

# Partha Sarathi Dey

## Curriculum Vitae

### Positions

- 2014 – **Assistant Professor**, *Department of Mathematics*, Univ. of Illinois, Urbana-Champaign.  
2013 – 2014 **Harrison Early Career Assistant Professor**, *Department of Statistics*, Univ. of Warwick.  
2010 – 2013 **Courant Instructor & Simons Postdoctoral Fellow**, *Courant Inst. of Math. Sc.*, New York Univ.

### Research Interests

First passage percolation, Random Growth Models, Random Networks, Stein's method, Concentration inequalities, Spin glasses, Random Graphs, Random Matrices, Large deviations.

### Education

- 2006 – 2010 **Ph.D. in Statistics**, *University of California*, Berkeley.  
Title: *Contributions to Stein's method and some limit theorems in probability*.  
Advisor: Dr. Sourav Chatterjee and Dr. Steve Evans.  
2004 – 2006 **M.Stat.**, *Indian Statistical Institute*, Kolkata, First division with Distinction.  
Specialization: Mathematical Statistics and Probability.  
Title: *Adaptive Design for Locating the Maxima of a Regression Function*.  
Advisor: Dr. Probal Chaudhuri.  
2001 – 2004 **B.Stat.**, *Indian Statistical Institute*, Kolkata, First division with Distinction.

### Publications and Preprints

- 2016+ Fluctuations of the free energy in the mixed p-spin models with external field (with Wei- Kuo Chen and Dmitry Panchenko). To appear in *Probab. Theory Related Fields*. Available at <http://arxiv.org/abs/1509.07071>.  
2016+ Energy Landscape for large average submatrix detection problems in Gaussian random matrices (With Shankar Bhamidi and Andrew Nobel). To appear in *Probab. Theory Related Fields*. Available at <http://arxiv.org/abs/1211.2284>.  
2016+ High temperature limits for  $(1 + 1)$ -dimensional directed polymer with heavy-tailed disorder. (with Nikos Zygouras). To appear in *Ann. Probab.* Available at <http://arxiv.org/abs/1503.01054>.  
2015 Multiple phase transitions in long-range first-passage percolation on lattices (With Shirshendu Chatterjee). To appear in *Comm. Pure Appl. Math.*, DOI:10.1002/cpa.21571  
2015 Jigsaw percolation: Can a random graph solve a puzzle? (with Charlie Brummitt, Shirshendu Chatterjee and David Sivakoff). *Ann. Appl. Probab.*, **25** (4), 2013-2038.  
2015 On Normalized Multiplicative Cascades under Strong Disorder (With Ed Waymire). *Electron. Commun. Probab.* **20** (32), pp. 1–13.  
2013 Central limit theorem for first-passage percolation time across thin cylinders (with Sourav Chatterjee). *Probab. Theory Related Fields*. **156**, pp. 613–663.  
2010 Applications of Stein's method for concentration inequalities (with Sourav Chatterjee). *Ann. Probab.* **38**, pp. 2443-2485.

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- 2010 Contributions to Stein's method and some limit theorems in probability. *Ph.D. Thesis*, University of California Berkeley.
- 2007 On the power breakdown of the negative exponential disparity tests (with Ayanendranath Basu). *Aust. N. Z. J. Stat.*, **49** (4), 381–384.
- 2006 Adaptive Design for Locating the Maxima of a Regression Function. *Masters Thesis*, Indian Statistical Institute, Kolkata.
- 2015 Fluctuations of the free energy in the mixed p-spin models with external field (with Wei-Kuo Chen and Dmitry Panchenko). Available at <http://arxiv.org/abs/1509.07071>. Submitted.
- Preprint Central Limit theorem for longest increasing subsequences in a strip (With Ron Peled, Matthew Joseph).
- Preprint Gaussian comparison and extremal landscapes in Biclustering, maximal correlations in high dimensions and the supercritical Gaussian free field (With Shankar Bhamidi, Andrew Nobel, James Wilson).
- Preprint Spectra of random linear combinations of permutation matrices (with Steve Evans). Available at <http://cims.nyu.edu/~partha/spectra.pdf>
- In preparation A new approach to Stein's method for normal approximation.
- In Preparation Gaussian fluctuation for random maximum weighted matching on lattices (with Arnab Sen))
- In preparation Central limit theorem for overlap in two-dimensional directed lattice polymer in strong disorder (With Nikos Zygouras).
- In preparation Scaling limit for Long-range first-passage percolation in one dimension (with Shirshendu Chatterjee).
- In preparation Intermediate behavior for Discrete Nonlinear Schrödinger Equation (with Kay Kirkpatrick).
- working Stein's method for  $\alpha$ -stable distribution (with Kay Kirkpatrick, Renming Song, Zoran Vondracek).

## Awards And Fellowships

- 2010 – 2013 Simons Postdoctoral Fellowship, CIMS, New York University.
- 2010 Loève Dissertation Fellowship, UC Berkeley.
- 2009 – 2010 DV Gokhale International Grants in Statistics Program Award, Inst. of International Education.
- 2006 – 2008 Berkeley Graduate Fellowship, UC Berkeley.
- 2007 Mahalanobis International Symposium on Statistics Prize, ISI, Kolkata.
- 2007 ISIAA M. R. Iyer memorial award for outstanding performance in M. Stat., ISI, Kolkata
- 2005 ISIAA M. R. Iyer memorial award for outstanding performance in B. Stat., ISI, Kolkata.
- 2001 Mamraj Agarwal award from Viren Shah, Governor of West Bengal, for obtaining highest rank in both Medical and Engineering Entrance Examination (WBJEE) out of 300,000 students.

## Teaching Experience

- Fall 2016 **Math562 - Graduate Probability II**, *Instructor*, University of Illinois, Urbana-Champaign.
- Fall 2016 **Math595 - Rando Graphs and Networks**, *Instructor*, University of Illinois, Urbana-Champaign.
- Spring 2016 **Math561 - Graduate Probability I**, *Instructor*, University of Illinois, Urbana-Champaign.
- Spring 2016 **Math461 - Undergraduate Probability**, *Instructor*, University of Illinois, Urbana-Champaign.
- Spring 2015 **Math492 - Undergraduate Research in Mathematics**, *Mentor*, University of Illinois, Urbana-Champaign.
- Fall 2014 **Math461 - Undergraduate Probability**, *Instructor*, University of Illinois, Urbana-Champaign.
- Spring 2014 **ST329 - Topics in Statistics A**, *Instructor*, University of Warwick, UK.

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- Spring 2014 **ST414 - Advanced Topics in Statistics**, *Instructor*, University of Warwick, UK.  
 Spring 2013 **Math-UA.233.1 - Theory of Probability**, *Instructor*, New York University, New York.  
 Fall 2011 **Math-UA.122.9 - Calculus II**, *Instructor*, New York University, New York.  
 Fall 2010 **V63.0140 - Undergraduate Linear Algebra**, *Instructor*, New York University, New York.  
 Fall 2008 **Stat 204 - Graduate Probability for Applications**, *GSI*, Univ. of California, Berkeley.  
 Summer 2008 **Stat 2 - Undergraduate Statistics and Probability**, *GSI*, Univ. of California, Berkeley.  
 Spring 2008 **Stat 205B - Graduate Measure Theoretic Probability**, *GSI*, Univ. of California, Berkeley.  
 Summer 2007 **Stat 20 - Undergraduate Statistics**, *GSI*, Univ. of California, Berkeley.

## Selected Talks

- Aug 2016 Invited talk at “Workshop on Random processes in discrete structure”, Warwick, UK.  
 Aug 2016 Invited talk at “IISA International Conference on Statistics”, Oregon.  
 Jun 2016 Invited talk at “The 4th IMS Asia Pacific Rim Meeting”, Hong Kong.  
 Apr 2016 Invited talk at AMS Sectional meeting, Fargo, ND.  
 Nov 2015 Invited talk at Probability Seminar, University of Pennsylvania.  
 Oct 2015 Invited talk at Probability Seminar, CUNY.  
 Oct 2015 Invited talk at Probability Seminar, Cornell University.  
 Oct 2015 Invited talk at AMS Sectional meeting, Loyola University.  
 Aug 2015 Invited talk at AIM, California.  
 July 2015 Invited talk at workshop on Disordered Models in Mathematical Physics, Valparaíso, Chile.  
 May 2015 Invited talk at National University of Singapore.  
 Apr 2015 Invited talk at IMA, Minnesota.  
 Mar 2015 Invited talk at Probability Seminar, Columbia University.  
 Mar 2015 Invited talk at AMS Sectional meeting, East Lansing, Michigan.  
 Feb 2015 Invited talk at Probability Seminar, University of Chicago.  
 Nov 2014 Invited talk at Conference on First passage Percolation, Cabo Frio, Brazil.  
 Oct 2014 Invited talk at Probability Seminar, Indiana University.  
 Nov 2013 Invited talk at Probability Seminar, University of Sheffield.  
 Oct 2013 Invited talk at Probability Seminar, University of Warwick.  
 Oct 2013 Invited talk at Probability Seminar, University of Bath.  
 Oct 2012 Invited talk at AMS Special Session on Dispersion in Heterogeneous and/or Random Environments.  
 Sep 2012 Invited talk at Probability seminar, University of Connecticut.  
 Mar 2012 Invited talk at Probability seminar, Michigan University.  
 Nov 2011 Invited talk at Probability seminar, Cornell University.  
 Nov 2011 Invited talk at Probability seminar, LeHigh University.  
 Jul 2011 Invited talk at IMS-China 2011 Conference, XiAn, China.  
 Feb 2011 Invited talk at Probability seminar, Columbia University.  
 Nov 2010 Invited talk at Probability seminar, Duke University.  
 Sep 2010 Invited talk at Probability seminar, Courant Institute, NYU.  
 Mar 2010 Invited talk at Probability seminar, Stanford University  
 Feb 2010 Invited talk at Probability seminar, UNC Chapel Hill.

Feb 2010 Invited talk at Probability seminar, Univ of Chicago.

Feb 2010 Invited talk at MIT Probability seminar.

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## Professional Activities

- 2009 – Referee for the *Annales de l'Institut Henri Poincaré*, *Annals of Applied Probability*, *Annals of Probability*, *Communications on Pure and Applied Mathematics*, *Electronic Communications in Probability*, *Electronic Journal of Probability*, *Journal of Statistical Planning and Inference*, *Probability Theory and Related Fields*, *Random Structures and Algorithm*, *SIAM Journal of Applied Mathematics*.
- 2014 – Organizer of UIUC Probability Seminar.
- 2015 – 2016 Mentor for **IGL** Undergraduate research program and **MIT-PRIME** for High school students.
- 2015 Co-Organizer of Midwest Probability Colloquium.
- 2013 – 2014 Mentor for **MASDOC** (Mathematics and Statistics Doctoral Training) at the Univ. of Warwick.
- 2010 – 2013 Organizer of Courant Probability Seminar.