

## Curriculum Vitae and Publications –Robert Guralnick, Nov. 22, 2011

Name: Robert M. Guralnick

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### Positions Held:

2012-3	Visiting Fellow, Princeton University
2011	Visitor, Newton Institute, Cambridge
2009	Visiting Fellow, Princeton University
2009	Visiting Fellow, Newton Institute, Cambridge
2009	G. C. Steward Fellow, Gonville & Caius, Cambridge
2008	Visitor, Courant Institute
2008	Visitor, Institute for Advanced Studies, Princeton
2008	Member, MSRI, Berkeley
2005-6	Member, Institute for Advanced Studies, Princeton
2002	Visiting Professor, University of Cambridge
2000	Visiting Member, Institute for Advanced Studies, Hebrew University
1999	Research Professor, Mathematical Sciences Research Institute
1997	Visiting Member, Newton Institute, Cambridge
1996-7	Visiting Member, Mathematical Sciences Research Institute
1990-1996	Chairman, Department of Mathematics, USC
1988- present	Professor, USC
1990	Visiting Professor, Institut für Experimentelle Mathematik, Essen
1989	Visiting Professor, Rutgers
1986	Visiting Associate Professor, Caltech
1985	Visiting Associate Professor, Yale
1983-1988	Associate Professor, USC
1979-1983	Assistant Professor, USC
1977-1979	Bateman Research Instructor, Caltech

### Education:

Ph.D.	UCLA, 1977
B.A.	UCLA, 1973

### Publications

1. Subfields of algebraically closed fields (with M. Miller), Math. Mag. 50 (1977), 260-261.
2. On cyclic commutator subgroups (with B. Gordon and M. Miller), Aequationes Math. 17(1978), 241-248.
3. On decomposable commutator subgroups, Glasgow Math. J. 19(1978), 159-162.
4. A remark concerning unipotent matrix groups (with O. Taussky), Linear and Multilinear Algebra 7(1979), 87-89.

5. A note on pairs of matrices with rank one commutator, *Linear and Multilinear Algebra* 8(1979), 97-99.
6. On a result of Schur, *J. Algebra* 59(1979), 302-309.
7. Maximal subfields of algebraically closed fields (with M. Miller), *J. Austral. Math. Soc. (A)* 29(1980), 462-468.
8. A note on the local global principle for similarity of matrices, *Lin. Algebra Appl.* 30(1980), 241-245.
9. Expressing group elements as commutators, *Rocky Mountain Math. J.* 10(1980), 651-654.
10. On cyclic commutator subgroups, *Aequationes Math.* 21(1980), 33-38.
11. Triangularization of sets of matrices, *Linear and Multilinear Algebra* 9(1980), 133-140.
12. Nonexistence of partial traces on nonsolvable groups (with I.M. Isaacs and D.S. Passman), *Rocky Mountain Math. J.* 11(1981), 235-245.
13. Roth's theorems and decomposition of modules, *Lin. Algebra Appl.* 39(1981), 156-165.
14. Similarity of matrices over local rings, *Lin. Algebra Appl.* 41(1981), 161-174.
15. Isomorphism of modules under ground ring extension, *J. Number Theory* 14(1982), 307-314.
16. Generation of the lower central series, *Glasgow Math. J.* 23(1982), 15-20.
17. Commutators and commutator subgroups, *Advances in Math.* 45(1982), 319-330.
18. Module equivalences: Local to global when primitive polynomials represent units (with D. Estes), *J. Algebra* 77(1982), 138-157.
19. Matrix equivalence and isomorphism of modules, *Lin. Algebra Appl.* 43(1982), 125-136.
20. Solvable generation of groups and Sylow subgroups of the lower central series (with M. Aschbacher), *J. Algebra* 77(1982), 189-201.
21. An identity of Schur, *Linear and Multilinear Algebra* 12(1983), 281-284.
22. Pseudosimilarity and cancellation of modules (with C. Lanski), *Lin. Algebra Appl.* 47(1982), 111-115.
23. Subgroups of prime power index in a simple group, *J. Algebra* 81(1983), 304-311.
24. Subgroups inducing the same permutation representation, *J. Algebra* 81(1983) 312-319.
25. The rank of a commutator (with C. Lanski), *Linear and Multilinear Algebra* 13(1983), 167-175.
26. Relative Brauer groups of global fields (with B. Fein and M. Schacher) *Archiv Der Math.* 41(1983), 309-318.
27. The genus of a module, *J. Number Theory* 18(1984), 169-177.
28. Some applications of the first cohomology group (with M. Aschbacher), *J. Algebra* 90(1984), 446-460.
29. Generation of the lower central series II, *Glasgow Math. J.* 25(1984), 193-201.

30. Equations of prime powers (with D. Estes, M. Schacher, and E. Straus), *Pacific J. Math.* 118(1985), 359-367.
31. Representations under ring extensions: Latimer-MacDuffee and Taussky correspondences (with D. Estes), *Advances in Math.* 54(1984), 302-313.
32. Lifting homomorphisms of modules, *Illinois J. Math.* 29(1985), 153-156.
33. Invariants of finite linear groups on relatively free algebras, *Linear Alg. and Appl.* 72(1985), 85-92.
34. Subgroups inducing the same permutation representation II (with D. Wales), *J. Algebra* 96(1985), 94-113.
35. Two generator groups III (with J.L. Brenner and J. Wiegold), *Contemp. Math.* 33(1984), 82-88.
36. Power cancellation of modules, *Pacific J. Math* 124 (1986), 131-144.
37. Roth's theorems for sets of matrices, *Linear Alg. and Appl.* 71(1985), 113-117.
38. Modules under ground ring extension, p. 150-156 in *Order and their Applications* edited by I. Reiner and K. Roggenkamp, *Lecture Notes in Mathematics*, vol. 1142, Springer Verlag, New York, 1984.
39. Generation of simple groups, *J. Algebra* 103(1986), 381-401.
40. The genus of a module II: Roiter's theorem, power cancellation and extension of scalars, *J. Number Theory* 26(1987), 149-165.
41. Projective modules with free multiples and powers (with H. Bass), *Proc. AMS* 96(1986), 207-208.
42. Polynomial rings over Goldie rings are often Goldie (with V. Camillo), *Proc. AMS* 98(1986), 567-568.
43. The dimension of the first cohomology group, p.94 - 97 in *Representation Theory II Groups and Orders*, edited by V. Dlab, P. Gabriel and G. Michler, *Lecture Notes in Mathematics* Vol. 1178, Springer Verlag New York, 1985.
44. Torsion in the Picard group and extension of scalars (with H. Bass), *J. Pure Applied Algebra* 52 (1988), 213-217.
45. Matrices and representations over rings of analytic functions and other one dimensional rings, *Mathematics Series, Texas Tech University. Visiting Scholars Lectures 1986-1987*, 15(1988), 15-35.
46. Similarity of holomorphic matrices, *Linear Algebra & Appl.* 99(1988), 85-96.
47. Presentation of modules when ideals need not be principal (with L. Levy), *Illinois J. Math.* 32(1988), 593-653.
48. Elementary divisor theorem for noncommutative domains (with L. Levy and C. Odenthal), *Proc. Amer. Math. Soc.* 104(1988), 1003-1011.
49. Finite groups of genus zero (with J. G. Thompson), *J. Algebra* 131(1990), 303-341.
50. On the number of generators of a finite group, *Archiv. der Math.* 53(1989), 521-523.
51. Zeroes of permutation characters with applications to prime splitting and Brauer groups, *J. Algebra* 131(1990), 294-302.

52. On abelian quotients of primitive permutation groups (with M. Aschbacher), Proc. AMS 107(1989), 89-95.
53. Normalizing elements of the trace ring of generic matrices (with S. Montgomery), Comm. Algebra 17(1989), 1805-1813.
54. Cancellation counterexamples in Krull dimension 1 (with L. Levy and R. Warfield), Proc. AMS 109(1990), 323-326.
55. Cancellation and direct summands in dimension 1 (with L. Levy), J. Algebra 141(1991) 310 - 347.
56. Galois groups and the multiplicative structure of field extensions (with R. Wiegand), Trans. AMS 331(1992), 563-584.
57. A question of Stafford about affine PI algebras, Comm. Alg. 18(1990), 3055-3057.
58. On the cohomology of alternating and symmetric groups and decomposition of relation modules (with W. Kimmerle), J. Pure and Applied Algebra 69(1990), 135-140.
59. Primitive permutation characters (with J. Saxl), Groups, Combinatorics and Geometry, M. Liebeck and J. Saxl, Ed., LMS LNS 165, Cambridge Univ. Press, Cambridge, 1992, 364-367.
60. The genus of a permutation group, Groups, Combinatorics and Geometry, M. Liebeck and J. Saxl, Ed., LMS LNS 165, Cambridge Univ. Press, Cambridge, 1992, 351-363.
61. Bimodules and automorphisms of noncommutative rings (with S. Montgomery), Trans. AMS, 341 (1994), 917-937.
62. A note on commuting pairs of matrices, Linear and Multilinear Algebra 31(1992), 71-75.
63. Similarity of matrices over commutative rings, Linear Algebra and its Applications 157(1991), 55-68.
64. Sylow  $p$ -subgroups and subnormal subgroups of finite groups (with P. Kleidman and R. Lyons), Proc. London Math. Soc., 66(1993), 129-151.
65. A remark on infinite torsion groups with periodic cohomology (with O. Talelli), Comm. in Algebra 20(1992), 1217-1221.
66. Bimodules over pi rings, Methods in Module Theory, G. Abrams, J. Haefner, K. Rangaswama, Eds., Marcel Dekker, 1992, 117-134.
67. Solitary Galois extensions of algebraic number fields (with L. Stern), J. Number Theory 50 (1995), 1-32.
68. Eigenvalues of symmetric matrices and graphs (with H. Bass and D. Estes), J. Algebra, 168 (1994), 536-567.
69. Probability of generating a classical group, (with W. Kantor and J. Saxl), Communications in Algebra, 22(1994), 1395-1402.
70. Extensions of the Baer-Suzuki theorem (with G. Robinson), Israel J. Math., 82(1993), 281-297.
71. Transitive permutation lattices in the same genus and embeddings of subgroups (with A. Weiss), Contemp. Math., 153(1993), 21-33.
72. Matrices over differential fields which commute with their derivative (with W. Adkins and J. C. Evard), Lin. Algebra. & Appl., 190(1993), 253-261.

73. Schur covers and the Carlitz conjecture (with M. Fried. and J. Saxl), *Israel J. Math.*, 82(1993), 157-225.
74. Minimal polynomials of symmetric matrices (with D. Estes), *Lin. Algebra. & Appl.*, 192(1993), 83-99.
75. Invertible preservers of similarity classes, *Lin. Algebra. & Appl.* 213/213 (1994), 249-257.
76. Multiplicative groups of fields modulo the product of subfields (with J.-L. Colliot-Thélène and R. Wiegand), *Journal Pure and Appl. Algebra* 106 (1996), 233–262.
77. Picard groups, cancellation, and the multiplicative structure of fields (with R. Wiegand), *Zero-dimensional commutative rings* (Knoxville, TN, 1994), 65–79, *Lecture Notes in Pure and Appl. Math.*, 171, Dekker, New York, 1995.
78. The kernel of the map on Picard groups induced by a faithfully flat homomorphism (with D. Jaffe, W. Raskind and R. Wiegand), *J. Algebra* 183 (1996), 2333–262.
79. One sided normalizing elements (with C. Robson and L. Small), *Proc. Amer. Math. Soc.* 123 (1995), 1955-1957.
80. Monodromy groups of polynomials (with J. Saxl) in *Groups of Lie type and their Geometries*, DiMartino and Kantor, eds, Cambridge University Press, 1995, 125-150.
81. Monodromy groups of branched coverings: the generic case (with M. Neubauer), in *Recent developments in the inverse Galois problem* (Seattle, WA, 1993), 325–352, *Contemp. Math.*, 186, Amer. Math. Soc., Providence, RI, 1995.
82. Invertible preservers and algebraic groups II: preservers of similarity invariants and overgroups of  $PSL_n(F)$ , *Linear and Mult. Algebra* 43 (1997), 221-255.
83. Invertible preservers and algebraic groups III (with C. K. Li), *Linear and Mult. Algebra*, 43 (1997), 257 - 282.
84. Bounds for fixed point free elements in a transitive group and applications to curves over finite fields (with D. Wan), *Israel J. Math* 101 (1997), 255-287.
85. A stable range for quadratic forms over commutative rings (with D. Estes), *J. Pure and Applied Algebra* 120 (1997), 255-280.
86. Permutability of characters on algebras (with L. Grunenfelder, T. Kosir, H. Radjavi), *Pacific J. Math.* 178 (1997), 63-70.
87. The Picard group of a certain pullback domain: a non-commutative approach (with R. Wiegand), *Commutative ring theory* (Fès, 1995), 339-347, *Lecture Notes in Pure and Appl. Math.*, 185, Dekker, New York, 1997.
88. Modules for algebraic groups with finitely many orbits on subspaces (with M. Liebeck, D. Macpherson, G. Seitz), *J. Algebra* 196 (1997), 211-250.
89. Exceptional polynomials of affine type (with P. Müller), *J. Algebra* 194 (1997), 429-454.
90. On the minimal degree of a permutation representation (with K. Magaard), *J. Algebra*, 207 (1998), 127-145.
91. Shirshov's theorem and representations of semigroups (with A. Freedman, R. Gupta), *Pacific J. Math.* 178 (1997), 63-70.

92. Linear group with orders having certain large prime divisors (with C. Praeger, T. Pentilla and J. Saxl), *Proc. London Math. Soc.* 78 (1999), 167–214.
93. Probabilistic generation of simple groups (with W. Kantor), *J. Algebra* 234 (2000), 743–792.
94. The first cohomology group and generation of simple groups (with C. Hoffman), *Proceedings of a Conference on Groups and Geometry, Siena, Trends in Mathematics*, 81–90, Birkäuser Verlag, 1998.
95. Genus class groups and separable base change (with R. Wiegand) in *Factorization in integral domains*, 333–347, *Lecture Notes in Pure and Appl. Math.*, 189, Dekker, New York, 1997.
96. Low dimensional representations of special linear groups in cross characteristics (with P. Tiep), *J. London Math. Soc.* 78 (1999), 116 - 138.
97. Some applications of subgroup structure to probabilistic generation and covers of curves, *Proceedings of NATO Algebraic Groups Conference, Cambridge, Kluwer*, 1998.
98. Small dimensional representations are semisimple, *J. Algebra* 220 (1999), 531–541.
99. On  $p$ -singular Elements in Chevalley Groups in Characteristic  $p$  (with Frank Lübeck), *On  $p$ -singular elements in Chevalley groups in characteristic  $p$ , Groups and computation, III (Columbus, OH, 1999)*, 169–182, *Ohio State Univ. Math. Res. Inst. Publ.*, 8, de Gruyter, Berlin, 2001.
100. Cyclic quotients of transitive subgroups and extension of constants, *J. Algebra* 234 (2000), 507–532.
101. The probability of generating a finite soluble group (with J. Wilson), *Proc. London Math. Soc.* (3) 81 (2000), 405–427.
102. Torsion in the genus class groups (with C. Pappacena), *Algebra,  $K$ -theory, groups, and education (New York, 1997)*, 47–54, *Contemp. Math.*, 243, Amer. Math. Soc., Providence, RI, 1999.
103. Commuting pairs and triples of matrices and related varieties (with B. A. Sethuraman), *Linear Algebra Appl.* 310 (2000), 139–148.
104. Supplements in  $p'$  by quasi  $p$ -groups an appendix: in Valued fields and covers in characteristic  $p$  by David Harbater and Marius van der Put, *Fields Inst. Commun.*, 32, *Valuation theory and its applications, Vol. I (Saskatoon, SK, 1999)*, 175–204, Amer. Math. Soc., Providence, RI, 2002.
105. Appendix in Similarity of the companion matrix and its transpose by Louis Solomon, *Special issue dedicated to Hans Schneider, Linear Algebra Appl.* 302/303 (1999), 555–561.
106. On the spread of finite simple groups (with A. Shalev), *On the spread of finite simple groups. Paul Erdos and his mathematics (Budapest, 1999)*. *Combinatorica* 23 (2003), 73–87.
107. Generation of groups by conjugate elements (with J. Saxl), *J. Algebra*, 268 (2003), 519–571.
108. The rational function analogue of a question of Schur and exceptionality of permutation representations, (with P. Müller, J. Saxl), *Mem. Amer. Math. Soc.* 162 (2003), no. 773.
109. Biprfect Hopf algebras (with P. Etingof, S. Gelaki and J. Saxl), *J. Algebra* 232 (2000), 331–335.
110. Random generation of finite simple groups (with M. W. Liebeck, J. Saxl, Jan; A. Shalev), *J. Algebra* 219 (1999), no. 1, 345–355.
111. Indecomposable set-theoretical solutions to the quantum Yang-Baxter equation on a set with prime number of elements (with P. Etingof and A. Soloviev), *J. Algebra* 242 (2001), 709–719.

112. Subgroup growth in some pro- $p$  groups (with Y. Barnea), *Proc. Amer. Math. Soc.* 130 (2002), 653–659.
113. Derived subgroups of fixed points (with P. Shumyatsky), *Israel J. Math.* 126 (2001), 345–362.
114. Prescribing ramification (with K. Stevenson), in *Arithmetic fundamental groups and noncommutative algebra*, *Proceedings of Symposia in Pure Mathematics*, 70 (2002) editors M. Fried and Y. Ihara, 1999 von Neumann Conference on Arithmetic Fundamental Groups and Noncommutative Algebra, August 16-27, 1999 MSRI, 387–406.
115. Genus 0 actions of groups of Lie rank 1 (with D. Frohardt and K. Magaard) in *Arithmetic fundamental groups and noncommutative algebra*, *Proceedings of Symposia in Pure Mathematics*, 70 (2002) editors M. Fried and Y. Ihara, 1999 von Neumann Conference on Arithmetic Fundamental Groups and Noncommutative Algebra, August 16-27, 1999 MSRI, 449–484.
116. Cross Characteristic Representations of Symplectic Groups and Unitary Groups (with K. Magaard, J. Saxl, and P. Tiep), *J. Algebra* 257 (2002), 291–347.
117. Incidence matrices, permutation characters, and the minimal genus of a permutation group (with D. Frohardt and K. Magaard), *J. Combin. Theory Ser. A* 98 (2002), 87–105.
118. Not all quadratic norms are strongly stable (with M. Goldberg and W. Luxemburg), *Indag. Math. (N.S.)* 12 (2001), 469–476.
119. Classification of 2F-modules, I (with G. Malle), *J. Algebra* 257 (2002), 348–372.
120. Classification of 2F-modules, II (with G. Malle), *Finite groups 2003*, 117–183, Walter de Gruyter GmbH & Co. KG, Berlin, 2004.
121. The 2F-modules for nearly simple groups (with G. Malle and R. Lawther), *J. Algebra* 307 (2007), 643–676.
122. Rational maps and images of rational points of curves over finite fields, *Proceedings of the All Ireland Algebra Days, 2001 (Belfast)*, *Irish Math. Soc. Bull. No. 50* (2002), 71–95.
123. Subgroups of  $GL$  which fix sublattices of the subspace lattice (with J. Shareshian), *J. Algebra* 259 (2003), 147–176.
124. Finite Simple Unisingular Groups of Lie Type (with P. Tiep), *J. Group Theory* 6 (2003), 271–310.
125. Groups with exactly two subgroups of given order, *Comm. Algebra* 30 (2002), 4401–4406.
126. Derangements in Simple and Primitive Groups (with J. Fulman), *Groups, combinatorics & geometry (Durham, 2001)*, 99–121, World Sci. Publishing, River Edge, NJ, 2003.
127. Exceptional Polynomials over Arbitrary Fields (with J. Saxl), *Algebra, arithmetic and geometry with applications (West Lafayette, IN, 2000)*, 457–472, Springer, Berlin, 2004.
128. Monodromy groups of coverings of curves, Galois groups and fundamental groups, 1–46, *Math. Sci. Res. Inst. Publ.*, 41, Cambridge Univ. Press, Cambridge, 2003.
129. Cross Characteristic Representations of Even Characteristic Symplectic Groups (with P. Tiep), *Trans. Amer. Math. Soc.* 356 (2004), 4969–5023.
130. On Orbital Partitions and Exceptionality of Primitive Permutation Groups (with C. Li, C. Praeger, J. Saxl), *Trans. Amer. Math. Soc.* 356 (2004), 4857–4872.
131. On a question of B. H. Neumann (with I. Pak), *Proc. Amer. Math. Soc.* 131 (2003), 2021–2025.

132. Stable subnorms. II (with M. Goldberg and W. Luxemburg), *Linear Multilinear Algebra* 51 (2003), 209–219.
133. Multiplicative maps on invertible matrices that preserve matricial properties (with C. K. Li and L. Rodman), *Electron. J. Linear Algebra* 10 (2003), 291–319.
134. Reduction theorems for groups of matrices (with J. Bernik and M. Mastank), *Linear Algebra Appl.* 383 (2004), 119–126.
135. Self-normalizing Sylow subgroups (with G. Malle and G. Navarro), *Proc. Amer. Math. Soc.* 132 (2004), 973–979.
136. Conjugacy class properties of the extension of  $GL(n, q)$  generated by the inverse transpose involution (with J. Fulman), *J. Algebra* 275 (2004), 356–396.
137. Larsen’s conjecture and decomposition of tensor products (with P. Tiep), *Represent. Theory* 9 (2005), 138–208.
138. Inequalities for finite group permutation modules (with D. Goldstein and M. Isaacs), *Trans. Amer. Math. Soc.* 357 (2005), 4017–4042.
139. Symmetric and Alternating Groups as Monodromy Groups of Riemann Surfaces I: Generic Covers and Covers with Many Branch Points (with J. Shareshian), *Memoirs Amer. Math. Soc.* 2007 (189), No. 886, 128 pp.
140. Thompson-like characterizations of the solvable radical (with B. Kunyavskii, E. Plotkin and A. Shalev), *J. Algebra* 300 (2006), 363–375.
141. Weakly closed unipotent subgroups in Chevalley groups (with G. Röhlre), *J. Algebra* 300 (2006), 729–740.
142. On the commuting probability in finite groups (with G. Robinson), *J. Algebra* 300 (2006), 509–528.
143. The direct product theorem for profinite groups (with D. Goldstein), *J. Group Theory* 9 (2006), 317–322.
144. A question about  $\text{Pic}(X)$  as a  $G$ -module (with D. Goldstein and D. Joyner), *Computational aspects of algebraic curves*, 232–242, *Lecture Notes Ser. Comput.*, 13, World Sci. Publ., Hackensack, NJ, 2005.
145. The non-coprime  $k(GV)$  problem (with P. Tiep), *J. Algebra* 293 (2005), 185–242.
146. Irreducible polynomials which are locally reducible everywhere (with M. Schacher and J. Sonn), *Proc. Amer. Math. Soc.* 133 (2005), 3171–3177.
147. Automorphisms of the modular curve (with P. Bending and A. Camina), *Progress in Galois theory*, 25–37, *Dev. Math.*, 12, Springer, New York, 2005.
148. Orders of finite groups of matrices (with M. Lorenz), *Groups, rings and algebras*, 141–161, *Contemp. Math.*, 420, Amer. Math. Soc., Providence, RI, 2006.
149. Alternating forms and self-adjoint operators (with D. Goldstein), *J. Algebra* 308 (2007), 330–349.
150. Inversion invariant additive subgroups of division rings (with D. Goldstein, L. Small and E. Zelmanov), *Pacific J. Math.* 227 (2006), 287–294.
151. Permutation polytopes and indecomposable elements in permutation groups (with D. Perkinson), *J. Combin. Theory Ser. A* 113 (2006), 1243–1256.

152. Intersections of conjugacy classes and subgroups of algebraic groups, *Proc. Amer. Math. Soc.* 135 (2007), 689–693.
153. Sets of elements that pairwise generate a linear group (with J. Britnell, A. Evseev, P. Holmes, A. Maróti), *J. Combin. Theory Ser. A* 115 (2008), 442–465.
154. Presentations of finite simple groups: a quantitative approach, (with W. Kantor, M. Kassabov and A. Lubotzky), *J. Amer. Math. Soc.* 21 (2008), 711–774.
155. Presentations of finite simple groups: a cohomological and profinite approach (with W. Kantor, M. Kassabov and A. Lubotzky), *Groups, Geometry and Dynamics, Groups Geom. Dyn.* 1 (2007), 469–523.
156. Presentations of finite simple groups: a computational approach (with W. Kantor, M. Kassabov and A. Lubotzky), *J. Eur. Math. Soc.* 13 (2011), 391458.
157. Exceptional covers and bijections on rational points (with T. Tucker and M. Zieve), *Int. Math. Res. Not. IMRN* 2007, no. 1, Art. ID rnm004, 20 pp.
158. Frobenius-Schur indicators for subgroups and the Drinfel’d double of Weyl groups (with S. Montgomery), *Trans. Amer. Math. Soc.* 361 (2009), 3611–3632.
159. Frobenius groups as monodromy groups, *J. Aust. Math. Soc.* 85 (2008), 191–196.
160. Elementary abelian 2-subgroups of Sidki type in finite groups (with M. Aschbacher and Y. Segev), *Groups Geom. Dyn.* 1 (2007), 347–400.
161. Oort groups and lifting problems (with T. Chinburg and D. Harbater), *Composito Math.*, 114 (2008), 849–866.
162. On fixed points of permutations (with P. Diaconis and J. Fulman), *J. Algebraic Comb.* 28 (2008), 189–218.
163. Characteristic polynomials of automorphisms of hyperelliptic curves (with E. Howe), *Arithmetic, geometry, cryptography and coding theory*, 101–111, *Contemp. Math.*, 487, Amer. Math. Soc., Providence, RI, 2009.
164. Proficient finite groups, (with W. Kantor, M. Kassabov and A. Lubotzky), *J. Algebra* 326 (2011), 169184.
165. Nonisomorphic curves that become isomorphic over extensions of coprime degrees (with D. Goldstein, E. Howe and M. Zieve), *J. Algebra*, 320 (2008), 2526–2558.
166. Symmetric powers and conjectures of Kollár and Larsen (with Tiep), *Inventiones Math.*, 174 (2008), 505–554.
167. Polynomials with  $\mathrm{PSL}(2)$  Monodromy (with M. Zieve), *Ann. of Math. (2)* 172 (2010), 13151359.
168. A new family of exceptional polynomials in characteristic 2 (with J. Rosenberg and M. Zieve), *Ann. of Math. (2)* 172 (2010), 13611390.
169. Bertin groups and local lifting problems (with T. Chinburg and D. Harbater), *Annales Scientifiques de l’Ecole Normale Supérieure*, to appear.
170. Bounds on the number and sizes of conjugacy classes in finite Chevalley groups with applications to derangements (with J. Fulman), *Trans. Amer. Math. Soc.*, to appear.
171. Cohomology for alternating and symmetric groups (with K. Lux and P. Tiep), preprint.

172. Base sizes for symmetric groups (with T. Burness and J. Saxl), *Bull. Lond. Math. Soc.* 43 (2011), 386-391.
173. Frobenius subgroups of free profinite products (with D. Haran), *Bull. London Math. Soc.* (2011) doi: 10.1112/blms/bdq114
174. Commutators and wreath products. *Character theory of finite groups*, 7982, *Contemp. Math.*, 524, Amer. Math. Soc., Providence, RI, 2010.
175. Automorphic realization of residual Galois representations (with N. Katz and M. Harris), *J. European Math. Soc.* 12 (2010), 915-937.
176. First cohomology group of Chevalley groups in cross characteristic (with P. Tiep), *Annals Math.*, 174 (2011), 543-559.
177. Characterizations of the solvable radical (with P. Flavell and S. Guest), *Proc. Amer. Math. Soc.* 138 (2010), 1161-1170.
178. Hamiltonian cycles in the generating graphs of finite groups (with T. Breuer, A. Lucchini, A. Maróti, G. Nagy). *Bull. Lond. Math. Soc.* 42 (2010), 621-633.
179. Nil subrings of endomorphism rings of finitely generated modules over affine PI-rings (with L. Small and E. Zelmanov), *J. Algebra* 324 (2010), 3044-3047.
180. Real class sizes and real character degrees (with G. Navarro and P. Tiep), *Math. Proc. Cambridge Philos. Soc.* 150 (2011), 47-71.
181. On a subfactor generalization of Wall's conjecture (with F. Xu), *J. Algebra* 332 (2011), 457-468,
182. Average dimension of fixed point spaces with applications (with A. Maroti), *Advances Math.* 226 (2011), 298-308.
183. The local lifting problem for actions of finite groups on curves (with T. Chinburg and D. Harbater), *Ann. Sci. Éc. Norm. Supér* 44, fascicule 4 (2011).
184. A new solvability criterion for finite groups (with S. Dolfi, M. Herzog and C. Praeger), *J. London Math. Soc.*, to appear.
185. Products of conjugacy classes and fixed point spaces (with G. Malle), *J. Amer. Math. Soc.* 25 (2012), 77-121.
186. A problem of Kollár and Larsen on finite linear groups and crepant resolutions (with P. Tiep), *J. European Math. Soc.*, to appear.
187. Strongly dense free subgroups of semisimple algebraic groups (with E. Breuillard, B. Green and T. Tao), *Israel J. Math.*, to appear.
188. Representation growth in positive characteristic and conjugacy classes of maximal subgroups (with M. Larsen and P. Tiep), *Duke Math. J.*, to appear.
189. Simple groups admit Beauville structures (with G. Malle), *J. London Math. Soc.*, to appear.
190. Adequate subgroups (with F. Herzig, R. Taylor and J. Thorne), *J. Inst. Math. Jussieu*, to appear.
191. Adequate subgroups II, *Bull. Math. Sciences*, to appear.
192. Coprime subdegrees for primitive permutation groups and completely reducible linear groups, (with S. Dolfi, C. Praeger and P. Spiga), *Israel J. Math.*, to appear.

193. Finite primitive groups have at most two coprime subdegrees (with S. Dolfi, C. Praeger and P. Spiga), preprint.
194. The automorphism groups of a family of maximal curves (with B. Malmskog and R. Pries), Algebra & Number Theory, submitted.
195. Lifting in Frattini covers and a characterization of finite solvable groups (with P. Tiep), submitted.
196. Expansion in finite groups of Lie type (with E. Breuillard, B. Green and T. Tao), preprint.

### **Some Recent Invited Conferences and Lectures**

1. Taussky's Work in Linear Algebra, Taussky Memorial Conference, Caltech, April 1996.
2. Finite Orbit Modules for Algebraic Groups, Representation Meeting, Heidelberg, Germany, August 1996.
3. Olga Taussky – Jack Todd Lecture, Annual International Linear Algebra Society Meeting, Chemnitz, Germany, August 1996.
4. Exceptional Polynomials, Groups and Geometry, Siena, Italy, September 1996.
5. Rational functions and elliptic curves, Oberwolfach, May 1997
6. Rational functions and elliptic curves, London Algebra Seminar, May 1997.
7. Generating simple groups by conjugates, Birmingham Colloquium, May 1997.
8. Applications of subgroup structure, Newton Institute Conference on Algebraic Groups, June 1997.
9. Bass and (linear) Algebra, Conference in Honor of Hyman Bass, Columbia University, November 1997.
10. Coverings of generic Riemann surfaces, IP Lecture on Galois Theory, UCI, January 1998.
11. Small representations are semisimple, University of Chicago Group Theory Seminar, April 1998.
12. Small representations are semisimple, Oberwolfach, December 1998.
13. Rational functions and elliptic curves, University of Chicago Group Theory Seminar, April 1999.
14. Curves and Groups, MSRI-Evans Lecture, Berkeley, September 1999.
15. Probabilistic Methods in Generation of Finite Groups, UCSC Colloquium, September 1999.
16. Small genus representations of groups and generic covers, Workshop on Galois Groups and Fundamental Groups, MSRI, October 1999.
17. Permutation Groups and Curves, Conference on Finite Simple Groups, Bad Honnef, Germany, February 2000.
18. Kuwait Lecture, Cambridge University, Permutation Groups and Curves, February 2000.
19. Low Dimensional Representations, Cambridge University Algebra Seminar, February 2000.
20. Permutation Groups and Curves, University of Warwick Colloquium, February 2000.
21. Low Dimensional Representations, MSRI Noncommutative Algebra Seminar, March 2000.

22. Permutation Groups and Coverings of Curve (3 lectures), Conference on Finite Simple Groups and Computational Group Theory, Milan, May 2000.
23. Generation of Finite and Algebraic Groups, Conference on Algebraic Groups, Milan, May 2000.
24. Generation of Finite Groups, Conference on Asymptotic Group Theory, Hebrew University, Jerusalem, May 2000.
25. All Ireland Algebra Days, Dublin, May 2001.
26. Luminy Conference on Galois Groups, June 2001.
27. Durham Conference on Groups, Combinatorics and Geometries, Durham, July 2001.
28. University of Pennsylvania Algebra Seminar, May 2002.
29. Princeton University Algebraic Geometry Seminar, May 2002.
30. Oberwolfach Meeting on Arithmetic and Differential Galois Groups, July 2002.
31. Oberwolfach Meeting on Groups and Geometries, September 2002.
32. Main Speaker, Conference in Honor of John Thompson's 70th Birthday, Cambridge, September 2002.
33. Main Speaker, Galois Group Conference, University of Florida, November 2002.
34. Special Lecture on Math History, University of Florida, November 2002.
35. UCI Algebra Seminar, Automorphism Groups of Curves, November 2002.
36. UC Berkeley Group Theory Seminar, Derangements and Probabilistic Generation, December 2002.
37. Main Speaker, Group Theory Meeting, On the  $k(GV)$  problem in non coprime characteristic, University of Florida, March 2003.
38. Colloquium, Low dimensional representations of finite groups, Temple University, May 2003.
39. Colloquium, Automorphism groups of curves, University of Pennsylvania, May 2003.
40. Main Speaker, Probability and Groups Conference, Derangements in permutation groups, Budapest, July 2003.
41. Workshop on Arithmetic Galois Theory, Banff, September 2003.
42. Colloquium, Exceptional Polynomials, Stanford University, October 2003.
43. Group Theory Conference, Yale University, New Haven, October 2003.
44. Plenary Speaker, Low Dimensional Representations of Finite Groups, ILAS Conference, Coimbra, July 2004.
45. Colloquium, Automorphism Groups of Curves, University of Wisconsin, October 2004.
46. Algebraic Geometry Seminar, UC Berkeley, Generation of finite and algebraic groups, February 2005.
47. Plenary Speaker, Mappings from the generic curve, Wiegandfest, Lincoln, Nebraska, May 2005.
48. Colloquium, Low Dimensional Representations, Temple University, October 2005.

49. Plenary Speaker, Canadian Math. Soc. Annual Meeting, Probabilistic generation of simple groups, Vancouver, December 2005.
50. Probabilistic Generation of Finite Simple Groups, SCAC, UCLA, March 2006.
51. Presentations of finite simple groups and cohomology, Oberwolfach, March 2006.
52. Member's Seminar, IAS, Princeton, Probabilistic Generation of Finite Simple Groups, April 2006.
53. Number Theory Seminar, IAS, Princeton, Maps from the Generic Curve of Genus  $g$ , May 2006.
54. Presentations of finite simple groups, Hebrew University, May 2006.
55. Applications of representation theory (2 talks), Conference on Group Representations and Combinatorics, Gainesville Sept. 2007
56. Presentations of finite simple groups, Group Theory Day, Tucson, Oct. 2007,
57. AMS Special Session on Representation Theory, AMS Meeting, San Diego, Jan. 2008.
58. Maps from the generic curve, UC Berkeley Number Theory Seminar, April 2008.
59. Generators and relations for finite groups, UC Davis Discrete Math Seminar, April 2008.
60. Derangements, Colorado State Colloquium, Colorado Colloquium September 2008.
61. Derangements, University of Colorado Colloquium, September 2008.
62. Exceptional polynomials, University of Arizona seminar, October 2008.
63. Derangements, Southwest Group Theory Conference, Tucson, November 2008.
64. Bijective rational maps, UCLA Number Theory Seminar, November 2008.
65. Presentations and cohomology, Cambridge Algebra Seminar, May 2009.
66. Presentations and cohomology, Imperial College, London, May 2009.
67. Permutation groups and covering of curves, Conference in Honor of John Thompson, Newton Institute, May 2009.
68. Presentations and cohomology, Conference in Honor of Alex Zalesski, Milan, May 2009.
69. On a theorem of Cebatorev, Conference in Honor of Marty Isaacs, Valencia, June 2009.
70. Derangements in finite and algebraic groups, ALT workshop, Newton Insitute, June 2009.
71. Presentations and cohomology, Penn Algebra Seminar, Philadelphia, October 2009.
72. Presentations and cohomology, Georgia Algebra Seminar, Athens, October 2009.
73. Exceptional polynomials, Ohio State Colloquium, Columbus, October 2009.
74. Fixed point spaces, AMS Special Session, UCLA, October 2010.
75. Fixed point spaces of linear groups, Southwest Group Theory Conference, November 2010.
76. Expanders and words, AMS Special Session, New Orleans, Jan. 2011
77. Some remarks on the future of mathematical publishing, MSRI Workshop on Mathematical Publishing, February 2011, Berkeley.

78. Dimensions of fixed point spaces, Southeast Lie Theory Conference (in honor of Len Scott), University of Virginia, May 2011.
79. A generalization of Burnside's Theorem, Caltech Number Theory Seminar, June 2011.
80. Expanders and generation of simple finite and algebraic groups, Groups and Additive Combinatorics, Newton Institute Satellite Meeting, Wales, June 2011.
81. Authorship and other issues in mathematical publishing, Committee on Publication Ethics Workshop, UCSD, San Diego, October 2011.
82. Base size for algebraic groups, Southwest Group Theory Conference, Tucson, November 2011.

### **Grants, Prizes and Other Activities**

1. Simons Foundation Fellowship, 2012-2013.
2. G. C. Steward Fellow, Gonville & Caius College, Cambridge University, 2009.
3. USC Natural Sciences and Mathematics Division Raubenheimer Award, 1999 (for outstanding contributions in research, teaching and service).
4. NSF Grants 1984 - 2013.
5. NATO Grant (with J. Saxl), 1994 - 1998.
6. EPSERC Grant (with J. Saxl), 2002 - 2005.
7. Life Fellow, Clare Hall, University of Cambridge, 2000– present.
8. Editorial Board, Transactions of the AMS, 2003 – 2013.
9. Managing Editor, Transactions of the AMS, 2005-2013.
10. Member, Executive Committee of the AMS council, 2005-2009.
11. Member, Long Range Planning Committee, AMS, 2006-2008.
12. Organizer, Banff workshop on permutation groups, July 2013.
13. Organizer, Banff workshop on permutation groups, July 2009.
14. Organizer, Oberwolfach workshop on permutation groups, July 2008.
15. Editorial Board, Pacific Journal of Mathematics, 1997– 2003.
16. Board of Govenors, Pacific Journal of Mathematics, 1997–present.
17. Editor, Communications in Algebra, 1989 – 1999.
18. Associate Editor, Linear Algebra and its Applications, 1985 – 2006.
19. Senior Editor, Linear Algebra and its Applications, 2007–2013.
20. Member, Editorial Board, Linear and Multilinear Algebra, 1993– 2008.
21. Editor, Journal of Group Theory, 2002 – present.
22. Editor, Electronic Journal of Linear Algebra, 2002 - present.

23. Editor, *Quaestiones Mathematicae*, 2003 – 2011.
24. Editor for Special Volume of *Journal of Algebra* for Robert Steinberg 80th Birthday, 2002.
25. National Security Agency Grant Proposals Board, 1998 - 1999, 2001 - 2003.
26. CDRF Panel (NSF grants to FSU scientists), 2001–2
27. Scientific Committee, ILAS 2005 meeting.
28. Taussky-Todd Speaker Selection Committee, ILAS 2004 meeting.
29. Committee of Visitors, NSF, February 1997.
30. Member, Focus Committee for Center for Communications Research, 1999–2002 (chair, 2001-2).
31. Member, AMS Subcommittee on Fellows, 2002.
32. Organizing Committee for Von Neumann Symposium, MSRI, August 1999.
33. Group theory advisor, [www.arXiv.org](http://www.arXiv.org), 2002 - present.
34. Co-organizer, Conference on Applications of Simple Groups and Computational Group Theory, Milan, May 2000.
35. Chair, Organizing Committee, Conference in honor of Persi Diaconis' 60th birthday, UCSD, January 2004.
36. Co-organizer, Banff meeting on permutation groups, July 2009.
37. Co-organizer, AIM meeting on Cohomology, June 2012.
38. Co-organizer, Conference for G. Robinson's 60th Birthday, Aberdeen, September 2013.
39. Chair, Organizing Committee, Conference on Hopf Algebras and Related Topics (in honor of Susan Montgomery), supported by NSF, Feb. 2009.
40. Member (Chair, 2002–2004), Focus Advisory Board, Center for Communications Research, 2001 - 2004.
41. Vigre External Review Committee, University of California, Berkeley, March 2002.
42. Vigre External Review Committee, University of Texas, March 2003.
43. Member, Scientific Organizing Committee, ILAS Meeting, Regina, Canada, July 2006.
44. Reviewer, *Math Reviews* and *Zentralblatt*
45. NSF Group Theory Panel, February 2004
46. NSF Algebra Panel, January 2005, December 2006
47. NSF Career Grant Panel, October 2006
48. NSF Representation Theory Panel, Jan. 2011
49. 2005 Hans Schneider Prize Committee
50. Member, NSF Postdoc Panel, 2004

51. Speaker, IMMERSE Program for incoming graduate students, University of Nebraska, Lincoln, July 2005.
52. Member, Outside Review Committee, CSUDH Mathematics Department, February 2007.
53. Member, Georgia VIGRE review committee, October 2009.

#### **Ph. D. Students**

Michael Neubauer	1989	Currently, Professor, California State University, Northridge
Randall Allen	1995	
Chris Pappacena	1998	Currently, NSA Mathematician
Corenliu Hoffman	1998	Currently, Lecturer, University of Birmingham, UK &
Yong Han	2007	Samsung, Korea
Joseph DiMuro	2008	Biola College
Simon Guest	2008	Perth, Southampton
Andrei Pavelescu	current	

#### **Postdoctoral Advisees**

Gerhard Röhrle	1990-2	Professor, Universität Bochum
Ray Ross	1991-3	
Michael Zieve	1998-9	Michigan
Yiftach Barnea	1999 (MSRI)	Royal Holloway, UK
Attila Maroti	2004-2008	Budapest
Andrea Jedwab	2010-2011	USC

#### **Some Recent University and Department Service**

1. Member, LAS Personnel Committee, Social Sciences, 1997-9
2. Chair, LAS Personnel Committee, NS & M, 2001-3
3. Member, University Faculty Senate, 1997-9, 2001-2.
4. Member, LAS Faculty Council, 1997-9, 2001-4, 2011-3.
5. Member, University Committee on Faculty Tenure and Privileges, 1997-2007.
6. Member, Committee on Excellence in Graduate Programs, 1994.
7. Member, College Faculty Handbook Committee, 1994.
8. Member, LAS Email Retention Committee, 2003.
9. Member, Raubenheimer Selection Committee, 2004.
10. Member, College Graduate Curriculum Committee, 2006-7.
11. Chair, Search Committee, 2006-8
12. Member, Merit Committee 2009-12
13. Chair, Chair Consultative Committee, 2010.
14. Associate Chair, 2007
15. Chair, Departmental Merit Committee, 2001-4 (Chair, 2002-4).

16. Chair, Departmental Search Committee, 1997–9.
17. Section Head, Core Math Section, 1997–9.
18. Chair, Department of Mathematics, 1990–6.