

Jian Ding

CONTACT INFORMATION	Department of Statistics, The Wharton School, University of Pennsylvania 468 Jon M. Huntsman Hall, 3730 Walnut Street, Philadelphia, PA 19104 email: dingjian@wharton.upenn.edu
CITIZENSHIP	Chinese; U.S. permanent resident.
EDUCATION	Ph.D. in Statistics/Probability theory UC Berkeley, Berkeley, CA, 2006-2011 Advisor: Yuval Peres B.S. in Mathematics Peking University, Beijing, China, 2002 -2006
EMPLOYMENT	Associate Professor at Statistics department, the Wharton school, University of Pennsylvania, Philadelphia, PA, US, since July 2017. Associate Professor at Statistics department, University of Chicago, Chicago, IL, US, July 2016 – June 2017. Assistant Professor at Statistics department, University of Chicago, Chicago, IL, US, September 2012 – June 2016. Visiting Researcher at Microsoft Research Redmond, WA, US, Summer 2012, 2014. Postdoc fellow at MSRI Berkeley, CA, US, January 2012 – May 2012. Szegő Assistant Professor at Department of Mathematics, Stanford University, Stanford, CA, US, September 2011 – June 2012. Postdoctoral position at University of Washington, Seattle, WA, US, June 1 – August 31, 2011 Mentor: James Lee Research Intern at Microsoft Research New England, Cambridge, MA, US, May 24 – August 13 2010, Mentor: Jennifer Chayes
RESEARCH INTERESTS	Probability theory with focus on interactions with statistical physics and theory of computer science: random walks, Gaussian processes, random constraint satisfaction problems, random planar geometry, spin models, random Schrödinger operators, etc.
AWARDS	NSF Career Award, 2015-2020. Alfred P. Sloan Fellowship, 2015-2017. Rollo Davidson Prize, 2017. Invited Address in AMS Sectional Meeting, Boston 2018.

PUBLICATIONS Note: alphabetical ordering applies to all papers. All papers available on arXiv.

SELECTED PAPERS [11] J. Ding, J. Lee and Y. Peres. Cover times, blanket times, and majorizing measures. Conference version at STOC 2011; Journal version in *Annals of Mathematics*, 175(3) : 1409-1471 (2012).

[26] M. Bramson, J. Ding and O. Zeitouni. Convergence in law of the maximum of the two-dimensional discrete Gaussian free field. *Communications on Pure and Applied Mathematics*, 69(2016), 1:62-123.

[30] J. Ding, A. Sly and N. Sun. Maximum independent sets on random regular graphs, *Acta Mathematica*, 217 (2016), 2:263–340.

[44] J. Ding and S. Goswami. Upper bounds on Liouville first passage percolation and Watabiki’s prediction. *Communications on Pure and Applied Mathematics*, 2019, to appear.

[51] J. Ding, A. Sly and N. Sun. Proof of the satisfiability conjecture for large k . Conference version in STOC 2015, full version under revision.

[50] J. Ding, C. Smart. Localization near the edge for the Anderson Bernoulli model on the two dimensional lattice. *Inventiones*, to appear.

[61] J. Ding, J. Dubdat, A. Dunlap, H. Falconet. Tightness of Liouville first passage percolation for $\gamma \in (0, 2)$. Submitted.

[62] J. Ding, J. Xia. Exponential decay of correlations in the two-dimensional random field Ising model. Submitted. (This merges arXiv:1902.03302 and arXiv:1905.05651.)

PUBLISHED [1] J. Ding, E. Lubetzky and Y. Peres. The mixing time evolution of Glauber dynamics for the mean-field Ising model, *Communications in Mathematical Physics*, 289(2): 725-764 (2009).

[2] J. Ding, E. Lubetzky and Y. Peres. Censored Glauber Dynamics for the mean field Ising Model. *Journal of Statistical Physics*, 137(3): 407-458 (2009).

[3] J. Ding, E. Lubetzky and Y. Peres. Total-variation cutoff in birth-and-death chains. *Probability Theory and Related Fields*, 146(1-2):61-85 (2010).

[4] J. Ding, E. Lubetzky and Y. Peres. Mixing time of critical Ising model on trees is polynomial in the height. *Communications in Mathematical Physics*, 295(1):161-207 (2010).

[5] J. Ding, J.H. Kim, E. Lubetzky and Y. Peres. Anatomy of a young giant component in the random graph. *Random Structures and Algorithms*, 39(2): 139-178 (2011).

[6] J. Ding, J.H. Kim, E. Lubetzky and Y. Peres. Diameters in supercritical random graphs via first passage percolation. *Combinatorics, Probability and Computing*, 19 (5-6): 729-751 (2010).

[7] M.T. Barlow, J. Ding, A. Nachmias and Y. Peres. The evolution of the cover time. *Combinatorics, Probability and Computing*, 20(3): 331-345(2011).

- [8] C. Borgs, J. Chayes, J. Ding and B. Lucier. The Hitchhiker’s Guide to Affiliation Networks: A Game-Theoretic Approach. *Innovations in Computer Science*, 389-400 (2011).
- [9] J. Ding and Y. Peres. Mixing time for the Ising model: a uniform lower bound for all graphs. *Annales de l’Institut Henri Poincaré - Probabilités et Statistiques*, 47(4): 1020-1028 (2011).
- [10] J. Ding, E. Lubetzky and Y. Peres. Mixing time of near-critical random graphs. *Annals of Probability*, 40 (3): 979-1008 (2012).
- [11] J. Ding, J. Lee and Y. Peres. Cover times, blanket times, and majorizing measures. Conference version at STOC 2011; Journal version in *Annals of Mathematics*, 175(3) : 1409-1471 (2012).
- [12] J. Ding. On cover times for 2D lattices. *Electronic Journal of Probability*, 17(45): 118, (2012).
- [13] J. Ding and O. Zeitouni. A sharp estimate for cover times on binary trees. *Stochastic Processes and Applications*, 122 (5) : 2117-2133, (2012).
- [14] J. Ding. Scaling window for mean-field percolation of averages. *Annals of Probability*, Volume 41, Number 6 (2013), 3697-4427.
- [15] A. Dembo, J. Ding, F. Gao. Persistence of iterated partial sums. *Annales de l’Institut Henri Poincaré*, Volume 49, Number 3 (2013), 611-914.
- [16] J. Ding. Exponential and double exponential tails for maximum of two-dimensional discrete Gaussian free field. *Probability Theory and Related Fields*, Volume 157, Issue 1-2 (2013), 285-299.
- [17] P. Cuff, J. Ding, O. Louidor, E. Lubetzky, Y. Peres and A. Sly. Glauber Dynamics for the mean-field Potts Model. *Journal of Statistical Physics*, Volume 149 (2012), Issue 3, 432-477.
- [18] J. Ding, E. Lubetzky and Y. Peres. Anatomy of the giant component: The strictly supercritical regime. *European Journal of Combinatorics*, Volume 35(2014), 155-168.
- [19] J. Ding, J. Lee and Y. Peres. Markov type and threshold embeddings. *Geometric and Functional Analysis*, Volume 23 (2013), Issue 4, 1207-1229.
- [20] J. Ding and Y. Peres. Sensitivity of mixing times. *Electron. Commun. Probab.*, 18 (2013), no. 88, 1–6.
- [21] J. Ding. Asymptotics of cover times via Gaussian free fields: bounded-degree graphs and general trees. *Annals of Probability*, 2014, 42(2), 464–496.
- [22] J. Ding and O. Zeitouni. Extreme values for two-dimensional discrete Gaussian free field. *Annals of Probability*, 42(2014), 1480–1515.
- [23] J. Ding and E. Mossel. Mixing under monotone censoring. *Electron. Commun. Probab.*, 19(2014), no. 46, 1–6.
- [24] O. Dekel, J. Ding, T. Koren and Y. Peres. Bandits with Switching Costs: $T^{2/3}$

Regret. *STOC' 14*, 459–467.

[25] J. Ding, R. Eldan and A. Zhai. On multiple peaks and moderate deviations for the supremum of a Gaussian field, *Annals of Probability*, 43(2015), 6:3468–3493

[26] M. Bramson, J. Ding and O. Zeitouni. Convergence in law of the maximum of the two-dimensional discrete Gaussian free field. *Communications on Pure and Applied Mathematics*, 69(2016), 1:62-123.

[27] J. Ding, A. Sly and N. Sun. Satisfiability threshold for random regular NAE-SAT. Conference version at *STOC' 14*, journal version in *Communications in Mathematical Physics* 341(2016), 2: 435-489.

[28] S. Bubeck, J. Ding, R. Eldan and M. Rácz. Testing for high-dimensional geometry in random graphs. *Random Structures and Algorithms*, 49 (2016), 3: 503–532.

[29] J. Ding and S. Goswami. Percolation of averages in the stochastic mean field model: the near-supercritical regime. *Electronic Journal of Probability*, 20(2015), no.124, 1-21.

[30] J. Ding, A. Sly and N. Sun. Maximum independent sets on random regular graphs, *Acta Mathematica*, 217 (2016), 2:263–340.

[31] M. Bramson, J. Ding and O. Zeitouni. Convergence in law of the maximum of nonlattice branching random walk. *Annales de l' Institut Henri Poincaré*, Volume 52, Number 4 (2016), 1897-1924.

[32] J. Ding, R. Roy and O. Zeitouni. Convergence of the centered maximum of log-correlated Gaussian fields. *Annals of Probability*, Volume 45, Number 6A (2017), 3886-3928.

[33] J. Ding, and F. Zhang. Non-universality for first passage percolation on the exponential of log-correlated Gaussian fields. *Probability Theory and Related Fields*, August 2018, Volume 171, Issue 3–4, pp 1157–1188.

[34] J. Ding and S. Goswami. First passage percolation on the exponential of two-dimensional branching random walk. *Electronic Communication in Probability*, Volume 22 (2017), paper no. 69, 14 pp.

[35] J. Ding and A. Dunlap. Liouville first-passage percolation: subsequential scaling limit at high temperature. *Annals of Probability*, Volume 47, Number 2 (2019), 690–742.

[36] J. Ding and L. Li. Chemical distances for percolation of planar Gaussian free fields and critical random walk loop soups. *Communications in Mathematical Physics*, 360 (2018), 2: 523–553.

[37] J. Ding and J. Shen. Three favorite sites occurs infinitely often for one-dimensional simple random walk. *Annals of Probability*, Volume 46, Number 5 (2018), 2545–2561.

[38] J. Ding, O. Zeitouni and F. Zhang. On the Liouville heat kernel for k -coarse MBRW and nonuniversality. *Electronic Journal of Probability*, Volume 23 (2018), paper no. 62, 20 pp.

[39] J. Blasiok, J. Ding, and J. Nelson. Continuous Monitoring of ℓ_p Norms in Data

Streams. APPROX/RANDOM 2017.

[40] J. Ding and F. Zhang. Liouville first passage percolation: geodesic dimension is strictly larger than 1 at high temperatures. *Probability theory and related fields*, Volume 174 (2019), Issue 1–2.

FORTHCOMING

[41] J. Ding and C. Xu. Poly-logarithmic localization for random walks among random obstacles. *Annals of Probability*, accepted.

[42] J. Ding, N. Sun and D.B. Wilson. Supercritical minimum mean-weight cycles. *Transactions in AMS*, to appear.

[43] J. Ding, Y. Peres, G. Ranade and A. Zhai. When Multiplicative Noise Stymies Control. accepted in *Annals of Applied Probability*.

[44] J. Ding and S. Goswami. Upper bounds on Liouville first passage percolation and Watabiki's prediction. *Communications on Pure and Applied Mathematics*, 2019, to appear.

[45] A. Dembo, J. Ding, J. Miller and Y. Peres. Cut-off for lamplighter chains on tori: dimension interpolation and phase transition. *Probability Theory and Related Fields*, accepted.

[46] V. Bagaria, J. Ding, D. Tse, Y. Wu, J. Xu. Hidden Hamiltonian Cycle Recovery via Linear Programming. *Operation Research*, accepted.

[47] J. Ding, O. Zeitouni, F. Zhang. Heat kernel for Liouville Brownian motion and Liouville graph distance. *Communications in Mathematical Physics*, to appear.

[48] J. Ding, E. Gwynne. The fractal dimension of Liouville quantum gravity: universality, monotonicity, and bounds. *Communications in Mathematical Physics*, to appear.

[49] J. Ding, M. Wirth. Percolation for level-sets of Gaussian free fields on metric graphs. *Annals of Probability*, to appear.

[50] J. Ding, C. Smart, Localization near the edge for the Anderson Bernoulli model on the two dimensional lattice. *Inventiones*, to appear.

PREPRINTS

[51] J. Ding and A. Sly. Distances in critical long range percolation. Submitted.

[52] S. Chatterjee, A. Dembo and J. Ding. On level sets of Gaussian fields. Unpublished.

[53] J. Ding, A. Sly and N. Sun. Proof of the satisfiability conjecture for large k . Conference version in STOC 2015, full version submitted.

[54] M. Biskup, J. Ding and S. Goswami. Return probability and recurrence for the random walk driven by two-dimensional Gaussian free field. Under revision.

[55] J. Ding, R. Fukushima, R. Sun, C. Xu. Geometry of the random walk range conditioned on survival among Bernoulli obstacles. Under revision.

- [56] J. Ding, C. Xu. Localization for random walks among random obstacles in a single Euclidean ball. Submitted.
- [57] J. Ding, N. Sun. Capacity lower bound for the Ising perceptron. Conference version accepted in STOC 2019, journal version in preparation.
- [58] J. Ding, Z. Ma, Y. Wu, J. Xu. Efficient random graph matching via degree profiles. Submitted.
- [59] J. Ding, A. Dunlap. Subsequential scaling limits for Liouville graph distance. Submitted.
- [60] J. Ding, R. Fukushima, R. Sun, C. Xu. Geometry of the random walk range conditioned on survival among Bernoulli obstacles. Under revision. Submitted.
- [61] J. Ding, J. Dubdat, A. Dunlap, H. Falconet. Tightness of Liouville first passage percolation for $\gamma \in (0, 2)$. Submitted.
- [62] J. Ding, J. Xia. Exponential decay of correlations in the two-dimensional random field Ising model. Submitted. (This merges arXiv:1902.03302 and arXiv:1905.05651.)
- [63] A. Dembo, J. Ding, J. Yan. Persistence versus stability for auto-regressive processes. Preprint.

GRADUATE
STUDENTS
(DISSERTATION
ADVISOR)

Rishideep Roy: Ph.D 2016 at University of Chicago, now assistant professor at IIM Bangalore.

Subhajit Goswami: Ph.D 2017 at University of Chicago.

Li Li: Ph.D 2017 at University of Chicago.

Jianfei Shen: Master 2017, University of Chicago.

Changji Xu, current student, University of Chicago.

Mateo Wirth, current student, University of Pennsylvania.

Jiaming Xia, current student, University of Pennsylvania.

Linjun Li, current student, University of Pennsylvania.

GRADUATE
STUDENTS
(DISSERTATION
COMMITTEE)

Wei Su: Ph.D 2015 at University of Chicago.

Si Tang: Ph.D 2017 at University of Chicago.

Sayar Karmakar: Ph.D 2018 at University of Chicago.

Mohammad Jahangoshahi: Ph.D 2018 at University of Chicago.

Debapratim Banerjee, current student, University of Pennsylvania.

CONFERENCES
TALKS

Various international conferences and workshops; probability seminars in various universities including ETH, Harvard, MIT, NYU, Princeton, Stanford, UC Berkeley,

UCLA, etc.

TEACHING
@ UPENN

STAT 430, Probability, Fall 2017, Spring 2019.

TEACHING
@ U. CHICAGO

STAT 383, Measure Theoretical Probability Theory II, Spring 2013, 2016.

STAT 381, Measure Theoretical Probability Theory I, Winter 2014.

STAT 386, Social Networks: Probability, Learning, and Game Theory, Winter 2014.

STAT 251, Introduction to Mathematical Probability, Spring 2013/2014/2015.

STAT 312, Introduction to Stochastic Processes, Fall 2014.

TEACHING
@ STANFORD

MATH 51, Linear Algebra and Multivariable Calculus, Fall 2011.

MATH 136/STAT 219, Stochastic Processes, Fall 2011.

PROFESSIONAL
SERVICE

Associate editor for Annals of Applied probability since January 2019.

Editorial board on Science in China Mathematics since January 2018.

Served in an NSF panel, and served as a reviewer for NSA.

Co-organizer of AMS Special Session on Probability Theory, 2015, Chicago.

Co-organizer of AIM workshop on Phase transitions in randomized computational problems, June, 2017.

Co-organizer of AMS special Session on The Gaussian Free Field and Random Geometry, Boston, April 2018.

Co-local-organizer for Stochastic Processes and their Applications 2019, Evanston, July 2019.

Co-organizer for Simons program “Probability, geometry, and computation in high dimensions”, Fall 2020.