, J. Stat. Phys., Vol. 144, Issue 1 (2011), pp. 46–59, arXiv:1101.4413

17. (joint with Bo'az Klartag) Variations on the Berry-Esseen theorem, Theory Probab. Appl., vol. 56 (2012), pp. 403–419, arXiv:1002.3970

18. (joint with Igal Kotzer, Smadar Har-Nevo, and Simon Litsyn) An Analytical Approach to the Calculation of EVM in Clipped Multi-Carrier Signals, IEEE Trans. Comm. 60 (2012), no. 5, pp. 1371–1380

19. (joint with Igal Kotzer, Smadar Har-Nevo, and Simon Litsyn) A Model for OFDM Signals with Applications, Eur. Trans. Telecomm. 23.8 (2012): 742–748

20. (joint with Alexander Elgart and Mira Shamis) Localisation for non-monotone Schroedinger operators, J. Eur. Math. Soc. 16 (2014), 909-924. arXiv:1201.2211

preprints

21. Positive temperature versions of two theorems on first-passage percolation, *to appear in* Geometric aspects of functional analysis (Israel Seminar), arXiv:1301.7040

22. A limit theorem at the spectral edge for corners of time-dependent Wigner matrices, arXiv:1312:1007

Papers presented at scientific meetings:

i. (joint with Igal Kotzer, Smadar Har-Nevo, and Simon Litsyn) An Analytical Approach to the Calculation of EVM in Clipped OFDM Signals, 2010 IEEE 26th Convention of Electrical and Electronics Engineers in Israel (IEEEI), pp. 193–197

ii. (joint with Igal Kotzer, Smadar Har-Nevo, and Simon Litsyn) On the EVM of sequences, 2011 IEEE International Symposium on Information Theory Proceedings (ISIT), pp. 484–488

iii. Fluctuations of the Green function, Oberwolfach reports 36/2013, pp. 20–23, DOI: 10.4171/OWR/2013/36

iv. Several applications of the moment method in random matrix theory, *to appear in* Proceedings of the International Congress of Mathematicians, Seoul, 2014, arXiv:1406.3410

Invited talks (2012 –)

- Colloquim, Hebrew University, 12/6/2014
- "Random Matrices and Jacobi Operators", Mittag-Leffler Institute, 19–23/5/2014
- "Probability Seminar", University of Rochester, 8/4/2014
- "Probability and Related Fields" seminar, IU, Bloomington, 6/3/2014
- "Ergodic Theory and Statistical Mechanics" seminar, Princeton University, 18/2/2014
- "Non-equilibrium Dynamics and Random Matrices", IAS, Princeton, 5/12/2013
- "Direct and Inverse Spectral Theory of Almost Periodic Operators", Oberwolfach, 21–27/7/2013
- "Workshop on Random Matrices and Applications", Ann Arbor, 17–19/6/2013
- Colloquium, Kent State University, 21/3/2013
- "Random Matrices", Hausdorff Center for Mathematics, Bonn, 29/5–1/6/2012
- Analysis and PDEs seminar, Hebrew University, Jerusalem, 24/5/2012
- "Interactions Between Asymptotic Geometric Analysis and Mathematical Physics", Eilat and Haifa, 3–10/5/2012
- Horowitz Seminar on Probability, Ergodic Theory and Dynamical Systems, Tel Aviv University, 30/4/2012
- "SuSy and Random Matrices", Paris, 3–5/4/2012
- Probability Seminar, University of Pennsylvania, Philadelphia, 28/2/2012
- Mathematical Physics Seminar, Rutgers University, Piscataway, 9/2/2012

Conference organisation

- Session "Asymptotic Geometric Analysis" in the AMS/IMU joint meeting, Tel Aviv, June 2014 (jointly with Shiri Artstein–Avidan and Bo'az Klartag)

Awards

- Excellence in B.Sc. studies, 1999
- Checkpoint Com. prize for excellence in B.Sc. studies, 2000
- The Edward and Rose Saff prize for excellence in M.Sc. studies, 2004
- The Wolf foundation Thalheimer Scholarship for M.Sc. students, 2005
- The Wolf foundation Scholarship for Ph.D. students, 2006
- Adams Fellowship, 2007–2010
- The Haim Nessyahu Prize in Mathematics, 2012