

PRASAD TETALI

CURRICULUM VITAE

March 2015

Tetali, Prasad..... Professor
School of Mathematics & School of Computer Science
Georgia Institute of Technology

PERSONAL DATA:

Born: Visakhapatnam, India
U.S. Citizen; home address: 231 Coventry Rd, Decatur, GA 30030, U.S.A.

EDUCATIONAL BACKGROUND:

9/87 - 5/91 Ph.D., Courant Institute of Mathematical Sciences, New York University.
Ph.D. Thesis: Applications and Analysis of Probabilistic Techniques
Thesis Advisor: Prof. Joel Spencer

8/84 - 12/86 M.S. in Computer Sci. and Automation, Indian Inst. of Sci., Bangalore, India
Master's Thesis: A Fast Primality Testing Algorithm-Study and Implementation

8/80 - 5/84 B.E. in Electronics and Communication, Andhra University, India

EMPLOYMENT HISTORY:

2/1/ 2015 Adjunct Professor, Mathematics & Computer Science, Emory University

Fall 2014 Visiting Professor, Institute for Mathematics & Applications, Minnesota, MN

Fall 2013 Visiting Professor, Simons Institute for Theory of Computing, Berkeley, CA

4/11-5/14 Director, Algorithms & Randomness Center (ARC) ThinkTank, Georgia Tech

06/11-07/11 Consulting Researcher, Microsoft Research, Redmond (WA) and New England

11/10-12/10 Visiting Professor, University of Paris Est, Marne LaVallee, France; also
during July 2012

10/09-11/09 Visiting Professor at IPAM, University of California, Los Angeles, CA

7/06-12/06 Visiting Researcher at Microsoft Research, Redmond, Washington;
also during 9/02-6/03, 8/00-12/00 and 8/98-12/98

1/05-5/05 Visiting Professor, MSRI, University of California, Berkeley, CA

5/04- Promoted to Professor

7/02-8/02 Visitor, Newton Institute of Mathematical Sciences, Cambridge, U.K.

8/01- Joint Appointment with College of Computing

8/00- Associate Professor, School of Mathematics, Georgia Institute of Technology,
Atlanta, GA

2/97-3/97 Short-term DIMACS visitor to Bell Labs (Lucent Technologies), Murray Hill
and the IAS, Princeton, New Jersey

9/94-7/00 Assistant Professor, School of Mathematics, Georgia Institute of Technology,
Atlanta, GA

8/92-8/94 Postdoc MTS, Mathematical Sciences Research Center, AT&T Bell Labs,
Murray Hill

Fall 1991 Adjunct Faculty, SEHNAP, New York University

Summer '90 Member of Technical Staff, Mathematics, Information Sciences & Operations
Research Division, Bellcore, Morristown

Spring '90 Research Affiliate, Department of Applied Mathematics, Massachusetts
Institute of Technology

Spring '87 Lecturer, Department of Computer Science, Andhra University, India

CURRENT FIELDS OF INTEREST:

Algorithms, Combinatorics, Discrete Optimization, Markov Chains and Applications, Isoperimetric & Functional Inequalities, Probabilistic Methods, Computational & Additive Number Theory

TEACHING EXPERIENCE (last several years):

Spring 2015	Math 7018	Probabilistic Methods in Combinatorics	11 students
	CS 2051	Honors: Intro to Discrete Math (2 weeks)	25 students

Spring 2014	Math 7018	Probabilistic Methods in Combinatorics	18 students
Spring 2013	Math 4032 Math 7018	Combinatorial Analysis Probabilistic Methods in Combinatorics	32 students 8 students
Spring 2012	Math 4280	Intro to Information Theory	30 students
Fall 2011	Math 7018	Probabilistic Methods in Combinatorics	17 students
Fall 2010	Math 2406 Math 3012	Abstract Vector Spaces Applied Combinatorics	25 students 50 students
Spring 2010	Math 4150 CS 3510	Intro to Number Theory & Applications Intro to Algorithms	37 students 70 students
Fall 2008	Math 4022 Math 2406	Intro to Graph Theory Abstract Vector Spaces	20 students 15 students
Spring 2008	CS 4803/8803	Computing and Coding with Probability	9 students
Fall 2007	Math 4022 Math 3012	Intro to Graph Theory Applied Combinatorics	26 students 25 students
Spring 2007	Math 4032 Math 8823	Combinatorial Analysis Topics in Probabilistic Combinatorics (jointly with Jeong Han Kim)	7 students 10 students
Spring 2006	Math 7018 CS 1050	Probabilistic Combinatorics Understanding & Constructing Proofs	11 students 45 students
Fall 2005	Math 6221	Advanced Classical Probability Theory	14 students
Fall 2004	Math 6221	Advanced Classical Probability Theory	12 students
Spring 2004	Math 7018 Math 4032	Probabilistic Combinatorics Combinatorial Analysis	24 students 18 students
Fall 2003	CS 1050	Constructing Proofs	64 students
Spring 2002	Math 4150	Intro to Number Theory	24 students

Fall 2001	Math 3012	Combinatorics	35 students
	Math 4022	Intro to Graph Theory	30 students
Spring 2001	Math 3012	Combinatorics	38 students
	Math 4150	Intro. to Number Theory	17 students
Spring 2000	Math 4150	Intro. to Number Theory	15 students
Fall 1999	Math 2602	Linear and Discrete Math	123 students
	Math 6221	Advanced Classical Probability Theory	6 students
Spring 1999	Math 6018	Probabilistic Combinatorics	7 students
Winter 1999	Math 4150	Intro to Number Theory	15 students
	Math 6221	Topics in Probability	8 students
Spring 1998	Math 2503	Intro to Algorithms & Optimization	38 students
Winter 1998	Math 2502	Elementary Difference & Diff. Equa.	35 students
	Math 4150	Intro to Number Theory	16 students
Fall 1997	Math 2503	Intro to Algorithms & Optimization	45 students
	Math 3012	Applied Combinatorics	35 students

PUBLICATIONS:

a) Already Published:

(N. Gozlan, C. Roberto, P-M. Samson, P. Tetali) “Displacement convexity of entropy and related inequalities on graphs,” **Probab. Th. Rel. Fields**, **160** (2014), 47-94.

(M. Bayati, D. Gamarnik, and P. Tetali) “Combinatorial Approach to the interpolation method and scaling limits in sparse random graphs,” Proc. of the ACM STOC 2010. Journal version in **Annals of Probability**, **41** (2013), 4080-4115.

(Y-D Jian, D.C. Balcan, I. Panageas, P. Tetali and F. Dellaert) “Support-Theoretic Subgraph Preconditioners for Large-Scale SLAM,” Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2013, November, Tokyo, Japan.

(A. Blanca, D. Galvin, D. Randall, P. Tetali) “Phase Coexistence and Slow Mixing for the Hard-Core Model on Z^2 ,” Proc. of *Random 2013*, August, Berkeley, CA.

(A. Das Sarma, D. Nanongkai, G. Pandurangan, and P. Tetali), “Distributed Random Walks,” **J. of**

the **ACM**, **60** (1), 2013.

(A. Kupavsky, L. Ostroumova, D. Shabanov, and P. Tetali), “The distribution of second degrees in the Buckley-Osthus random graph model,” *Internet Mathematics*, **9** (2013), 297-335.

(C. Borgs, J. Chayes and P. Tetali) “Tight Bounds for Mixing of the Swendsen-Wang Algorithm at the Potts Transition Point,” **Probab. Th. & Rel. Fields**, Nov. 2010 (online version); **152** (2012), 509-557.

(S. Iwata, P. Tetali, P. Tripathi) “Approximating Minimum Linear Ordering Problems,” Proc. of APPROX 2012 (August), Cambridge-MIT, MA.

(K. Costello, P. Tetali, P. Tripathi) “Matching with Commitments,” Proc. of ICALP 2012 (July), Durham, U.K.

(S. Miracle, D. Randall, A.P. Streib, P. Tetali), “Algorithms for sampling 3-orientations of planar triangulations,” Proc. of Analysis of Algorithms 2012 (June), Montreal, Canada.

(E. Croot, A. Granville, R. Pemantle, P. Tetali) “Sharp Transitions in Making Squares,” **Annals of Mathematics**, **175** (2012), 1507-1550.

(A. Louis, P. Raghavendra, P. Tetali, S. Vempala) “Many sparse cuts via higher Eigenvalues,” Proc. of Symposium on Theory of Computing (STOC), May 2012, New York, NY. Journal version **J. of the ACM**, in revision.

(C. Heitsch and P. Tetali) Meander Graphs, DMTCS Proceedings, Formal Power Series and Algebraic Combinatorics (FPSAC) 2011.

(R. Restrepo, J. Shin, P. Tetali, E. Vigoda, L. Yang) “Improved Mixing Condition on the Grid for Counting and Sampling Independent Sets,” Proc. of the IEEE FOCS 2011. Journal version **Probab. Th. Rel. Fields**, (online version: 24 March 2012), **156** (2013), 75-99.

(A. Louis, P. Raghavendra, P. Tetali, S. Vempala), “Algorithmic Extensions of Cheeger’s Inequality to Higher Eigenvalues and Partitions,” in Approximation, Randomization, and Combinatorial Optimization. Algorithms & Techniques, Lecture Notes in CS **6845** (2011), 315-326.

(D. Shah, J. Shin, P. Tetali), “Medium Access Using Queues,” Proc. of the IEEE FOCS 2011. Journal version submitted to Ann. Appl. Probab., 2011 (in revision).

(M. Madiman, A. Marcus, P. Tetali) “Entropy and Set Cardinality Inequalities for Partition-determined functions, and applications to sumsets,” *Rand. Struct. Alg.*, **40** (2012), 399-424.

(A. Montanari, R. Restrepo, and P. Tetali) “Reconstruction and Clustering in Random Constraint

Satisfaction Problems,” Special Issue of SIAM J. on Discrete Math., **25** (2011), 771-808.

(D. Galvin, F. Martinelli, K. Ramanan, P. Tetali) “The finite-state hardcore model on a regular tree,” Special issue of SIAM J on Discrete Math., **25** (2011), 894-915.

(K. Costello, A. Shapira, and P. Tetali), “On randomizing two derandomized greedy algorithms,” J. of Combinatorics, **1** (2010), 265--283; conference version in Proc. of the ACM-SIAM Symp. on Discrete Algorithms (SODA), January 2011.

(N. Bhatnagar, A. Sly, and P. Tetali), “Reconstruction threshold for the hardcore model,” RANDOM, September (2010), Barcelona, Spain.

(P. Raghavendra, D. Steurer, and P. Tetali), Approximation Algorithms for the Isoperimetric and Spectral Profile of Graphs, and for Restricted Eigenvalues of Diagonally-Dominant Matrices, Proc. of the ACM STOC 2010.

(A. Das Sarma, D. Nangonkai, G. Pandurangan, and P. Tetali), Improved Sublinear Bounds for Distributed Random Walks, Proc. of the IEEE Principles of Distributed Computing (PODC 2010).

(B. Benson, D. Chakrabarty and P.Tetali) “G-Parking Functions, Acyclic Orientations and Spanning Trees,” Discrete Math. 310 (2010), 1340—1353.

(JH. Kim, R. Montenegro, Y. Peres, P. Tetali) “A Birthday Paradox for Markov chains, with an optimal bound for collision in the Pollard's Rho for Discrete Logarithm,” Springer Lecture Notes in CS, pp. 402-415; journal version in Ann. Appl. Probab. 20 (2010), 495—521.

(M. Madiman and P. Tetali) “Information Inequalities for Joint Distributions, with Interpretations and Applications,” IEEE Trans. on Information Theory, 56 (2010), 2699—2713.

(P. Tetali, J. Vera, E. Vigoda, and L. Yang) “Phase transition for the mixing time of the Glauber dynamics for coloring regular trees,” Proc. of the ACM-SIAM Symp. on Discrete Algorithms (SODA), January 2010.

(T. Carroll, D. Galvin, P. Tetali) “Matchings and Independent Sets of a Fixed Size in Regular Graphs”, J. Combin. Th. (Series A). 116 (7) 2009, 1219—1227.

(M. Sammer and P. Tetali) Concentration on the Discrete Torus using Transportation, Comb. Probab. & Computing (Special Issue on New Directions in Algorithms, Combinatorics and Optimization), 18 (5) 2009, 835-860.

(R. Montenegro and P. Tetali) “How long does it take to catch a wild kangaroo,” Proc. of the ACM Symp. On Theory of Computing (STOC), May 2009; journal version in J. Number Theory, to appear.

(E. Croot, A. Granville, R. Pemantle, P. Tetali) "Running Time Predictions for Factoring Algorithms," Algorithmic Number Theory Symposium (May 2008), Banff, Canada. Springer LNM 2008, 1-36.

(JH. Kim, R. Montenegro, P. Tetali), A near-optimal bound for Pollard's Rho to solve discrete logarithm, " Proc. of the Annual IEEE Symposium on Foundations of Computer Science (FOCS), Providence, RI, October 2007.

(M. Bayati, D. Gamarnik, D. Katz, C. Nair, and P. Tetali) "Simple Deterministic Approximation Algorithms for Counting Matchings," Proc. of the Annual ACM Symposium on Theory of Computing (STOC), San Diego, CA, June 2007.

(M. Madiman and P. Tetali) "Sandwich Bounds for Joint Entropy," Proc. of the International Symposium on Information Theory June 2007, Nice, France.

(N. Bhatnagar, P. Caputo, P. Tetali, and E. Vigoda) Analysis of top-swap shuffling for genome rearrangements. Ann. Appl. Probab. 17 (2007), no. 4, 1424--1445.

(M. Mihail, A. Saberi, P. Tetali) "Random walks with lookahead in power law random graphs," Internet Mathematics 3 (2007).

(M. Krivelevich, B. Sudakov, P. Tetali) "On smoothed analysis of dense graphs and formulas," Random Struct. & Algorithms, 29 (2006), 180-193.

(D. Galvin and P. Tetali) "Slow mixing of the Glauber dynamics for the hard-core model on regular bipartite graphs," Random Struct. & Algorithms 28 (2006), 427-443.

(S. Bobkov, C. Houdré, P. Tetali) "The subgaussian constant and concentration inequalities," Israel J. Math. 156 (2006), 255-283.

(S. Goel, R. Montenegro, P. Tetali) "Mixing time bounds via the spectral profile," Electronic J. Probab. 11 (2006), 1-16.

(E. Friedgut, V. Rödl, A. Rucinski, P. Tetali) "A sharp threshold for random graphs with a monochromatic triangle in every edge coloring," Memoirs of the AMS 179 (2006), 66 pages.

(S. Bobkov and P. Tetali) "Modified logarithmic Sobolev inequalities in discrete settings," Jour. of Theor. Probab. 19 (2006), 289-336; ten-page conference version appeared in the ACM Annual Symposium on Theory of Computing, San Diego (June, 2003).

(B. Guenin, D. Mubayi, P. Tetali) "A family of switch equivalent graphs," Discrete Math. 288 (2004), 29-35.

- (M. Jerrum, J-B. Son, P. Tetali, E. Vigoda) “Elementary bounds for Poincare and log-Sobolev constants for decomposable Markov chains,” *Ann. Appl. Probab.* **14** (2004), 1741-1765.
- (C. Houdré and P. Tetali) “Isoperimetric Constants for Product Markov Chains and Graph Products,” *Combinatorica* **24** (2004), 359-388.
- (D. Galvin and P. Tetali) “On weighted graph homomorphisms,” DIMACS-AMS special volume **63** (2004), 97-104.
- (C. Borgs, J. Chayes, M. Dyer, P. Tetali) “On the sampling problem for H-colorings on the hypercubic lattice,” DIMACS-AMS Special Volume **63** (2004), 13-28.
- (D. Galvin and P. Tetali) “Slow mixing of the Glauber dynamics for the hard-core model on the Hamming cube,” *Proc. Of the Annual Symp. On Discrete Algorithms (SODA)*, January 2004.
- (G. Brightwell and P. Tetali) “The number of linear extensions of the Boolean lattice,” *Order* **20** (2003), 333-345.
- (E. Friedgut, Y. Kohayakawa, V. Rödl, A. Rucinski, P. Tetali) “Ramsey games against a one-armed bandit,” *Combinatorics, Probability, & Computing* (special issue on Ramsey theory), **12** (2003), 515-545.
- (U. Feige, L. Lovasz, P. Tetali) “Approximating Min-Sum Set Cover,” *J. of Algorithmica* (to appear); ten-page conference version appeared in the Proceedings of APPROX’02 (Annual Conference on Approximation Algorithms), Rome, Italy (Sept. 2002).
- (Dumitriu, P. Tetali, P. Winkler) “On Playing Golf With Two Balls,” *SIAM J. on Discrete Math.* **16** (2003), 604-615.
- (D. Achlioptas, J.H. Kim, M. Krivelevich, and P. Tetali) “Two-coloring random hypergraphs,” *Random Structures & Algorithms* **18** (2002), 249-259.
- (A. Kostochka, D. Mubayi, V. Rödl, P. Tetali) “On the chromatic number of set systems,” *Random Structures & Algorithms* **19** (2001), 97-98.
- (A. Kundgen, D. Mubayi and P. Tetali) “Minimal completely separating systems of k-sets,” *J. Comb. Theory (Series A)* **93** (2001), 192-198.
- (C. Houdré and P. Tetali) “Concentration of Measure for Products of Markov Chains via Functional Inequalities,” *Combinatorics, Probability & Computing*, **10** (2001), 1-28.
- (P. Tetali and S. Vempala) “Random Sampling of Euler Tours,” *Algorithmica* **30** (2001), 376-385.

(D. Randall and P. Tetali) “Analyzing Glauber dynamics using comparison of Markov chains,” *J. Math. Physics* (1999), **41** (2000), 1598-1615.

(S. Bobkov, C. Houdré and P. Tetali) “ λ_{∞} , Vertex isoperimetry and Concentration,” *Combinatorica*, **20** (2000), 153-172 .

(P. Fishburn, P. Winkler, and P. Tetali) “Optimal linear arrangements on rectangular grids,” *Discrete Math.*, **213** (2000), 123-139.

(C. Borgs, J. Chayes, A. Frieze, J. H. Kim, P. Tetali, E. Vigoda and V. H. Vu) “Tortoise mixing of some MCMC algorithms in statistical physics,” *IEEE Symp. on Foundations of Computer Science* (Oct. 1999), New York.

(J. H. Kim, D. R. Simon, and P. Tetali) “Limits on the efficiency of one-way permutation-based hash functions,” *IEEE Symp. on Foundations of Computer Science* (Oct. 1999), New York.

(P. Bergstrom, M.A. Ingram, A. Vernon, J. Hughes, and P. Tetali) “A Markov Chain Model for a Shared Optical Memory Packet Switch,” *IEEE Trans. on Communications* (Oct. 1999), 1593-1603.

(P. Tetali) “Design of on-line algorithms using hitting times,” *Proc. of the Symp. on Discrete Algorithms* (1994), 402-411; *SIAM J. on Computing* **28** (1999), 1232-1246.

(R. Kannan, P. Tetali, and S. Vempala) “Simple Markov chain algorithms for generating bipartite graphs and tournaments,” *Proc. of 8th Annual ACM/SIAM Symposium on Discrete Algorithms*, Jan. 1997; *Random Structures & Algorithms* **14** (1999), 293-308.

(L. McShine and P. Tetali) “On the Mixing Time of the Triangulation Walk and Other Catalan Structures,” *SIAM Conf. on Discrete Math.* (1998), Toronto, Canada; *DIMACS-AMS volume on Randomization Methods in Algorithm Design* **43** (ed. By Pardalos et al.) (1998), 147-160.

(D. Randall & P. Tetali) “Analyzing Glauber Dynamics Using Comparison of Markov Chains,” presented at *LATIN '98*, Campinas, Brazil; also appeared in *Lecture Notes in Computer Science* **1380** (1998).

(F.R.K. Chung and P. Tetali) “Isoperimetric Inequalities for Cartesian products of Graphs,” *Combinatorics, Probability and Computing* **7** (1998), 141-148.

(P. Tetali) “A characterization of UNIQUE Tournaments,” *J. Combinatorial Theory (Series B)* **72** (1998), 157-159.

(P. Tetali and S. Vempala) “Random Sampling of Euler Tours,” *Lecture Notes in Computer Science*,

No. 1269 (July 1997), 57-66.

(P. Fishburn, J.H. Kim and P. Tetali) "Score Certificates for Tournaments," *J. Graph Theory* **24** (1997), 117-139.

(J. Palacios and P. Tetali) "A note on expected hitting times for birth and death chains," *Statistics and Probability Letters* **30** (1996), 119-125.

(N. Alon, J. Spencer, and P. Tetali) "Covering with Latin Transversals," DIMACS Technical Report **91-71**, Oct. 1991; also *Discrete Applied Math.* **57** (1995), 1-10.

(P. Erdős, M. Nathanson and P. Tetali) "Independence of Solution Sets and Minimal Asymptotic Bases," *Acta Arithmetica* **LXIX.3** (1995), 243-258.

(J. Spencer and P. Tetali) "Sidon sets with small gaps," in *Discrete Probability and Algorithms, IMA Volumes in Applied Mathematics and its Applications* (eds., D. Aldous et al.), Springer-Verlag, New York (1995).

(P. Tetali) "An Extension of Foster's Network Theorem," *Combinatorics, Probability & Computing*, special issue dedicated to the 80th birthday of Paul Erdős, No. 3 (1994) 421-427.

(P. Tetali and Winkler) "Simultaneous Reversible Markov Chains," *Combinatorics, Paul Erdős Is Eighty (Vol. 1)*, Keszthely, Hungary (1993), 433-451.

(D. Coppersmith, P. Tetali and P. Winkler) "Collisions among Random Walks on a Graph," *SIAM Journal on Discrete Mathematics* **6** (1993), 363-374.

(F.R.K. Chung and P. Tetali) "Communication Complexity and Quasi-Randomness," *SIAM Journal on Discrete Mathematics* **6** (1993), 110-123.

(P. Tetali) "Random Walks and the Effective Resistance of Networks," *Journal of Theoretical Probability* **4** (1991), 101-109.

(P. Tetali and P. Winkler) "On a Random Walk Problem Arising in Self-Stabilizing Token Management," *Proceedings of 10th Annual ACM Symposium on Principles of Distributed Computing*, Montreal, Canada (1991).

(P. Erdős and P. Tetali) "Representations of Integers as the Sum of k Terms," *Random Structures and Algorithms* **1** (1990) 245-261.

b) Accepted for Publication:

(M. Erbar, J. Maas, and P. Tetali) "Discrete Curvature bounds for Bernoulli-Laplace and Random

Transposition Models,” *Annales Fac. Sci. Toulouse*, accepted October 2014.

(P. Caputo, G. Menz, and P. Tetali) “Approximate Tensorization of Entropy at High Temperature,” *Annales Fac. Sci. Toulouse*, accepted September 2014.

c) Submitted for Publication:

(B. Klartag, G. Kozma, P. Ralli, and P. Tetali) “Discrete curvature and abelian groups,” submitted, (on math arxiv; pending journal submission) January 2015.

(N. Gozlan, C. Roberto, P-M. Samson, and P. Tetali) “Kantorovich duality for general transport costs and applications,” submitted (on math arxiv; pending journal submission) January 2015.

(R. Montenegro and P. Tetali) “Kruskal’s Principle and Collision Time for Monotone Transitive Walks on the Integers,” *J. Number Theory*, submitted September 2014; minor revisions recommended in December 2014.

(E. Cohen, D. Mubayi, P. Ralli, and P. Tetali) “Inverse Expander Mixing for Hypergraphs,” *Israel J. of Mathematics*, submitted August 2014.

(R. Che, W. Huang, Y. Li, and P. Tetali) “Convergence to Global Equilibrium in Fokker-Planck Equations on a Graph and Talagrand-type inequalities,” *Probab. Th. Rel. Fields*, submitted August 2014.

(N. Bhatnagar, A. Sly, and P. Tetali) “Decay of Correlations for the Hardcore model on the d -regular Random Graphs,” *Electronic J. Probability*, submitted May 2014.

(T. Carroll, J. Cooper, and P. Tetali) “Counting Antichains and Linear Extensions in Generalizations of the Boolean Lattice,” under revision.

(A. Blanca, D. Galvin, D. Randall, P. Tetali) “Phase Coexistence and Slow Mixing for the Hardcore Model on Z^2 ,” *Random 2013* (to appear); journal version under revision.

(A. Louis, P. Raghavendra, P. Tetali, S. Vempala) “Many sparse cuts via higher Eigenvalues,” submitted to **J. of ACM**, August 2012. (revised and resubmitted, October 2014.)

NON-REFEREED PUBLICATIONS

(C. Nair and P. Tetali) “Correlation decay (CD) tree and spatial mixing in multi-spin interacting spin systems,” *Math Arxiv* 2007.

(J. Spencer, A. Srinivasan, P. Tetali) “The discrepancy of permutation families,” Preprint (November

2001).

(P. Fishburn, J.H. Kim, and P. Tetali) “Tournament Certificates,” Bell Labs Tech. Memo. (Feb. 1994), DIMACS Tech. Report No. **94-05** (1994).

(P. Tetali) “Electrical proofs for non-electrical results,” Proc. of the 14th IMACS World Congress on Computational and Applied Math., Atlanta, GA, July 1994, Vol. 1, 462-465.

(S. Phillips and P. Tetali) “Hitting costs via electrical resistances and the harmonic algorithm for K-servers,” Bell Labs Tech. Memo, Dec. 1993.

(A. Policriti and P. Tetali) “On the Satisfiability Problem for the Ground Case of First Order Theories,” DIMACS Technical Report **92-38**, Aug. 1992.

(P. Tetali) “Derandomization of Discrepancy Results,” preprint 1991.

(P. Tetali and P. Winkler) “Meeting Times for Random Walks on Graphs,” DIMACS Technical Report **90-65**, October 1990.

(J. Spencer and P. Tetali) “Representations of Integers as the Sum of k Terms II,” V SIAM Conference on Discrete Mathematics, Atlanta, June 1990.

(P. Tetali) “Probabilistic Methods: Algorithmic Aspects,” Technical Report **444**, Dept. of Computer Science, New York University, Feb. 1989.

BOOKS PUBLISHED:

(R. Montenegro and P. Tetali) **Mathematical Aspects of Mixing Times in Markov Chains**, In the series: Foundations and Trends in Theoretical Computer Science, now Publishers (2006), Boston-Deift.

INVITED PRESENTATIONS:

August’15: Combinatorics workshop at Yandex Corporate, Moscow, Russia

July’15: Plenary speaker, Random Structures & Algorithms Conference, Pittsburgh, PA

March 13, 2015: Combinatorics Seminar, MIT-Microsoft Research, Cambridge, MA

March 6, 2015: Columbia-Princeton Probability Day, Princeton University, NJ

November'14: Probability Seminar, University of California, Berkeley, CA

October'14: Combinatorics Seminar, University of Minnesota, MN

October'14: IMA Seminar, Minneapolis, MN

August'14: ICM Satellite conference on Extremal and Structural Graph Theory, South Korea

April'14: Atlanta Lecture Series in Graph Theory and Combinatorics, Atlanta, GA

March'14: Workshop on *Talking Across Fields*, Toulouse, France

February'14: Probability Seminar, Brown University, Providence, RI

October'13: Probability Seminar, Stanford University, Palo Alto, CA

September'13: Invited Speaker, Workshop on Functional Inequalities & Applications, Simons Institute of Theory of Computing, Berkeley, CA

August'13: Plenary Speaker, Conference on **Random Structures & Algorithms**, Poznan, Poland; *cancelled due to injury*

July'13: Combinatorics session, Erdos 100th Birth year conference, Budapest, Hungary; *cancelled due to injury*

April 15-19, 2013: Oberwolfach workshop in Combinatorics and Probability, Germany

March 28, 2013: Joint Math-CS Colloquium, Purdue University, West Lafayette, IN

October'12: Workshop on Discrete Convexity and Optimization, RIMS, Kyoto, Japan

July'12: Combinatorics and Computer Science Day, Ecole Polytechnique, Paris

June'12: Summer School in Graph Theory, 3 lectures, Montreal, Canada

May'12: Plenary talk in Southeast Probability Conference, Duke University, Durham, NC.

March'12: Plenary talk in Workshop on Groups, Geometry and Random Graphs, Texas A&M, TX

January '12: Minisymposium on Probabilistic and Extremal Combinatorics, Joint Math Meetings, Boston, MA

December `11: Tutorial lectures (3.5 hours) on Markov Chain Mixing and Applications, Int' Conf. on Machine Learning & Applications (ICMLA), Honolulu, Oahu, Hawaii

August `11: Lecture in Probability Summer School of IMPA, Mambu Cabo, Brazil

May `11: Combinatorics seminar, Cambridge Univeristy, Cambridge, UK

March `11: Lecture in Workshop on Discrete Harmonic Analysis, Newton Institute of Mathematical Sciences, Cambridge, UK

January 11-14, `11: Expository lectures (2 hours) on Discrete Isoperimetry, concentration and functional inequalities, Paris Est (Marne La Vallee)

November 30, `10: Lecture in Dagstuhl Workshop on Complexity of Computational Counting, Dagstuhl Germany

June `10: Two talks in separate minisymposia, part of SIAM Conf. on Discrete Math, Austin, TX

May `10: Emory University, Math Colloquium

May 19-25, `10: Series of 4 lectures (8 hours) on Probabilistic Combinatorics, University of Rome 3, Italy.

May 19-25, `10: Lectures on Probabilistic Combinatorics, University of Rome 3, Italy.

January 12, `10: Joint Math and CS Colloquium, Northeastern University.

November 18, `09: CalTech Information Sciences & Technology Seminar.

November 12, `09: UCLA Probability Colloquium.

October 5-9, `09: IPAM Workshop on Combinatorics: Probabilistic Techniques & Applications.

September 14-17, `09: Probabilistic Methods in Computer Science, Center for Research in Math, Barcelona, Spain.

August 24-28, `09: BIRS Workshop (Banff) on Probabilistic and Extremal Combinatorics.

January 11-13, `09: Keynote Speaker, Jubilee Conference on Discrete Math, Bansthali University, India.

January 5-9, `09: 3-hour tutorial on Dynamical and Spatial Mixing in Spin Systems, Workshop on Graphical Models, Phase Transitions, and Algorithms, Tata Institute of Fundamental Research, Mumbai, India.

February 6, '08 : Statistics Seminar, Yale University, CT

July 14, '08 : Primetime speaker, Hampshire College Summer Camp in Math, Hampshire, MA

July 17, '08 : Stochastics Seminar speaker, Joint MIT-Microsoft Research (New England), Cambridge, MA

November 13, '08: ACO Seminar, CMU, Pittsburgh, PA

December 4th, '08: Number Theory Seminar, Dartmouth College, Hanover, NH

December 4th, '08: Computer Science Colloquium, Dartmouth College, Hanover, NH

April 21-22, '07 : Plenary speaker, Random Combinatorial Structures, University of Nebraska, Lincoln.

May 22-24, '07 : Trinity College, Cambridge University, Combinatorics Seminar, Cambridge, U.K.

May 25-27, '07: London School of Economics, Combinatorics Seminar, London, U.K.

May 28-31, '07: Random Structures & Algorithms, Tel Aviv, Israel

June 25-26, '07: Probability workshop, Bologna, Rome, Italy

July 1-7, '07: Workshop on Interface between Statistical Physics and Computer Science, Trieste, Italy

Sept. 3-7, '07 : Conference on Stochastic Processes & Algorithms, Hausdorff Institute of Mathematics, Bonn, Germany

Oct. 6-7, '07 : Rutgers University, AMS special session on Probability & Combinatorics.

Oct. 11-12, '07 : Clemson Discrete Math & Algorithms Conference

Nov. 5-9, '07: AIM (Palo Alto) workshop on Algorithmic Convex Geometry.

Nov. 30-Dec. 1, '07: MIT, combinatorics seminar speaker.

Dec. 2-3, '07 : Harvard University, workshop on Advances in Analysis of Monte Carlo Methods.

Colloquium, Microsoft-Bangalore, India, December 2006

Theory of Computing seminar, University of Washington, November 2006

Combinatorics seminar, Georgia Tech. November 2006

Workshop on Properties of Large Graphs: From combinatorics to statistical physics and back, DIMACS, Rutgers University, October 2006

Probability Seminar, University of Minnesota, Minneapolis, September 2006

Joint Probability and Computing Seminar, Stanford University, May 2006

Workshop on the Anatomy of Integers, CRM, University of Montreal, Canada, March 2006

Workshop on Lie groups, Representations & Discrete Math, IAS, Princeton, NJ, February 2006

Current Progress and Future Trends in Combinatorics, Banff, Canada, November, 2005

Plenary Talk, AMS Southeast Regional Meeting,, Johnson City, TN, October 2005

Colloquium, Center for Mathematics of Information, Cal Tech, Pasadena, May, 2005

Probability Seminar, MSRI, Berkeley, CA, May 2005

Workshop on Sharp Thresholds for Mixing Times, American Institute of Mathematics, Palo Alto, CA (December 20-23, 2004).

Applied Mathematics Seminar, Johns Hopkins University, Baltimore, MD (November, 2004)

Special Session, Bernoulli Society World Congress, (July 2004)

Lectures on Entropy Inequalities, University of Roma (Tre), Rome, Italy (May 26 – June 7, 2004)

IMA Summer Course on Combinatorics and Applications, Georgia Tech., (July 2003).

Combinatorics Seminar, Microsoft Research, Redmond (June 2003).

Probability Seminar, University of California, Berkeley, (May 2003).

Theory of Computing Seminar, University of Washington, Seattle, (April 2003)

Combinatorics Seminar, University of Washington, Seattle, (March 2003).

Invited Speaker, part of CBMS lecture series, University of Memphis, Memphis, (May 2003).

Invited Speaker, Newton Institute of Mathematical Sciences, Cambridge, England, (August 2002).

Invited Speaker, Pacific Institute of Mathematical Sciences, Vancouver, Canada (July 2002).

Seminar, Laboratoire d'informatique École Polytechnique, Orsay, France, December 17-20th, 2001.

Special Colloquium, University of Memphis, November 7-10th, 2001.

Combinatorics, Probability, and Computing, Oberwolfach, Germany (one week), January 2001.

Graphs, Morphisms, and Statistical Physics, DIMACS Workshop at Rutgers University, New Brunswick, NJ, March 2001.

Invited Speaker: Randomized and Approximation Algorithms, Edinburgh, Scotland, Sept. 19-21, 2000.

Invited Speaker: Number Theory, Conference in Memory of Paul Erdős, Budapest, Hungary, July 4-11, 1999.

Invited Speaker: Probabilistic Combinatorics, Annual meeting of the AMS, San Antonio, Texas, Jan 13-16, 1999.

Invited Speaker: From Erdős to Algorithms: Applications of the Probabilistic Method, A joint DIMACS-DIMATIA Workshop, Rutgers, NJ, June 10-12, 1998.

Invited Speaker: Random Methods in Combinatorics, Sao Sebastiao, SP, Brazil, Apr 24-May 2, 1998.

Invited Speaker: Randomization Methods in Algorithm Design, Princeton University, Princeton, NJ, Dec 12-14, 1997.

Invited Speaker: Twelfth Clemson Mini-Conference on Discrete Mathematics, Clemson University, Clemson, SC, Sept. 1997.

Invited Speaker: The Tenth Annual Cumberland Conference hosted by Emory University Mathematics Department, Atlanta, May 1997.

Invited Speaker: Applied Mathematics Seminar at University of Pennsylvania, Philadelphia, PA, March 20-21, 1997.

Invited Speaker: Combinatorics Seminar at the Institute for Advanced Study (IAS), Princeton,

NJ, Feb. 1997.

Invited Speaker: Isoperimetry and Expander Graphs, Random Graphs, The Stephan Banach International Center for Mathematical Studies, Warsaw, Poland, Sept. 1996.

Invited Speaker: The International Conference on Mathematical Theory of Networks & Systems, St. Louis, July 1996.

Organized a session on Discrete Random Structures as part of the ORSA/TIMS Conference on Applied Probability, Georgia Tech, June 1995.

Invited Speaker: Dagstuhl seminar on Computing with Faulty Inputs,” May 1995.

Invited Speaker: Probability seminar at Michigan Tech., December 1994.

Invited Speaker: Applied Probability session of the 14th IMACS World Congress on Computational and Applied Mathematics (organized by Bill Ames et al.), Atlanta, July 1994.

Invited Speaker: Annual meeting of the Michigan Section of the MAA, Alma College, Alma, Michigan, April 1994.

Invited Speaker: Session on Probabilistic Methods, Conference for Erdős' 80th birthday, Dekalb, Illinois, May 1993.

RESEARCH GRANTS AND CONTRACTS:

NSF Grant DMS-1407657, “Displacement Convexity, Curvature and Concentration in Discrete Settings,” for \$288,000 for 36 months starting 7/1/2014; single PI.

3 NSF EAGER Grants (Total: \$900K; for 24 months, starting 3/1/2014.)

i) EAGER: Discrete Optimization Algorithms for 21st Century Algorithms (PI: George Nemhauser), NSF Proposal 1415460, \$300K

ii) EAGER: Physical Flow and other Industrial Challenges, (PI: Prasad Tetali), NSF Proposal: 1415496, \$300K

iii) EAGER: Convex Optimization Algorithms for 21st Century Challenges (PI: Santosh Vempala), NSF Proposal: 1415498, \$300K

Symbolic Inc (Intelligent Supply Network Automation) \$30K -- GT Foundation gift in support of ARC; plus consulting for 30 hours (at \$400/hr) during August-December 2013.

Macy’s Systems & Technology \$56K -- GTRC contract (joint with Sebastian Pokutta, ISYE); plus consulting for 29 hours (at \$300/hr) during July-December 2013.

Transfer of Support from Asaf Shapira’s grant:

Title: Extremal Problems in Combinatorics and Their Applications (DMS 0901355)
Sponsor: NSF, Award Amount: \$6,626. Period Covered: 01/15/13 - 05/31/13

Microsoft and Google gifts towards ARC Workshops; \$3,000 + \$3,000

“Dynamical Aspects of Internet Topology,” Yandex Corporate (Russia) funded \$41,000 to host a workshop and joint collaboration with ARC (starting November 2011); single PI.

“Random graph interpolation, Sumset inequalities and Submodular problems,” NSF DMS-1101447, funded for \$200,001 for 36 months starting 7//1/2011; single PI.

“Random Structures and Algorithms 2011,” NSF DMS-1101623, funded for \$20K, January 2011. PI: Dwight Duffus, Co-PIs: V. Rodl, A. Rucinski, P. Tetali

“Collaborative Research: Random Processes and Randomized Algorithms,” NSF grant (CCR-910584) approved for Summers 2010, 2011, 2012. Total: \$1.02 million. (Amount to Georgia Tech: \$780, 000.) Joint with Santosh Vempala, Dana Randall, Eric Vigoda (Georgia Tech), and Daniel Stefankovic (U. of Rochester).

“Information Inequalities and Combinatorial Applications,” NSF grant (DMS-0701043) approved for Summers 2007, 2008, 2009. Total : \$202,000. Additional travel supplement awarded Nov 2008: \$11, 375.

“Graph homomorphisms, Stochastic Networks, and Discrete Mass Transport” NSF grant (DMS- 0401239) approved for Summers 2004, 2005 and 2006. Total: \$148,386.

“Problems in Combinatorial Functional Analysis,” NSF grant, approved for Summers 2001, 2002 and 2003. Total: \$102,987; supplement for undergraduate research \$4001.

“Uniqueness of Gibbs Measures and Rapidly Mixing Dynamics,” NSF grant, approved for summers 1998, 1999 and 2000. Total: \$75,000

“Markov Chain Problems with Applications,” NSF grant, Oct. 1994, approved for summers 1995 & 1996. July 1-Sept. 1, 1995: \$18,319; July 1-Sept. 1, 1996: \$19,719. Total: \$38,038

HONORS, AWARDS, OR RECOGNITION:

Recognized as **AMS Fellow**, September 2012.

Outstanding Senior Research Faculty award, College of Computing, 2011-2012.

College of Sciences Faculty Mentor award, Georgia Tech, 2011.

Recognized as **SIAM Fellow** for contributions to Discrete Mathematics and Algorithms, May 2009.

Editor-in-Chief, SIAM J. on Discrete Mathematics, January 2009.

Keynote Speaker, International conference on Discrete Mathematics, Banasthali, India, Jan. (2009)

Keynote Speaker, Markov-chain Monte Carlo Methods, Isaac Newton Inst. Of Math. Sciences, March (2008)

Appointed SIAM SODA Steering Committee in 2008 (Chair: David Johnson)

Plenary Speaker, Conference on Random Structures, University of Nebraska, Lincoln, April (2007)

Plenary Speaker, AMS Southeast Regional Meeting, Tennessee, October (2005).

Plenary Speaker, Second International Workshop on Applied Probability, March 22-25 (2004), University of Piraeus, Greece (2004).

Principal Speaker, along with Jeong Han Kim, invited to give five lectures on “Probabilistic Combinatorics and Isoperimetric Inequalities” in the Rocky Mountain Mathematics Consortium Summer School, held in Laramie, Wyoming, June 2000.

Principal Speaker: Invited to give six lectures on “Random walks and on-line algorithms,” at Universidad Simon Bolivar, Caracas, Venezuela, May 1994.

Honorable mention by SIAM for contribution to the SIAM student paper competition, July 1990.

GRADUATE STUDENTS SUPERVISED:

Lisa McShine, Ph.D. student (Demantra-Oracle Corp., graduated 1999)

Steve Horton, Ph.D. student (graduated)
(jointly with Professor Gary Parker, Industrial & Systems Engineering, Georgia Tech)

Valerie Wallace, M.S. student (graduated)

Jose Miguel Renom (Simon Bolivar Universidad, Venezuela)

Marcus Sammer (Univ. of Washington, graduated May 2005)

Teena Carroll (St. Norbert's College, WI, graduated Spring 2008; currently at Emory & Henry College, Virginia)

Adam Marcus (Gibbs Instructor, Yale University, graduated Summer 2008, Konig Prize winner; ICM 2014 invited speaker)

Ricardo Restrepo (Postdoc, University of Toronto, graduated August 2011)

Geehoon Hong (Aug 2010-Dec 2011; switched to Master's in Math)

POSTDOCS MENTEES:

Ravi Montenegro, VIGRE-NSF Postdoc 2002-2005 (tenured at U. of Mass., Lowell, MA)

Kevin Costello, NSF Postdoc 2009-2011 (tenure-track at University of California, Riverside, CA)

Jinwoo Shin, ARC Postdoc 2010-2012 (tenure-track at KAIST, South Korea)

Will Perkins, NSF Postdoc 2011-2014

Jugal Garg, ARC Postdoc 2012-2014

Omar Abuzzahab, Jack Hale Postdoc, School of Math, Ga Tech, 2013-2015

CURRENT ADVISEES:

Graduate Students: Ioannis Panageas (ACO-CS, 4th year), Arindam Khan (ACO-CS, 5th year), Emma Cohen (ACO-Math, 4th year); Peter Ralli (Math, 4th year)

Undergraduate students: Tim Kierzkowski (Math)

Recent undergraduate advisees: Daniel Hull, Kyle Davis, Yijie Wang (CoC).

INSTITUTE AND DEPARTMENTAL SERVICE:

2014-current: Hiring Committee, School of Math, Georgia Tech

2013-2014: Postdoc Committee, School of Math, Georgia Tech

2011-2014: Director, Algorithms & Randomness Center (ARC) Thinktank, Georgia Tech

2011-2013: Junior P&T Committee

2010-2013: Salary & Awards Committee

2010-2012: Senior P&T Committee

2009-2011: Chair of Student Fellowship Committee, Algorithms & Randomness Center

2009- current: College of Sciences P&T Committee

2009-2010: School of Math Strategic Hiring Plan Committee

2008-current: Postdoc Selection Committee, Algorithms & Randomness Center

2008-current: ACO Ph.D. Program Coordinating Committee

2007-2008: School of Math Chair Search Committee

2007-2008: College of Computing Dean's Five Year Review Committee

2007-2009 : Hiring Committee Member,

2007-current: Combinatorics Seminar Organizer

2005-2007 : Salary & Awards Committee

1995-2007 : Served on various committees including, Junior P&T, Faculty Advisory Committee

PROFESSIONAL SERVICE AND MEMBERSHIP:

Member of the AMS, Member of SIAM

March 2015, NSF Panel

Principal Organizer, IMA Special Year (2014-15) on Discrete Structures: Analysis and Applications, Minneapolis, Minnesota.

Co-organizer, ARC-IDH-RIM Industry Day: Focus on Data Science, April 18, Georgia Tech

December 2012: NSF Panel

2010 – current : Associate Editor, Journal of Combinatorics

2010 – current : Associate Editor, Annals of Applied Probability

2009 – 2012 : **Editor in Chief, SIAM J on Discrete Mathematics**

2008 -- current: Associate Editor, SIAM J. on Discrete Mathematics

2001-- 2007 : Advisory Board of Jour. Comb. Theory (Series A)

2006 – 2009 : Associate Editor of Annals of Applied Probability

2008—current : Editor, Random Structures & Algorithms

2008 – 2012: Steering Committee Member, ACM-SIAM Sponsored SODA

Organizing Committee, SIAM Conference on Discrete Mathematics, Halifax, Nova Scotia, Canada.

Co-organizer, ARC-Yandex Workshop on Internet Topology and Economics, November 12-14, 2012, Ga Tech

Co-organizer, GaTech Workshop on Computation and Phase Transitions, June 4-7, 2012, Ga Tech.

Co-organizer, inaugural ARC-RIM Industry Day, May 2012, Ga Tech.

Co-organizer, ARC Workshop on Modern Aspects of Submodularity, March 19-22, 2012, Ga Tech.

January 2012: NSF Panel

Co-organizer, IPAM Workshop on Mathematical Challenges in Graphical Models and Message-Passing Algorithms, January 23-27, 2012.

Co-organizer, inaugural ARC Theory Day, November 11, 2011, Ga Tech.

Edited a special issue of SIAM J. on Discrete Mathematics on “Constrained Satisfaction Problems and Message Passing Algorithms.” 2011.

Edited a special issue of J. of Combinatorics in honor of Joel Spencer’s 60+ birthday, 2011.

Member of Program Committee, ACM Symp. on Theory of Computing (STOC 2011).

Co-organizer, Biennial Conference on Random Structures & Algorithms, Emory University, May 24-28, 2011.

Co-organizer (with Alan Frieze and Tom Bohman): Minisymposium on Probabilistic Combinatorics and Algorithms, SIAM Annual Meeting, Pittsburgh (July 2010).

Local organizer (with Milena Mihail) IEEE FOCS Conference, Atlanta, GA (October 2009).

Co-organizer (with Alan Frieze, Nati Linial, Angelika Steger): Workshop on Probabilistic

Techniques & Applications, part of the special program in Combinatorics at IPAM (UCLA), (October 2009).

Co-organizer (with Fabio Martinelli and Dana Randall) Working group on Markov Chains, Georgia Tech, Atlanta, GA (June 2009).

Co-organizer (with Olgica Milenkovic and Alon Orlitsky) Workshop on Computational and Information-theoretical approaches to Virology, UC San Diego, CA (February 2009).

Co-organizer (with R. Thomas et al) Conference on New Directions in Algorithms, Combinatorics & Optimization: also in honor of Tom Trotter's 60th Birthday, Georgia Tech (May 2008).

Co-organizer (with J. Chayes, F. Martinelli, and M. Molloy) Workshop on Phase Transitions, Hard Combinatorial Problems and Message Passing Algorithms, Banff International Research Center, Canada (June 2008).

Co-organizer (with N. Alon, J. Pach, A. Srinivasan) Workshop on Probabilistic Combinatorics & Algorithms, Conference in honor of Joel Spencer's 60 birthday, DIMACS (April, 2006).

Co-organized (with Russ Lyons) a minisymposium on "Probability & Combinatorics" as part of the joint AMS-MAA meeting at Georgia Tech., Atlanta (March 2002).

Organized a minisymposium on "Isoperimetry and Concentration," as part of the SIAM Discrete Mathematics Conference (July 1998), Toronto, Canada

Organized a minisymposium on "Markov chain Monte Carlo: theory & applications" as part of the SIAM Annual Meeting (May 1999), Atlanta, GA

Co-organized (with Dana Randall) a workshop on "Combinatorial methods for statistical physics methods," at Georgia Tech (April 1999)

Program Committee of ACM-SIAM sponsored Symposium on Discrete Algorithms, January 2000

Organizing Committee of the SIAM Discrete Mathematics Conference, June 2000.