

CURRICULUM VITAE for JASON FULMAN (Nov. 18 2016), 11 pages

CONTACT INFORMATION

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Los Angeles, CA 90089-2532

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Website: <http://www-bcf.usc.edu/~fulman>

EDUCATION

Ph.D. (Math) Harvard, 1997
B.A. (Math) Harvard, 1993 (Summa Cum Laude)

POSITIONS HELD

2009-present Professor, USC Math Dept.
2006-2009 Associate Professor, USC Math Dept.
2005-2006 Associate Professor, University of Pittsburgh Math Dept.
2001-2005 Assistant Professor, University of Pittsburgh Math Dept.
1999-2001 NSF Postdoctoral Fellow, Stanford University Math Dept.
1997-1999 John Wesley Young Research Instructor, Dartmouth
College Math Dept.

VISITING POSITIONS

5/14-6/14 Senior Researcher at Universite Paul Sabatier
5/05-6/05 Visitor to Oxford University Mathematical Institute and
Fellow Commoner at Queen's College
6/98-7/98 Postdoctoral Visitor at Stanford University Statistics
Department
8/98-9/98 Research in Pairs Program at Oberwolfach, Germany.
Worked with Peter Neumann (Oxford University) and
Cheryl Praeger (University of Western Australia)
8/98 Visitor to Oxford University Mathematical Institute

RESEARCH GRANTS AND FELLOWSHIPS

2016-2021 Simons Foundation Grant, \$35,000
2013-2015 NSA Grant \$80,444
2012 Simons Foundation Fellowship \$97,130
2008-2012 NSF Grant \$170,000
2008-2011 NSA Grant \$66,561

2005-2008	NSF Grant \$96,000
2005-2006	NSA Young Investigator's Grant \$26,000
2003-2004	NSA Young Investigator's Grant \$30,000
1998-2001	NSF Postdoctoral Fellowship \$90,000
1996-1997	Alfred P. Sloan Dissertation Fellowship \$15,000
1993-1996	National Defense Science and Engineering Graduate Fellowship \$13,000 plus tuition

Ph.D. STUDENTS

Alperen Ozdemir	Current student
Dinh Nguyen	Current student
Enes Ozel	Current student
Gene Kim	Current student
Haining Ren	Former student, graduated 2015
Umit Islak	Former student, graduated 2014
John Pike	Former student, graduated 2013
Radoslav Marinov	Former student, graduated 2013
Nathan Ross	Former student, graduated 2009
Lerna Pehlivan	Former student, graduated 2009

MASTERS STUDENTS

Meghdi Aboulian	Former student, graduated 2009
Beijia Zhang	Former student, graduated 2009

SERVICE (USC)

2014-2017	Colloquium Committee, Co-Chair
2016-2017	Ph.D. Thesis Committee Member for N. Wiroonsri
2015-2016	Ph.D. Thesis Committee Member for Weinan Wang
2015-2016	Ph.D. Thesis Committee Member for C. Bhattacharjee
2015-2016	Ph.D. Thesis Committee Chair for Gene Kim
2015-2016	Ph.D. Thesis Committee Chair for Enes Ozel
2015-2016	Ph.D. Thesis Committee Member for Nicole Gonzalez
2014-2015	Undergraduate Advisement Committee, Member
2014-2015	Merit and FLAC Committee, Member
2014-2015	Review Committee for Sami Assaf, Member
2014-2015	Ph.D. Thesis Committee Member for Ezgi Kantarci
2014-2015	Ph.D. Thesis Committee Chair for Dinh Nguyen
2014	Graduate Exam Committee for Probability, Member
2013-2015	Elected to USC Faculty Council
2013-2014	Consultative Committee for Chairman Selection, Member
2013-2015	Ph.D. Thesis Committee Chair for Haining Ren
2013-2014	Ph.D. Thesis Committee Chair for Umit Islak
2013-2015	Ph.D. Thesis Committee Member for Dilip Bethanabhotla

2013-2015	Ph.D. Thesis Committee Member for Vasilis Ntranos
2012-2014	Merit/Promotion Committee, Member
2013-2014	FLAC (Teaching Load) Committee, Member
2012-2014	Undergraduate Advisement Committee, Member
2012-2013	Hiring Committee, Chair
2012-2013	Sami Assaf Mentoring Committee, Chair
2012-2015	Ph.D. Thesis Committee Member for Hassan Ghozlan
2012-2013	Ph.D. Thesis Committee Member for Ansuman Adhikary
2012-2013	Ph.D. Thesis Committee Member for Song Nam Hong
2012-2013	Ph.D. Thesis Committee Chair for John Pike
2012-2013	Ph.D. Thesis Committee Chair for Radoslav Marinov
2011-2012	Ph.D. Thesis Committee Member for Burton Newman
2011-2012	Ph.D. Thesis Committee Member for Kamran Aslam
2009-2011	Merit Committee, Member
2007-2011	Colloquium Committee, Chair
2010-2011	Graduate Exam Committee for Probability, Member
2010-2011	Ph.D. Thesis Committee Member for Stephen De Salvo
2009-2010	Review Committee for Jay Bartroff, Member
2009-2010	Ph.D. Thesis Committee Member for Subhankar Ghosh
2009-2010	Ph.D. Thesis Committee Member for Sivaditya Kaligotla
2009-2010	One USC Committee Meeting to Give Provost Ideas
2008-2009	Ph.D. Thesis Committee Chair for Nathan Ross
2008-2009	Ph.D. Thesis Committee Chair for Lerna Pehlivan
2006-2008	Merit Committee, Member
2006-2007	Statistics Hiring Committee, Member
2006-2007	Colloquium Committee, Co-Chair

OTHER ACTIVITIES

Simons Foundation Grant Review 2014, 2015
 NSA Grant Review Panel (Probability and Statistics) 2013
 Reviewer for NSF Grants 2012
 Co-organizer for Special AMS Session: Probability and Combinatorics on Groups, 2010
 NSF Grant Review Panel (Probability) 2006, 2010
 Reviewer for NSA Grants 2004, 2006, 2008, 2014
 Reviewer for Israel Research Foundation, 2010
 Reviewed articles for Math Reviews
 Refereed numerous articles
 External Ph.D. thesis examiner for Han Liang Gan, 2014
 External Ph.D. thesis examiner for Scott Brown, 2006

REFEREED BOOKS (1)

1. "A Generating Function Approach to Matrix Enumeration in the Finite Classical Groups", with Peter Neumann, and Cheryl Praeger, Memoirs of the American Mathematical Society, 2005, 90 pages, ISBN 0821837060.

REFEREED JOURNAL ARTICLES (63), all “to appear” articles available on my website <http://www-bcf.usc.edu/~fulman/articles.html>

2. “Derangements in Subspace Actions of Finite Classical Groups”, with Robert Guralnick, 59 pages, to appear in Transactions of the American Mathematical Society.
3. “A Generating Function Approach to Counting Theorems for Square-free Polynomials and Maximal Tori”, Annals of Combinatorics, Volume 20, 2016, 587-599.
4. “On the Distribution of the Number of Fixed Vectors in the Finite Classical Groups”, with Dennis Stanton, Annals of Combinatorics, Volume 20, 2016, 755-773.
5. “Hall-Littlewood Polynomials and Cohen-Lenstra Heuristics for Jacobians of Random Graphs”, Annals of Combinatorics, Volume 20, 2016, 115-124.
6. “Stein’s Method and the Rank Distribution of Random Matrices over Finite Fields”, with Larry Goldstein, Annals of Probability, Volume 43, 2015, 1274-1314.
7. “Combinatorics of Balanced Carries”, with Persi Diaconis, Advances in Applied Math, Volume 59, 2014, 8-25.
8. “Cohen-Lenstra Heuristics and Random Matrix Theory over Finite Fields”, Journal of Group Theory, Volume 17, 2014, 619-648.
9. “Generating Functions for Real Character Degree Sums of Finite General Linear and Unitary Groups”, with Ryan Vinroot, Journal of Algebraic Combinatorics, Volume 40, 2014, 387-416.
10. “The Number of Regular Semisimple Conjugacy Classes in the Finite Classical Groups”, with Robert Guralnick, Linear Algebra and its Applications, Volume 439, 2013, 488-503.
11. “Exponential Approximation and Stein’s Method of Exchangeable Pairs”, with Nathan Ross, ALEA, Latin American Journal of Probability and Mathematical Statistics, Volume 10, 2013, 1-13.
12. “Analysis of Casino Shelf Shuffling Machines”, with Persi Diaconis and Susan Holmes, Annals of Applied Probability, Volume 23, 2013, 1692-1720.
13. “Stein’s Method, Heat Kernel, and Traces of Powers of Elements of Compact Lie Groups”, Electronic Journal of Probability, Volume 17, 2012, 1-16.
14. “Foulkes Characters, Eulerian Idempotents, and an Amazing Matrix”, with Persi Diaconis, Journal of Algebraic Combinatorics, Volume 36, 2012, 425-440.

15. "Cycle Indices for Finite Orthogonal Groups of Even Characteristic", with Jan Saxl and Pham Huu Tiep, Transactions of the American Mathematical Society, Volume 364, 2012, 2539-2566.
16. "Bounds on the Number and Sizes of Conjugacy Classes in Finite Chevalley Groups with Applications to Derangements", with Robert Guralnick, Transactions of the American Mathematical Society, Volume 364, 2012, 3023-3070.
17. "Exponential Approximation by Exchangeable Pairs and Spectral Graph Theory", with Sourav Chatterjee and Adrian Roellin, ALEA, Latin American Journal of Probability and Mathematical Statistics, Volume 8, 2011, 197-223.
18. "Zero biasing and Jack measures", with Larry Goldstein, Combinatorics, Probability, and Computing, Volume 20, 2011, 753-762.
19. "Separation Cutoffs for Random Walk on Irreducible Representations", Annals of Combinatorics, Volume 14, 2010, 319-337.
20. "On Adding a List of Numbers (and Other One-Dependent Determinantal Processes)", with Alexei Borodin and Persi Diaconis, Bulletin of the American Mathematical Society, Volume 47, 2010, 639-670.
21. "Carries, Shuffling, and an Amazing Matrix", with Persi Diaconis, American Mathematical Monthly, Volume 116, 2009, 788-803.
22. "A Sharp Analysis of the Mixing Time for Random Walk on Rooted Trees", Electronic Journal of Combinatorics, Volume 16 (1), R 139, 2009, 13 pages.
23. "Carries, Shuffling, and Symmetric Functions", with Persi Diaconis, Advances in Applied Mathematics, Volume 43, 2009, 176-196.
24. "Stein's Method and Characters of Compact Lie Groups", Communications in Mathematical Physics, Volume 288, 2009, 1181-1201.
25. "Commutation Relations and Markov Chains", Probability Theory and Related Fields, Volume 144, 2009, 99-136.
26. "On Fixed Points of Permutations", with Persi Diaconis and Robert Guralnick, Journal of Algebraic Combinatorics, Volume 28, 2008, 189-218.
27. "Stein's Method and Random Character Ratios", Transactions of the American Mathematical Society, Volume 36, 2008, 3687-3730.
28. "Convergence Rates of Random Walk on Irreducible Representations of Finite Groups", Journal of Theoretical Probability, Volume 21, 2008, 193-211.

29. "An Inductive Proof of the Berry-Esseen Theorem for Character Ratios", Annals of Combinatorics, Volume 10, 2006, 319-332.
30. "Power Series Coefficients for Probabilities in Finite Classical Groups", with John Britnell, Journal of Algebra, Volume 305, 2006, 1212-1237.
31. "Martingales and Character Ratios", Transactions of the American Mathematical Society, Volume 358, 2006, 4533-4552.
32. "Stein's Method and Descents after Riffle Shuffles", Electronic Journal of Probability, Volume 10, 2005, 901-924.
33. "Stein's Method and Plancherel Measure of the Symmetric Group", Transactions of the American Mathematical Society, Volume 357, 2005, 555-570.
34. "Card Shuffling and the Decomposition of Tensor Products", Pacific Journal of Mathematics, Volume 217, 2004, 247-262.
35. "Stein's Method, Jack Measure, and the Metropolis Algorithm", Journal of Combinatorial Theory, Series A, Volume 108, 2004, 275-296.
36. "Conjugacy Class Properties of the Extension of $GL(n,q)$ Generated by the Inverse Transpose Involution", with Robert Guralnick, Journal of Algebra, Volume 275, 2004, 356-396.
37. "A Card Shuffling Analysis of Deformations of the Plancherel Measure of the Symmetric Group", Electronic Journal of Combinatorics, 2004, 15 pages.
38. "Applications of Symmetric Functions to Cycle and Increasing Subsequence Structure After Shuffles", Journal of Algebraic Combinatorics. Volume 16, 2002, 165-194.
39. " $GL(n,q)$ and Increasing Subsequences in Non-Uniform Random Permutations", Annals of Combinatorics. Volume 6, 2002, 19-32.
40. "Random Matrix Theory over Finite Fields", Bulletin of the American Mathematical Society. Volume 39, Number 1, 2002, 51-85.
41. "Finite Affine Groups: Cycle Indices, Symmetric Functions, and Probabilistic Algorithms", Journal of Algebra. Volume 250, 2002, 731-756.
42. "Applications of the Brauer Complex: Card Shuffling, Permutation Statistics, and Dynamical Systems", Journal of Algebra. Volume 243, 2001, 96-122.
43. "A Probabilistic Proof of the Rogers Ramanujan Identities", Bulletin of the London Mathematical Society. Volume 33, 2001, 397-407.

44. “Descent Algebras, Hyperplane Arrangements, and Shuffling Cards”, Proceedings of the American Mathematical Society. Volume 129, 2001, 965-973.
45. “A Probabilistic Approach to Conjugacy Classes in the Finite Symplectic and Orthogonal Groups”, Journal of Algebra. Volume 234, 2000, 207-224.
46. “Affine Shuffles, Shuffles with Cuts, the Whitehouse module, and Patience Sorting”, Journal of Algebra. Volume 231, 2000, 614-639
47. “The Eigenvalue Distribution of a Random Unipotent Matrix in its Action of Lines”, Journal of Algebra. Volume 228, 2000, 497-511.
48. “Semisimple Orbits of Lie Algebras and Card Shuffling Measures on Coxeter Groups”, Journal of Algebra. Volume 224, 2000, 151-165.
49. “Counting Nilpotent Pairs in Finite Groups”, with Mike Galloy, Gary Sherman, and Jeff Vanderkam, Ars Combinatoria. Volume 54, 2000, 161-178.
50. “The Rogers-Ramanujan Identities, the Finite General Linear Groups, and the Hall-Littlewood Polynomials”, Proceedings of the American Mathematical Society. Volume 128, 2000, 17-25.
51. “Descent Identities, Hessenberg Varieties, and the Weil Conjectures”, Journal of Combinatorial Theory, Series A. Volume 87, 1999, 390-397.
52. “Counting Semisimple Orbits of Finite Lie Algebras by Genus”, Journal of Algebra. Volume 217, 1999, 170-179.
53. “Hall Polynomials and the Fixed Space of an Automorphism of an Abelian p -Group”, Archiv der Mathematik. Volume 73, 1999, 1-10.
54. “Comparing Eigenvalue Bounds for Markov Chains: When Does Poincaré Beat Cheeger?”, with Elizabeth Wilmer, Annals of Applied Probability. Volume 9, 1999, pp. 1-13.
55. “A Probabilistic Approach Toward Conjugacy in the Finite General Linear and Unitary Groups”, Journal of Algebra. Volume 212, No. 2, 1999, pp. 557-590.
56. “Cycle Indices for the Finite Classical Groups”, Journal of Group Theory. Volume 2, No. 3, 1999, pp. 251-289.
57. “A Simple Geometric Proof of the Invariance of the Conway Polynomial for Links in 3-Space,” with Dror Bar-Natan and Lou Kauffman, The Journal of Knot Theory and its Ramifications. Volume 7, No. 7, 1998, 873-879.

58. “Orbifold Euler Characteristics and the Number of Commuting m -tuples in the Symmetric Groups”, with Jim Bryan, Annals of Combinatorics. Volume 2, 1998, pp. 1-6.
59. “The Combinatorics of Biased Riffle Shuffles”, Combinatorica. Volume 18, No. 2, 1998, pp.173-184.
60. “The Distribution of Descents in Fixed Conjugacy Classes of the Symmetric Groups”, Journal of Combinatorial Theory, Series A. Volume 84, 1998, pp. 171-180.
61. “Divisibility Results on Conjugacy Classes of Finite Groups,” Archiv der Mathematik. Volume 67, 1996, pp. 11-15.
62. “Vertex Domination Critical Graphs,” with Denis Hanson and Gary MacGillivray, Networks. Volume 24, 1995, pp. 41-43.
63. “A Generalization of Vizing's Theorem on Domination,” Discrete Mathematics. Volume 126, 1994, pp. 403-406.
64. “A Note on the Characterization of Domination Perfect Graphs,” The Journal of Graph Theory. Volume 17, 1993, pp. 47-51.

REFEREED BOOK CHAPTERS (1)

65. “Stein's Method and Non-Reversible Markov Chains”, Chapter 4 in “Stein’s Method: Expository Lectures and Applications”, Institute of Mathematical Statistics Lecture Notes, Volume 46, (2004), Diaconis, Holmes, editors, 69-77.

REFEREED CONFERENCE PROCEEDINGS (1)

66. “Derangements in Simple and Primitive Groups”, with Robert Guralnick, in Groups, combinatorics, and geometry: Durham 2001, (2003) Ivanov, Liebeck, Saxl editors, 99-121.

SUBMITTED PAPERS (4), available on website <http://www-bcf.usc.edu/~fulman/articles.html>

67. “Derangements in Finite Classical Groups for Actions Related to Extension Field and Imprimitve Subgroups and the Solution of the Boston-Shalev Conjecture”, with Robert Guralnick, 24 pages.
68. “Asymptotics of the Number of Involutions in Finite Classical Groups”, with Robert Guralnick and Dennis Stanton, 31 pages.
69. “Generating Functions and Statistics on Spaces of Maximal Tori in Classical Lie Groups”, with Rita Jimenez Rolland and Jennifer Wilson, 30 pages.

70. “Enumeration of Commuting Pairs in Lie Algebras over Finite Fields”, with Robert Guralnick, 23 pages.

UNPUBLISHED MANUSCRIPTS (2), available on website <http://www-bcf.usc.edu/~fulman/articles.html>

“Stein’s Method, Semicircle Distribution, and Reduced Decompositions of the Longest Element in the Symmetric Group”, with Larry Goldstein, 7 pages.

“Stein’s Method, Heat Kernel, and Linear Functions on the Orthogonal Groups”, with Adrian Roellin, 12 pages.

TEACHING EXPERIENCE

USC:

(2016-17): Undergraduate probability, undergraduate combinatorics, linear algebra and differential equations

(2015-16): Graduate linear algebra, topics course on Markov chains, undergraduate probability

(2014-15): Graduate linear algebra, graduate combinatorics, undergraduate probability

(2013-14): Graduate linear algebra, business calculus, introductory statistics

(2012-13): Sabbatical (fall), graduate probability

(2011-12): Linear algebra and differential equations, graduate combinatorics, Sabbatical (spring)

(2010-11): Graduate linear algebra, applied algebra, graduate colloquium

(2009-10): Graduate combinatorics, probability for business, graduate colloquium

(2008-9): Sabbatical (fall), graduate colloquium (spring)

(2007-8): Multivariable calculus--2 sections, graduate colloquium

(2006-7): Graduate combinatorics, introductory statistics for non-mathematicians, graduate colloquium

University of Pittsburgh:

(2005-6) Introductory abstract algebra, discrete structures, Markov chain theory

(2004-5) Introduction to proofs, topics in abstract algebra, probabilistic combinatorics

(2003-4) Introductory abstract algebra (2 sections), course on symmetric group, directed study on representation theory (once for an undergraduate in summer, once for a graduate student in fall)

(2002-3) Year course in graduate linear algebra, multivariable calculus

(2001-2) Graduate combinatorics, linear algebra

Dartmouth:

- (1998-9) Galois theory, undergraduate combinatorics
(1997-8) Introductory abstract algebra, undergraduate combinatorics, topics in applied probability, honors probability

LECTURE SERIES

- (2009) Tutorial lecture series: “Stein’s method and algebra” (4 talks), Singapore

TALKS

- (2016) Speaker at USC Combinatorics Seminar
(2015) Speaker at USC Algebra Seminar
(2015) Speaker at UC Irvine Number Theory Seminar
(2014) Member of USC Career Advice Panel
(2014) Speaker at Universite Paul Sabatier Probability Seminar
(2013) Speaker at UCLA Combinatorics Seminar
(2013) Speaker at AMS Session on Markov Chains, UC Riverside
(2013) Member of USC Career Advice Panel
(2013) Speaker at Permutation Groups Conference, Banff, CA
(2012) Speaker at USC Graduate Colloquium
(2012) Speaker at USC Probability Seminar
(2012) Speaker at AMS Session on Group Theory, Hawaii
(2012) Speaker at AMS Session on Combinatorics, Hawaii
(2010) Speaker at AMS Session on Mathematical Models of Random Phenomena, UCLA
(2010) Speaker at AMS Session on Combinatorics and Probability on Groups, UCLA
(2010) Speaker at Annual National AMS meeting in Session on Permutations, San Francisco
(2009) Speaker at UC Irvine Probability Seminar
(2009) Speaker at UCLA Combinatorics Seminar
(2009) Speaker at Stein’s method conference, Singapore
(2008) Speaker at Southern California Probability Symposium, UCLA
(2008) Speaker at Southern California Algebra Conference, UCLA
(2008) Speaker at conference on Random Partitions, Growth Processes and Random Tilings, in Montreal, Canada
(2008) Speaker at Stanford Probability Seminar
(2008) Speaker at UC Berkeley Probability Seminar
(2008) Speaker at University of Texas Austin Seminar in Number Theory/Combinatorics
(2007) Speaker at 2007 Shuffles Conference in Memory of Manfred Schocker, in Nice, France
(2006) Speaker at University of Southern California Probability Seminar
(2006) Speaker at Carnegie Mellon Probability Seminar
(2005) Speaker at Oxford Conference on Limiting Probabilities in Finite Classical Groups
(2005) Speaker at University of Pittsburgh Algebra/Combinatorics Seminar
(2005) Colloquium, University of Southern California
(2005) Speaker at University of Michigan Combinatorics Seminar

- (2004) Colloquium, University of Pittsburgh
- (2004) Speaker at MIT Combinatorics Seminar
- (2004) A principal speaker at 2004 conference on Geometric Group Theory, Random Walks, and Harmonic Analysis, in Cortona, Italy
- (2002) Speaker at University of Pittsburgh Algebra/Combinatorics Seminar
- (2002) Speaker at Courant Institute Conference on Random Matrix Theory and Combinatorics
- (2002) Speaker at Carnegie Mellon Combinatorics Seminar
- (2001) Speaker at Midwest Probability Colloquium
- (2001) Colloquium, University of Pittsburgh
- (2001) Colloquium, Michigan State
- (2001) Colloquium, Wayne State
- (2001) Colloquium, Texas A&M
- (2001) Colloquium, University of Virginia
- (2001) Colloquium, University of Illinois at Chicago
- (2001) Colloquium, University of Kentucky
- (2001) Speaker at University of Southern California Algebra Seminar
- (2001) Speaker at Microsoft Research Seminar, Seattle
- (2001) Speaker at University of Washington Combinatorics Seminar
- (2001) Speaker at UC Berkeley Combinatorics Seminar
- (2000) Colloquium, UC Davis
- (2000) Speaker at Stanford Random Matrix Seminar
- (1999) Speaker at Ohio State Conference on Computational Group Theory
- (1999) Speaker at Northeastern Conference on Hyperplane Arrangements
- (1999) Special Seminar, Northwestern University
- (1999) Speaker at UC Berkeley Probability Seminar
- (1998) Colloquium, University of Minnesota
- (1998) Speaker at University of Minnesota Probability Seminar
- (1998) Speaker at MIT Combinatorics Seminar
- (1998) Speaker at 10th Formal Power Series and Algebraic Combinatorics Conference, Toronto
- (1998) Speaker at Stein's Method Conference, Stanford University
- (1998) Speaker at AMS Meeting on Q-series and Partitions, Penn State University
- (1998) Speaker at Conference on Probability and Groups, Jerusalem