List of publications of Shmuel (aka Samuel) Friedland

Journal, conference and edited book papers

- Free edge buckling of heterogeneous cylindrical shells in axial compression, (with Y. Stavsky), Int. J. Mech. Sci. 11 (1969), 217-223.
- Stability of heterogeneous orthotropic cylindrical shells in axial compression, (with Y. Stavsky), Israel J. Technol. 7 (1969), 111-119.
- [3] On a conjecture of Robertson, Arch. Rational Mech. Anal. 37 (1970), 255-261.
- [4] Univalence conditions and Sturm-Liouville eigenvalues, (with Z. Nehari), Proc. Amer. Math. Soc. 24 (1970), 595-603.
- [5] Buckling of composite circular plates under radial compression, (with Y. Stavsky), Acta Mechanica 11 (1971), 87-98.
- [6] Matrices with prescribed off-diagonal elements, Israel J. Math. 11 (1972), 184-189.
- [7] On an inequality connected with the coefficient conjecture for functions of bounded boundary rotations, (with Aharonov), Ann. Acad. Sci. Fenn. AI 524 (1972), 14 pp.
- [8] Extremal eigenvalue problems for convex sets of symmetric matrices and operators, *Israel J. Math.* 15 (1973), 311-331.
- [9] Nonoscillation and integral inequalities, Bull. Amer. Math. Soc. 80 (1974), 715-717.
- [10] Matrices satisfying the van der Waerden conjecture, Linear Algebra Appl. 8 (1974), 521-528.
- [11] On functions of bounded boundary rotation, (with Aharonov), Ann. Acad. Sci. Fenn. AI 585 (1974), 18 pp.
- [12] Generalized Hadamard inequality and its applications, *Linear Multilin. Algebra* 2 (1975), 327-333.
- [13] On matrix approximation, Proc. Amer. Math. Soc. 51 (1975), 41-43.
- [14] Some inequalities for the spectral radius of nonnegative matrices and applications, (with S. Karlin), Duke Math. J. 42 (1975), 459-490.
- [15] On inverse multiplicative eigenvalue problems for matrices, *Linear Algebra Appl.* 12 (1975), 127-137.
- [16] Nonoscillation and integral inequalities, Internat. Conf. on Differential Equations, Academic Press, Inc., New York, 1975, pp. 812-813.
- [17] Subspaces of symmetric matrices containing matrices with a multiple first eigenvalue, (with R. Loewy), *Pacific J. Math* 62 (1976), 389-399.
- [18] Nonoscillation, disconjugacy and integral inequalities, Memoirs Amer. Math. Soc. 176 (1976), 78 pp.
- [19] Eigenvalue inequalities for Dirichlet problem on spheres and the growth of subharmonic functions, (with W.K. Hayman), *Comment. Math. Helvetici* 51 (1976), 133-161.
- [20] Global results in control theory with applications to univalent functions, (with M. Schiffer), Bull. Amer. Math Soc. 82 (1976), 913-915.

- [21] Inverse eigenvalue problems, *Linear Algebra Appl.* 17 (1977), 15-51.
- [22] On coefficient region of univalent functions, (with M. Schiffer), J. Analyse Math. 31 (1977), 125-168.
- [23] On an inverse eigenvalue problem arising in circuit theory, Proc. First Internat. Conf. on Math Modelling, St. Louis, Missouri, 1977, pp. 1591-1601.
- [24] Extremal eigenvalue problems defined for certain classes of bounded functions, Arch. Rational Mech. Anal. 67 (1977), 73-81.
- [25] Bounds on the solutions of difference equations and spline interpolation at knots, (with C.A. Micchelli), *Linear Algebra Appl.* 20 (1978), 219-251.
- [26] On inverse problem for nonnegative and eventually nonnegative matrices, Israel J. Math. 29 (1978), 43-60.
- [27] Global principle for free end point problems in optimal control and differential games, J. Optim. Theory Appl. 24 (1978), 293-303.
- [28] A study of the van der Waerden conjecture, Linear Multilin. Algebra 6 (1978), 123-143.
- [29] Extremal eigenvalue problems, Bull. Brazilian Math. Soc. 9 (1978), 13-40.
- [30] Monotonicity of permanents of doubly stochastic matrices, (with H. Minc), Linear Multilin. Algebra 6 (1978), 227-231.
- [31] On the eigenvalues of nonnegative Jacobi matrices, (with A. Melkman), Linear Algebra Appl. 25 (1979), 239-253.
- [32] Extremal eigenvalue problems defined on conformal classes of compact Riemannian manifolds, *Comment. Math. Helvetici* 54 (1979), 494-507.
- [33] The reconstruction of a symmetric matrix from the spectral data, J. Math. Anal. Appl. 71 (1979), 412-422.
- [34] A characterization of transform absolute norms, *Linear Algebra Appl.* 28 (1979), 63-68.
- [35] A lower bound for the permanent of doubly stochastic matrices, Ann. of Math. 110 (1979), 167-176.
- [36] On pointwise and analytic similarity of matrices, Israel J. Math. 35 (1980), 89-108.
- [37] The growth of powers of nonnegative matrix, (with H. Schneider), SIAM J. Algebraic Discrete Methods 1 (1980), 185-200.
- [38] The association of resonance states with incomplete spectrum of finite complex scaled Hamiltonian matrices, (with N. Moiseyev), *Phys. Rev.* A 22 (1980), 619-624.
- [39] Analytic similarity of matrices, Algebraic and Geometric Methods in Linear System Theory, Lectures in Applied Math., Amer. Math. Soc. 18 (1980), 43-85 (edited by C.I. Byrnes and C.F. Martin).
- [40] A generalization of the Motzkin-Taussky theorem, *Linear Algebra Appl.* 36 (1981), 103-109.
- [41] Convex spectral functions, *Linear Multilin. Algebra* 9 (1981), 299-316.
- [42] Extremal eigenvalue problems with indefinite kernels, (with P. Nowosad), Adv. in Math. 40 (1981), 128-154.

- [43] Cusps, θ-trajectories, and the complex virial theorem, (with N. Moiseyev and P. Certain), J. Chem. Phys. 74 (1981), 4739-4740.
- [44] Variation of Grassman powers and spectra, (with R. Bhatia), *Linear Algebra Appl.* 40 (1981), 1-18.
- [45] A generalization of the Kreiss matrix theorem, SIAM J. Math. Anal. 12 (1981), 826-832.
- [46] A proof of a generalized van der Waerden conjecture on permanents, Linear Multilin. Algebra 11 (1982), 107-120.
- [47] Codimension of degenerate pencils, (with B. Simon), Linear Algebra Appl. 44 (1982), 41-53.
- [48] Symmetry of tensor products, (with J. Robbin), Linear Algebra Appl. 44 (1982), 97-123.
- [49] A characterization of normal operators, Israel J. Math. 42 (1982), 235-240.
- [50] Variation of tensor powers and spectra, *Linear Multilin. Algebra* 12 (1982), 81-98.
- [51] Eigenvalues inequalities for the products of matrix exponentials, (with J. Cohen, T. Kato and F. Kelley), *Linear Algebra Appl.* 45 (1982), 55-95.
- [52] Inverses of infinite sign regular matrices, (with C. de Boor and A. Pincus), Trans. Amer. Math. Soc. 274 (1982), 59-68.
- [53] Simultaneous similarity of matrices, Bull. Amer. Math. Soc. 8 (1983), 93-95.
- [54] Simultaneous similarity of matrices, Adv. in Math. 50 (1983), 189-265.
- [55] On the crossing rule, (with J. Robbin and J. Sylvester), Comm. Pure Appl. Math. 37 (1984), 19-37.
- [56] Optimality of the Lax-Wendroff condition, (with E. Tadmor), *Linear Algebra Appl.* 56 (1984), 121-129.
- [57] All spectral dominant norms are stable, (with C. Zenger), *Linear Algebra Appl.* 58 (1984), 97-107.
- [58] Stable convex sets of matrices, *Linear Multilin. Algebra* 14 (1984), 283-292.
- [59] Regular subgraphs of almost regular graphs, (with N. Alon and G. Kalai), J. Combin. Theory B 37 (1984), 79-91.
- [60] Every 4-regular graph plus on edge contains a 3-regular subgraph, (with N. Alon and G. Kalai), J. Combin. Theory B 37 (1984), 92-93.
- [61] The game-theoretic value and the spectral radius of a nonnegative matrix, (with J. E. Cohen), Proc. Amer. Math. Soc. 93 (1985), 205–211.
- [62] The maximal eigenvalue of 0-1 matrices with prescribed number of ones, *Linear Algebra Appl.* 69 (1985), 33-69. J. Snellman, Errata: The maximal eigenvalue of 0-1 matrices with prescribed number of ones, *Linear Algebra Appl.* 430 (2009), 589–591.
- [63] Classification of linear systems, Proc. of A.M.S. Conf. on Linear Algebra and Its Role in Systems Theory, Contemp. Math. 47 (1985), 131-147.
- [64] Maximality of the monomial group, *Linear Multilin. Algebra* 18 (1985), 1-7.

- [65] Weak interlacing properties of totally positive matrices, *Linear Algebra Appl.* 71 (1985), 95-100.
- [66] Limit eigenvalues of nonnegative matrices, Linear Algebra Appl. 74 (1986), 173-178.
- [67] Canonical forms, Frequency Domain and State Space Methods for Linear Systems, 115-121, edited by C.I. Byrnes and A. Lindquist, North Holland, 1986.
- [68] The generalized Radon-Hurwitz numbers, (with M. Berger), Compositio Math. 59 (1986), 113-146.
- [69] A discriminant criterion for reducibility of a polynomial, (with M. Fried), Israel J. Math. 54 (1986), 25-32.
- [70] Four quadratically convergent methods for solving inverse eigenvalue problems, (with J. Nocedal and M.L. Overton), *Proc. Dundee Binennial Conf. on Numerical Analysis*, Edited by D.F. Griffiths and G.A. Watson, Pitman Res. Notes in Math. 140 (1986), 47-65.
- [71] On an inequality related to certain totally positive Green's functions, Quart. Appl. Math. 44 (1986), 337-338.
- [72] Matrices whose powers are M-matrices or Z-matrices, (with D. Hershkowitz and H. Schneider), Trans. Amer. Math. Soc. 300 (1987), 343-366.
- [73] The formulation and analysis of numerical methods for inverse eigenvalue problems, (with J. Nocedal and M.L. Overton), SIAM J. Numerical Anal. 24 (1987), 634-667.
- [74] On a matrix inequality, (with M. Katz), Linear Algebra Appl. 85 (1987), 185-190.
- [75] Bounds on the spectral radius of graphs with e edges, *Linear Algebra Appl.* 101 (1988), 81-85.
- [76] The maximal value of the spectral radius of graphs with e edges, Linear and Multilinear Algebra 23 (1988), 91–93.
- [77] Additive decomposition of nonnegative matrices with applications to permanents and scaling, (with C.K. Li and H. Schneider), *Linear Multilin. Algebra* 23 (1988), 63-78.
- [78] The rank of powers of matrices in a block triangular form, (with D. Hershkowitz), Linear Algebra Appl. 107 (1988), 17-22.
- [79] Every 7-regular digraph contains an even cycle, J. Combin. Theory Ser. B 46 (1989), 249-252.
- [80] Dynamical properties of plane polynomial automorphisms, (with J. Milnor), J. Ergod. Th. & Dynam. Sys. 9 (1989), 67-99.
- [81] Coherent algebras and the graph isomorphism problem, *Combinatorics and Complexity*, Discrete Appl. Math. 25 (1989), 73-98.
- [82] Normal forms for definite integer unimodular quadratic forms, Proc. Amer. Math. Soc. 106 (1989), 917-921.
- [83] Binjamin Schwarz: on the occasion of his 70th birthday, (with D. London), Linear Algebra Appl. 120 (1989), 3-8.
- [84] Characterization of spectral radius of positive operators, *Linear Algebra Appl.* 134 (1990), 93-105.

- [85] A remark on the variation of permanents, *Linear Multilin. Algebra* 27 (1990), 100-103.
- [86] Rationality of certain field of invariant functions, *Linear Multilin. Algebra* 27 (1990), 299-301.
- [87] A note on a determinantal inequality, Linear Algebra Appl. 141 (1990), 221-222.
- [88] Entropy of polynomial and rational maps, Ann. of Math. 133 (1991), 359-368.
- [89] Characterizations of spectral radius of positive operators on C* algebras, J. Funct. Anal. 97 (1991), 64-70.
- [90] Pairs of matrices which do not admit complementary triangular forms, *Linear Algebra Appl.* 150 (1991), 119-124.
- [91] Quadratic forms and the graph isomorphism problem, *Linear Algebra Appl.* 150 (1991), 423-442.
- [92] Revisiting matrix squaring, *Linear Algebra Appl.* 154-156 (1991), 59-63.
- [93] Entropy of rational self-maps of projective varieties, International Conference on Dynamical Systems and Related Topics, editor: K. Shiraiwa, Advanced Series in Dynamical Systems, vol. 9, 128-140, World Scientific Publishing Co., Singapore 1991.
- [94] On characterizations of the spectral radius of positive operators, *Linear Algebra Appl.* 162-164 (1992), 751-753.
- [95] Inverse eigenvalue problems for symmetric Toeplitz matrices, SIAM J. Matrix Anal. Appl. 13 (1992), 1142-1153.
- [96] Lower bounds for the first eigenvalue of certain M-matrices associated with graphs, Linear Algebra Appl. 172 (1992), 71-84.
- [97] Estimates of the spectral radius of graphs, *Linear Multilin. Algebra*, 34 (1993), 33-40.
- [98] Jorgensen's inequality for discrete groups in normed algebras, (with S. Hersonsky), Duke Math. J. 69 (1993), 593-614.
- [99] Eigenvalues of almost skew symmetric matrices and tournament matrices, Combinatorial and graph theoretic problems in linear algebra, editors: R.A. Brualdi, S. Friedland and V. Klee, IMA vol. 50, 189-206, Springer-Verlag, New York 1993.
- [100] Rational orthogonal similarity of rational symmetric matrices, *Linear Algebra Appl.* 192 (1993), 109-114.
- [101] On the product of matrix exponentials, (with W. So), Linear Algebra Appl. 196 (1994), 193-206.
- [102] Upper bounds for the real part of nonmaximal eigenvalue of nonnegative irreducible matrices, (with L. Gurvits), SIAM J. Matrix Anal. Appl. 15 (1994), 1015-1017.
- [103] Row sums and inverse row sums for nonnegative matrices, (with R. Hemasinha, H. Schneider, J. Stuart and J. Weaver), SIAM J. Matrix Anal. Appl., 15 (1994), 1157-1166.
- [104] On the maximal spectral radius of even tournament matrices and the spectrum of almost skew-symetric compact operators, (with M. Katz), *Linear Algebra Appl.*, 208/209 (1994), 455-469.

- [105] The sparse basis problem and multilinear algebra, (with R.A. Brualdi and A. Pothen), SIAM J. Matrix Anal. Appl. 16 (1995), 1-20.
- [106] Entropy of algebraic maps, J. Fourier Anal. Appl., Kahane's issue, 1995, 215-228.
- [107] Variation of the discrete eigenvalues of normal operators, (with L. Elsner), Proc. Amer. Math. Soc., 123 (1995), 2511-2517.
- [108] Invariant measures of groups of homeomorphisms and Auslander's conjecture, J. Ergod. Th. & Dynam. Sys. 15 (1995), 1075-1089.
- [109] Singular values, doubly stochastic matrices and applications, (with L. Elsner), Linear Algebra Appl., 220 (1995), 161-169.
- [110] Discrete groups of unitary isometries and balls in hyperbolic manifolds, *Linear Algebra Appl.*, 241-243 (1996), 305-341.
- [111] Entropy of graphs, semigroups and groups, *Ergodic Theory of* Z^d-Actions, editors: M. Pollicott and K. Schmidt, London Math. Soc. Lecture Notes Ser. 228, 319-343, Cambridge Univ. Press, 1996.
- [112] Two commentaries on H. Wielandt's papers, Mathematical Works of H. Wielandt, editors: B. Huppert and H. Schneider, 142-143, 180-181, W. de Gruyter, 1996.
- [113] Norm conditions for convergence of infinite products, (with L. Elsner), Linear Algebra Appl. 250 (1997), 133-142.
- [114] On the entropy of Z-d subshifts of finite type, *Linear Algebra Appl.* 252 (1997), 199-220.
- [115] On the second eigenvalue of nonnegative and Z-matrices, (jointly with R. Nabben), Linear Algebra Appl. 255 (1997), 303-313.
- [116] The maximal orders of finite subgroups in $GL(n, \mathbf{Q})$, Proc. Amer. Math. Soc. 125 (1997), 3519-3526.
- [117] Properly discontinuous groups on certain matrix homogeneous spaces, *Linear Mul*tilin. Algebra 43 (1997), 151-167.
- [118] Computing Hausdorff dimension of subshifts using matrices, *Linear Algebra Appl.* 273 (1998), 133-167.
- [119] Hausdorff dimension, strong hyperbolicity and complex dynamics, (with G. Ochs), Dis. Cont. Dynamical Systems, 4 (1998), 405-430.
- [120] Spaces of symmetric matrices containing a nonzero matrix of bounded rank, (with R. Loewy), *Linear Algebra Appl.* 287 (1999), 161-170.
- [121] Monodromy, differential equations and the Jacobian conjecture, Annales Polonici Mathematici, 72 (1999) 219-249.
- [122] Discrete Lyapunov exponents and Hausdorff dimension, J. Ergod. Th. & Dynam. Sys, 20 (2000), 145-172. Corrections: J. Ergod. Th. & Dynam. Sys, 20 (2000), 1551.
- [123] Spectra of expansion graphs, (with H. Schneider), Elec. Lin. Alg., 6 (1999/2000), 2-10.
- [124] The limit of the spectral radius of Toeplitz matrices with nonnegative entries, (with L. Elsner), J. Integral Equations and Operator Theory, 36 (2000), 193-200.
- [125] Finite and infinite dimensional generalizations of Klyachko theorem, *Linear Algebra Appl.* 319 (2000), 3-22.

- [126] Some finitely generated modules and cohomologies and the Jacobian conjecture, Annales Polonici Mathematici, 76 (2001), 101-112.
- [127] Conjectures and remarks on the limit of the spectral radius of nonnnegative band Toeplitz matrices, (with L. Elsner), *Contemporary Mathematics* 280 (2001), 321-327.
- [128] Normal matrices and the completion problem, SIAM J. Matrix Anal. Appl., 23 (2002), 896-902.
- [129] On Cheeger-type inequalities, (with R. Nabben), J. Graph Theory 41 (2002), 1-17.
- [130] On spaces of matrices containing a nonzero matrix of bounded rank, (with D. Falikman and R. Loewy), *Pacific J. Math.* 207 (2002), 157-176.
- [131] Multi-dimensional capacity, pressure and Hausdorff dimension, Mathematical System Theory in Biology, Communication, Computation and Finance, edited by D. Gilliam and J. Rosenthal, IMA vol. 134, Springer, 2003, 183-222.
- [132] Generalizations of the odd degree theorem and applications, (with Libgober), Israel J. Math. 136 (2003), 353-371.
- [133] p-metrics on GL(n, C) and their Busemann compactifications, (with P. Freitas), Linear Algebra Appl. 376 (2004), 1-18.
- [134] Revisiting Siegel upper half plane I, (with P. Freitas), Linear Algebra Appl. 376 (2004), 19-44.
- [135] Revisiting Siegel upper half plane II, (with P. Freitas), 25 Linear Algebra Appl. 376 (2004), 45-67.
- [136] Concentration of permanent estimators for certain large matrices, (with B. Rider and O. Zeitouni), Annals of Applied Probability, 14(2004), 1559-1576.
- [137] The limit of the product of the parameterized exponential of two operators, (with G. Porta), J. Functional Analysis, 210 (2004), 436-464.
- [138] Explicit construction of families of LDPC codes with no 4-cycles, (with J.L. Kim, U.N. Peled, I. Perepelitsa, V. Pless), *IEEE Trans. Inform. Theory* 50 (2004), 1-12.
- [139] Computation of entropy in statistical mechanics and information theory, (with U.N. Peled), Proceedings of the Thirty-Fifth Southeastern International Conference on Combinatorics, Graph Theory and Computing. Congr. Numer. 168 (2004), 207–213.
- [140] Theory of Computation of Multidimensional Entropy with an Application to the Monomer-Dimer Problem, (with U. Peled), Advances of Applied Math. 34(2005), 486-522.
- [141] On "The multiplicity of eigenvalues" by P. Lax, BAMS 6(1982), in Lax Selecta, edited by P. Majda, J. Andrew and P. Sarnak, Springer 2005, 1 pp..
- [142] Generalized interval exchanges and the 2-3 conjecture, (with B. Weiss), Central European Journal of Mathematics 3 (3), 2005, 412-429.
- [143] Positive entries of stable matrices, (with D.Hershkowitz and S.M. Rump), Electronic Journal of Linear Algebra 12 (2005), 17-24.
- [144] A New Approach to Generalized Singular Value Decomposition, SIMAX 27 (2005), 434-444.

- [145] Convergence of products of matrices in projective spaces, *Linear Alg. Appl.*, 413(2006), 247-263.
- [146] A simultaneous reconstruction of missing data in DNA microarrays, (with L. Chihara, A. Niknejad), *Linear Alg. Appl.*, 416 (2006), 8-28.
- [147] Fast Monte-Carlo low rank approximations for matrices, (with M. Kaveh, A. Niknejad, H. Zare), Proc. IEEE Conference SoSE, Los Angeles, 2006, 218-223.
- [148] An algorithm for missing value estimation for DNA microarray data, (with M. Kaveh, A. Niknejad, H. Zare), IEEE Proceedings of ICASSP 2006, II, 1092-10095.
- [149] Exact conditions for countable inclusion-exclusion identity and extensions, (with E. Krop), International Journal of Pure and Applied Mathematics, 29 (2006), 177-182.
- [150] A polynomial-time approximation algorithm for the number of k-matchings in bipartite graphs, (with D. Levy), 61-67, Mathematical papers in honour of Eduardo Marques de Sá, 61-67, Textos Mat. Ser. B, 39, Univ. Coimbra, Coimbra, 2006.
- [151] Matrices over Integral Domains, Chapter 23, Handbook of Linear Algebra, Editor: L. Hogben, CRC Press, 2007, 11pp..
- [152] Similarities of Families of Matrices, Chapter 24, Handbook of Linear Algebra, Editor: L. Hogben, CRC Press, 2007, 12 pp..
- [153] Generalized rank-constrained matrix approximations, (with A. Torokhti), SIAM J. Matrix Anal. Appl. 29 (2007), 656-659.
- [154] 2-adic valuations of certain ratios of products of factorials and applications, (with C. Krattenthaler), *Linear Algebra and its Applications*, 426 (2007), 159-189
- [155] The polytope of dual degree partitions, (with A. Bhattacharya and U. Peled), Linear Algebra and its Applications, 426 (2007), 458-461.
- [156] Towards generic theory of data compression, (with A. Torokhti and P. Howlett), CD-rom: 2007 IEEE Int. Symp. on Inform. Theory. June 24-29 2007, Nice, France. Symposium Proceedings. ISBN: 1-4244-1429-6, pp. 291-295, 2007.
- [157] Entropy of holomorphic and rational maps: a survey. Dynamics, ergodic theory, and geometry, 113–128, Math. Sci. Res. Inst. Publ., 54, Cambridge Univ. Press, Cambridge, 2007.
- [158] Lower bounds for partial matchings in regular bipartite graphs and applications to the monomer-dimer entropy, jointly with L. Gurvits, *Combinatorics, Probability* and Computing, 17 (2008), 347-361.
- [159] On the validations of the asymptotic matching conjectures, (with E. Krop, P.H. Lundow, K. Markström), Journal of Statistical Physics, 133 (2008), 513-533.
- [160] Minimum rank of matrices described by a graph or pattern over the rational, real and complex numbers, with A. Berman, L. Hogben, U. Rothblum, B. Shader, *The Electronic Journal of Combinatorics*, 15 (2008), #R25, 1-19.
- [161] The maximum number of perfect matchings in graphs with a given degree sequence, with N. Alon, *The Electronic Journal of Combinatorics*, 15 (2008), #13, 1-2.
- [162] An upper bound for the minimum rank of a graph, jointly with A. Berman, L. Hogben, U. Rothblum, B. Shader, *Linear Algebra and its Applications*, 429 (2008), 1629–1638.

- [163] Nonnegativity of Schur complements of nonnegative idempotent matrices, jointly with E. Virnik, *Electronic Journal of Linear Algebra*, 17 (2008), 426-435.
- [164] On the number of matchings in regular graphs, jointly with E. Krop and K. Markstrom, The Electronic Journal of Combinatorics, 15 (2008), #R110, 1-28.
- [165] On the First Eigenvalue of Bipartite Graphs, jointly with A. Bhattacharya and U.N. Peled, *The Electronic Journal of Combinatorics*, 15 (2008), #R144, 1-23.
- [166] Towards theory of generic Principal Component Analysis, jointly with A. Torokhti, J. Multivariate Analysis, 100 (2009), 661-669.
- [167] A note on the graph's resolvent and the multifilar structure, jointly with V. Ejov and G.T. Nguyen, *Linear Algebra and its Applications*, 431 (2009), 1367–1379.
- [168] Additive invariants on quantum channels and regularized minimum entropy, Operator Theory: Advances and Applications, 203 (2010), 237–245.
- [169] Asymptotic positivity of Hurwitz product traces: two proofs, jointly with C. Fleischhack, *Linear Algebra Appl.* 432 (2010), 1363–1383.
- [170] The 1-vertex transfer matrix and accurate estimation of channel capacity, jointly with P.H Lundow and K. Markstrom, *IEEE Transactions on Information Theory* 56 (2010), 3692–3699.
- [171] Numerical estimation of the relative entropy of entanglement, jointly with Y. Zinchenko and G. Gour, *Physical Review A*, 82 (2010), 052336.
- [172] Positive diagonal scaling of a nonnegative tensor to one with prescribed slice sums, Linear Algebra Appl., vol. 434 (2011), 1615-1619.
- [173] Spectrum Management in Multiuser Cognitive Wireless Networks: Optimality and Algorithm, jointly with C.W. Tan and S.H. Low, IEEE Journal on Selected Areas in Communications, Vol. 29, No. 2, pp. 421-430, Feb. 2011.
- [174] An Asymptotic Expansion and Recursive Inequalities for the Monomer-Dimer Problem, jointly with P. Federbush, *Journal of Statistical Physics*, 143 (2011), 306–325.
- [175] The automorphism group of separable states in quantum information theory, arXiv:1012.4221, jointly with C.-K. Li, Y.-T. Poon and N.-S. Sze, *Journal of Mathematical Physics*, 52 (2011), 042203-1 – 042203-8.
- [176] Parametric Poincare-Perron theorem with applications, jointly with J.Borcea and B. Shapiro, J. d'Analyse Mathematique, 113 (2011), 197–225.
- [177] An explicit expression for the relative entropy of entanglement in all dimensions, jointly with G. Gour, J. Math. Phys. 52 (2011), 052201 (13 pages).
- [178] The pressure, densities and first order phase transitions associated with multidimensional SOFT, jointly with U.N. Peled, Notions of Positivity and the Geometry of Polynomials, *Trends in Mathematics*, 179-220, 2011, Springer, Basel AG.
- [179] Fast low rank approximations of matrices and tensors, jointly with V. Mehrmann, A. Miedlar and M. Nkengla, *Electronic Journal of Linear Algebra* 22 (2011), 1031-1048.
- [180] Nonnegative matrix inequalities and their application to nonconvex power control optimization, jointly with C.W. Tan and S.H. Low, SIAM J. Matrix Anal. Appl. 32 (2011), 1030–1055.

- [181] Local extrema of entropy functions under tensor products, jointly with G. Gour and A. Roy, Quantum Information and Computation, 11 (2011), 1028–1044.
- [182] On the minimum rank of a graph over finite fields, jointly with R. Loewy, *Linear Algebra Appl.*, 436 (2012), 1710–1720.
- [183] On the generic and typical ranks of 3-tensors, *Linear Algebra Appl.*, 436 (2012), 478–497.
- [184] A proof of the set-theoretic version of the salmon conjecture, jointly with E. Gross, Journal of Algebra, 356 (2012), 374–379.
- [185] A note on the nonzero spectrum of irreducible matrices, *Linear and Multilinear Algebra*, 60 (2012), 1235–1238.
- [186] On tensors of border rank l in $\mathbb{C}^{m \times n \times l}$, Linear Algebra Appl., 438 (2013), 713-738.
- [187] Perron-Frobenius theorem for nonnegative multilinear forms, jointly with S. Gaubert and L. Han, *Linear Algebra Appl.*, 438 (2013), 738–749.
- [188] Submodular spectral functions of principal submatrices of an hermitian matrix, jointly with S. Gaubert, *Linear Alg. and its Applications*, 438 (2013), 3872–3884.
- [189] Results and open problems in matchings in regular graphs, Electronic Journal of Linear Algebra, 24 (2012), 18–33.
- [190] The minimum entropy output of a quantum channel is locally additive, jointly with G. Gour, Information Theory, IEEE Transactions on, 59 (2013), 603–614.
- [191] Upper bounds on the magnitude of solutions of certain linear systems with integer coefficients, jointly with P. Freitas and G. Porta, *Electron. J. Linear Algebra*, 24 (2012/13), 113-125.
- [192] Best rank one approximation of real symmetric tensors can be chosen symmetric, Front. Math. China 8 (2013), 19-40.
- [193] On best rank one approximation of tensors, jointly with V. Mehrmann, R. Pajarola, S.K. Suter, Numerical Linear Algebra with Applications, 20 (2013), 942–955.
- [194] Upper bounds for perfect matchings in Pfaffian and planar graphs, jointly with A. Behmaram, *Electron. J. Combin.*, 20 (2013), Paper 64, 16 pp.
- [195] Generalized tensor compressive sensing, jointly with Q. Li and D. Schonfeld, Multimedia and Expo (ICME), 2013 IEEE International Conference on, 15-19 July 2013, ISSN: 1945-7871, 6 pages.
- [196] Nonnegative definite hermitian matrices with increasing principal minors, Special Matrices, 1 (2013), 1–2.
- [197] Universal uncertainty relations, jointly with V. Gheorghiu and G. Gour, *Phys. Rev. Lett.* 111, 230401 (2013), 5 pages.
- [198] The number of singular vector tuples and uniqueness of best rank one approximation of tensors, jointly with G. Ottaviani, Foundations of Computational Mathematics 14, 6 (2014), 1209–1242.
- [199] Compressive Sensing of Sparse Tensors, jointly with Q. Li and D. Schonfeld, *IEEE Transactions on Image Processing*, 23, 10 (2014), 4438–4447, 10.1109/tip.2014.2348796.

- [200] Upper bounds on the number of perfect matchings and directed 2-factors in graphs with given number of vertices and edges, jointly with M. Aaghabali, S. Akbari, K. Markström and Z. Tajfirouz, *European Journal of Combinatorics*, 45 (2015), 132–144.
- [201] Two algorithms for compressed sensing of sparse tensors, jointly with E.A. Bernal, Q. Li, and D. Schonfeld, Chapter in book: *Compressed Sensing and its Applications*, MATHEON Workshop 2013, Editors: Boche, H., Calderbank, R., Kutyniok, G., Vybiral, J., Springer, 23 pages, arXiv:1404.1506.
- [202] On convex optimization problems in quantum information theory, jointly with M.W. Girard and G. Gour, J. of Phys. A: Math. and Theor., 47 (2014), 505302, (25pp).
- [203] Mark W. Girard, Yuriy Zinchenko, Shmuel Friedland, and Gilad Gour, Erratum: Numerical estimation of the relative entropy of entanglement, PHYSICAL RE-VIEW A 91, 029901(E) (2015).
- [204] Equality in Wielandts eigenvalue inequality, Spec. Matrices 2015; 3:53–57.
- [205] Low-rank approximation of tensors, jointly with V. Tammali, Numerical Algebra, Matrix Theory, Differential-Algebraic Equations and Control Theory, edited by P. Benner et all, Springer, 2015, 377-410, arXiv:1410.6089.
- [206] Some approximation problems in semi-algebraic geometry, jointly with M. Stawiska, *Constructive Approximation of Functions*, Banach Center Publications, 107 (2016), 129 – 143, arXiv:1412.3178.
- [207] On the extreme points of quantum channels, jointly with R. Loewy, *Linear Algebra and its Applications* 498 (2016), 553–573, arXiv:1309.5898.
- [208] Inertia of Loewner matrices, jointly with R. Bhatia, and T. Jain, Indiana Univ. Math. J. 65, No. 4 (2016), 1251–1261, arXiv:1501.01505.
- [209] Remarks on the symmetric rank of symmetric tensors, SIAM J. Matrix Anal. Appl. 37, No. 1 (2016), 320–337, arXiv:1505.00860.
- [210] On 1-sum flows in undirected graphs, jointly with S. Akbari, K. Markstrm and S. Zare, *Electronic Journal of Linear Algebra*, 31 (2016), 646–665, arXiv:1503.07131.
- [211] The computational complexity of duality, jointly with L.-H. Lim, SIAM Journal on Optimization, 26, No. 4 (2016), 2378–2393, arXiv:1601.07629.
- [212] On best rank-2 and rank-(2,2,2) approximations of order-3 tensors, jointly with A. Stegeman, *Linear and Multilinear Algebra*, Published online: 27 Sep 2016, http://dx.doi.org/10.1080/03081087.2016.1234578, arXiv:1604.06011.
- [213] Nuclear norm of higher-order tensors, jointly with L.-H. Lim, to appear in Mathematics of Computation, arXiv:1410.6072v3.
- [214] Matchings in m-generalized fullerene graphs, jointly with A. Behmaram and T. Doslic, ARS MATHEMATICA CONTEMPORANEA 11 (2016), 301–313.
- [215] On Schrodinger's bridge problem, to appear in special issues dedicated to the 150th anniversary of Matematicheskii Sbornik journal, arXiv:1608.05862.
- [216] A Simple Spectral Algorithm for Recovering Planted Partitions, jointly with S. Cole and L. Reyzin, Special Matrices5 (2017), 139–157, arXiv:1503.00423
- [217] Most Boson quantum states are almost maximally entangled, jointly with T. Kemp, to appear in *Proceedings of Amer. Math. Soc.*, arXiv:1612.00578.

Submitted for publication

- Geometric measure of entanglement of symmetric d-qubits is polynomial-time computable, jointly with L. Wang, arXiv:1608.01354.
- [2] Theoretical and computational aspects of entanglement, jointly with H. Derksen, L.-H. Lim, and L. Wang, arXiv:1705.07160.
- [3] The tensor rank of tensor product of two three-qubit W states is eight, jointly with Lin Chen, arXiv:1708.08578.
- [4] The Collatz-Wielandt quotient for some pairs of nonnegative operators,

Preprints

- Generalized Friedland-Tverberg inequality: applications and extensions, jointly with L. Gurvits, arXiv:math/0603410v2, http://arxiv.org/abs/math/0603410v2, (shorter version appeared as [158]).
- FPRAS for computing a lower bound for weighted matching polynomial of graphs, arXiv:cs/0703029v2, http://arxiv.org/abs/cs/0703029v2
- [3] On the graph isomorphism problem, arXiv:0801.0398v3, http://arxiv.org/abs/0801.0398v3
- [4] An upper bound for the number of perfect matchings in graphs, arXiv:0803.0864v1, http://arxiv.org/abs/0803.0864v1, (modified version appeared as [161]).
- [5] Remarks on BMV conjecture, arXiv:0804.3948v1, http://arxiv.org/abs/0804.3948v1, (expanded version appeared as [169]).
- [6] Best subspace tensor approximations, jointly with V. Mehrmann, arXiv:0805.4220v1, http://arxiv.org/abs/0805.4220v1
- [7] Additive invariants on quantum channels and applications to regularized minimum entropy, arXiv:0809.0078v4, http://arxiv.org/abs/0809.0078v4, (shorter version appeared as [168]).
- [8] Graph isomorphism and volumes of convex bodies, arXiv:0911.1739v1.
- [9] Analogs of the van der Waerden and Tverberg conjectures for haffnians, arXiv:1102.2542.
- [10] S. Friedland and M. Stawiska, Best approximation on semi-algebraic sets and kborder rank approximation of symmetric tensors, arXiv:1311.1561.
- [11] Approximating uniform quantum channels, arXiv:1403.6892.

3 Books

1. A. Niknejad and S. Friedland, *Applications of Linear Algebra to DNA Microarrays*, VDM Verlag Dr Müller Aktiengesellschaft&Co.KG, Germany, 2009, ISBN: 978-3-639-17994-1.

2. S. Friedland, *Matrices: Algebra, Analysis and Applications*, World Scientific, 596 pp., 2015, Singapore, http://www2.math.uic.edu/~friedlan/bookm.pdf

4 Editor of books and proceedings

1. R.A. Brualdi, S. Friedland and V. Klee, *Combinatorial and Graph Theoretic Problems in Linear Algebra*, vol. 50, IMA series, Springer-Verlag, New York, 1993.

2. S. Friedland, D. Hershkowitz and R. Loewy, Proceedings of the Workshop "Nonnegative Matrices, Applications and Generalizations" and the Eighth Haifa Matrix Theory Conference. Proceedings of the workshop held at the Technion-Israel Institute of Technology, Haifa, May 31–June 4, 1993, and the conference held in Haifa, June 7–10, 1993. Edited by Linear Algebra Appl. 220 (1995). Elsevier Science Ltd., Oxford, 1995. pp. i–iii and 7–433.