

LIST OF PUBLICATIONS

Most of the papers on this list are available from my homepage:
staff.math.su.se/shapiro

REFERENCES

- [1] B. Shapiro, I. Smirnov, A. Vaintrob, Around generalized external zonotopal algebras of graphs, arXiv:2204.11331, submitted.
- [2] B. Shapiro, M. Shapiro, Corrigendum to “On two conjectures concerning convex curves”, by V. Sedykh and B. Shapiro, *Int. J. Math.*, v. 33, iss. 4 (2022) 2292002; <https://doi.org/10.1142/S0129167X22920021>.
- [3] A. Libgober, and B. Shapiro, Meromorphic functions without real critical values and related braids, in preparation.
- [4] N. Saldanha, B. Shapiro, M. Shapiro, Finiteness of rank for Grassmann convexity, arXiv:2110.07389, *Comptes Rendus Mathématique*, to appear.
- [5] P. Alexandersson, N. Hemmingsson, B. Shapiro, Linear first order differential operators and complex dynamics, arXiv:2202.10197, submitted.
- [6] K. Kohn, R. Piene, K. Ranestad, F. Rydell, B. Shapiro, R. Sinn, M-S. Sorea, S. Telen, Adjoints and canonical forms of polypols, arXiv:2108.11747, submitted.
- [7] R. Piene, C. Riener, and B. Shapiro, Return of the plane evolute, arXiv:2110.11691, submitted.
- [8] B. Shapiro, M. Tater, On spectral asymptotics of quasi-exactly solvable quartic potential, *Analysis and Mathematical Physics* (2022) 12 (2022), no. 1, Paper No. 2, <https://doi.org/10.1007/s13324-021-00612-2>.
- [9] R. Bøgvad, Ch. Hägg, B. Shapiro, Rodrigues’ descendants of a polynomial and Boutroux curves, arXiv:2107.05710, *Constr. Approx.*, to appear.
- [10] Ch. Hägg, B. Shapiro, and M. Shapiro, Introducing isodynamic points for binary forms and their ratios, in preparation.
- [11] D. Novikov, B. Shapiro, and G. Tahar, On limit sets for geodesics of meromorphic connections, *Journal of Dynamical and Control Systems*, DOI 10.1007/s10883-021-09584-9.
- [12] Y. Baryshnikov, B. Shapiro, Quadratic differentials and signed measures, *J. Anal. Math.* 144 (2021), no. 1, 1–19.
- [13] B. Shapiro, and G. Tahar, On the existence of quasi-Strebel structures for meromorphic k -differentials, *Enseign. Math.* 67 (2021), no. 1-2, 187–207.
- [14] R. Bøgvad, I. Ndikubwayo, B. Shapiro, Generalizing Tran’s conjecture, *Elect. J. of Math. Anal.*, Vol. 8(2) July 2020, pp. 346–351.
- [15] N. Saldanha, B. Shapiro, M. Shapiro, Grassmann convexity and multiplicative Sturm theory, revisited, *Moscow Math. J.*, Volume 21, Number 3, July–September 2021, Pages 613–637.
- [16] L. Lang, B. Shapiro, E. Shustin, On the number of intersection points of the contour of an amoeba with a line, *Indiana Univ. Math. J.*, Vol. 70, No. 4, 1335–1353 (2021).
- [17] Yu. Burman, R. Fröberg, B. Shapiro, Algebraic relations among harmonic and anti-harmonic moments of plane polygons, *IMRN* 2021, no. 14, 11140–11168.
- [18] Vl. Kostov, B. Shapiro, New aspects of Descartes’ rule of signs, in book “Polynomials - Theory and Applications”, DOI: 10.5772/intechopen.82040.
- [19] G. Katz, B. Shapiro, V. Welker, Real univariate polynomials with constrained multiplicities of real zeros, II. (Co)homology and stabilization, arXiv:2112.15205, submitted.
- [20] G. Katz, B. Shapiro, V. Welker, Real polynomials with constrained multiplicities of real zeros, I. Fundamental group, submitted.
- [21] K. Kohn, B. Shapiro, and B. Sturmfels, Moment varieties of measures on polytopes, *Annali della Scuola Normale Superiore di Pisa* 21 (2020) 739–770, DOI: 10.2422/2036-2145.201808-003.
- [22] T. Grøsfjeld, B. Shapiro, K. Zarembo, On level crossing in random matrix pencils. II. Random perturbation of a random matrix, *J. Phys. A* 52 (2019), no. 21 <https://doi.org/10.1088/1751-8121/ab1733>
- [23] E. Horozov, B. Shapiro, and M. Tater, In search of a higher Bochner theorem, arXiv:1807.01558, submitted.
- [24] N. Gravin, D. V. Pasechnik, B. Shapiro, M. Shapiro, On moments of a polytope, *Analysis and Math. Phys.*, 8(2), (2018) 255–287, DOI: 10.1007/s13324-018-0226-8.

- [25] R. Fröberg, S. Lundqvist, A. Oneto, and B. Shapiro, Algebraic stories from one and from the other pockets, *Arnold Mathematical Journal* 4(2), (2018), 137–160, <https://doi.org/10.1007/s40598-018-0088-z>.
- [26] S. Lundqvist, A. Oneto, B. Reznick, and B. Shapiro, On generic and maximal k-ranks of binary forms, *J. of Pure and Applied Algebra*, 223 (2019) 2062–2079, DOI: 10.1016/j.jpaa.2018.08.015.
- [27] D. Dimitrov, B. Shapiro, Electrostatic problems with a rational constraint and degenerate Lamé operators, *Potential Analysis*, 52(4), 645–659, DOI: 10.1007/s11118-018-9754-y.
- [28] Vl. Kostov, B. Shapiro, Polynomials, sign patterns, and Descartes’ rule, *Acta Universitatis Matthiae Belii series Mathematics*, Issue 2019, 1–11.
- [29] B. Shapiro, F. Štampach, Non-selfadjoint Toeplitz matrices whose principal submatrices have real spectrum, *Constr. Approx.* 49 (2019), no. 2, 191–226, <https://doi.org/10.1007/s00365-017-9408-0>.
- [30] G. Nenashev, B. Shapiro, M. Shapiro, Secant degeneracy index of the standard strata in the space of binary forms, *Arnold Mathematical Journal*, 3(4), (2018) 499–510, <https://doi.org/10.1007/s40598-017-0077-7>.
- [31] A. F. Costa, S. Natanzon, and B. Shapiro, Topological classification of generic real meromorphic functions, *Annales Academiae Scientiarum Fennicae Mathematica* (2018) 43 349–363.
- [32] B. Shapiro, M. Tater, On spectral asymptotics of quasi-exactly solvable sextic, *Exp. Math.* 28 (2019), no. 1, 16–23, <https://doi.org/10.1080/10586458.2017.1325792>.
- [33] J. Forsgård, D. Novikov, B. Shapiro, A tropical analog of Descartes’ rule of signs, *Int. Math. Res. Notices* (2017), issue 12, 3726–3750.
- [34] G. Nenashev, B. Shapiro, “K-theoretic” analogs of Postnikov-Shapiro algebra distinguishes graphs, *Journal of Combinatorial Theory, Series A* 148 (2017) 316–332.
- [35] Y. Burman, B. Shapiro, On Hurwitz-Severi numbers. *Ann. Sc. Norm. Super. Pisa Cl. Sci.* (5) 19 (2019), no. 1, 155–167. 14H50 (14H51), DOI Number: 10.2422/2036 – 2145.201605_011.
- [36] B. Shapiro, K. Zarembo, On level crossing in random matrix pencils. I. Random perturbation of a fixed matrix, *Journal of Physics A: Mathematical and Theoretical*, Volume 50(4).
- [37] B. Shapiro, A. Solynin, Root-counting measures of Jacobi polynomials and topological types and critical geodesics of related quadratic differentials, in “Analysis meets geometry: A Tribute to Mikael Passare, Trends in Mathematics”, 369–438, Springer 2017.
- [38] R. Bøgvad, B. Shapiro, On mother body measures with algebraic Cauchy transform, *L’Enseignement Math.*, vol. 62, (2016) 117–142. DOI 10.4171/LEM/62-1/2-8
- [39] P. Bränden, I. Krasikov, B. Shapiro, Elements of Pólya-Schur theory in finite-difference setting, *Proc. of the AMS*, vol. 144, issue 11 (2016) 4831–4843.
- [40] R. Fröberg, B. Shapiro, On Vandermonde varieties, *Mathematica Scandinavica*, vol. 119, (2016) 73–91.
- [41] D. Novikov, B. Shapiro, On global non-oscillation of linear ordinary differential equations with polynomial coefficients, *J. Differential Equations* vol 261, issue 7 (2016) 3800–3814, doi:10.1016/j.jde.2016.06.008.
- [42] J. Forsgård, Vl. Kostov, B. Shapiro, Could René Descartes have known this? *Experimental Mathematics*, vol 24, issue 4, (2015) 438–448.
- [43] B. Shapiro, Problems with polynomials - the good, the bad, and the ugly, *Arnold Mathematical Journal*: vol 1, issue 1 (2015), 91–99.
- [44] J. Ongaro, B. Shapiro, A note on planarity stratification of Hurwitz spaces, *Canadian Mathematical Bulletin* vol 58, issue 3 (2015) 596–609. <http://dx.doi.org/10.4153/CMB-2015-015-x>.
- [45] B. Shapiro, On Evgrafov-Fedoryuk’s theory and quadratic differentials, *Anal. Math. Phys.* vol 5 (2015) 171–181, DOI 10.1007/s13324-014-0092-y.
- [46] Y. Baryshnikov, B. Shapiro, How to run a centipede: a topological perspective, *Geometric Control Theory and Sub-Riemannian Geometry*, Springer International Publishing, (2014), 37–51.
- [47] P. Alexandersson, B. Shapiro, Around multivariate Schmidt-Spitzer theorem, *Lin. Algebra Appl.*, vol 446 (2014), 356–368.
- [48] D. Pasechnik, B. Shapiro, On polygonal measures with vanishing harmonic moments, *Journal d’Analyse mathématique*, vol 123, issue 1 (2014) 281–301.
- [49] V. Kostov, B. Shapiro, Hardy-Petrovich-Hutchinson’s problem and partial theta function, *Duke Math. J.* vol 162, issue 5 (2013) 889–924.
- [50] R. Fröberg, G. Ottaviani, and B. Shapiro, On the Waring problem for polynomial rings, *PNAS*, vol 109, issue 15 (2012), 5600–5602.
- [51] N. Saldanha, and B. Shapiro, Spaces of locally convex curves in S^n and combinatorics of the group B_{n+1}^+ , *J. of Singularities*, vol 4 (2012), 1–22.
- [52] B. Shapiro, M. Shapiro, A few riddles behind Rolle’s theorem, *Amer. Math. Monthly*, vol 119, issue 9 (2012) 787–793.

- [53] P. Alexandersson, B. Shapiro, Discriminants, symmetrized graph monomials, and sums of squares, *Experimental Math.* vol 21, issue 4 (2012), 353–361.
- [54] O. Katkova, B. Shapiro, and A. Vishnyakova, Multiplier sequences and logarithmic mesh, *Comptes Rendus Mathématique* vol 349, issue 1–2 (2011) 35–38.
- [55] A. Khoroshkin, B. Shapiro, Using homological duality in consecutive pattern avoidance, *Electr. J. Comb.*, vol 18, issue 2 (2011), #P9.
- [56] V. Kostov, B. Shapiro, and M. Tyaglov, Maximal univalent disks of real rational functions and Hermite-Biehler polynomials, *Proc. Amer. Math. Soc.* vol 139, issue 5 (2011) 1625–1635.
- [57] M. Passare, M. Rojas, and B. Shapiro, New multiplier sequences via discriminant amoebae, *Moscow Math. J.* vol 11, issue 3 (2011) 547–560.
- [58] J. Borcea, S. Friedland, and B. Shapiro, Parametric Poincaré-Perron theorem with applications, *Journal d’Analyse mathématique* vol 113, issue 1 (2011) 197–225.
- [59] B. Shapiro, K. Takemura, and M. Tater, On spectral polynomials of the Heun equation. II, *Comm. Math. Phys.* vol 311, issue 2 (2012), 277–300.
- [60] T. Holst, and B. Shapiro, On higher Heine-Stieltjes polynomials, *Isr. J. Math.* vol 183 (2011) 321–347.
- [61] B. Shapiro, and M. Tater, On spectral polynomials of the Heun equation. I, *JAT*, vol 162 (2010) 766–781.
- [62] B. Shapiro, Algebro-geometric aspects of Heine-Stieltjes theory, *J. London Math. Soc.* vol 83, issue 1 (2011) 36–56.
- [63] V. Kostov, A. Martínez-Finkelshtein, and B. Shapiro, Narayana numbers and Schur-Szegő composition, *JAT*, vol 161 (2009) 464–476.
- [64] A. Guterman, and B. Shapiro, On linear operators preserving the set of positive polynomials, *JFPTA*, vol 3, issue 2 (2009) 411–429.
- [65] B. Shapiro, and M. Shapiro, On eigenvalues of rectangular matrices, *Proc. Steklov Math. Inst.* vol. 267, issue 1 (2009) 248–255.
- [66] J. Borcea, R. Bøgvad and B. Shapiro, Homogenized spectral pencils for exactly solvable operators: asymptotics of polynomial eigenfunctions, *Publ. RIMS*, vol 45 (2009) 525–568. Corrigendum: “Homogenized spectral pencils for exactly solvable operators: asymptotics of polynomial eigenfunctions”, *Publ. RIMS*, vol 85 (2012) 229–233.
- [67] A. Gabrielov, A. Eremenko, and B. Shapiro, High energy eigenfunctions of one-dimensional Schrödinger operators with polynomial potentials, *Comput. Methods Funct. Theory*, vol 8, issue 2 (2008) 513–529.
- [68] J. Borcea, B. Shapiro, Root asymptotics of spectral polynomials for the Lamé operator, *Comm.Math.Phys.* vol 282 (2008) 323–337.
- [69] A. Gabrielov, A. Eremenko, and B. Shapiro, Zeros of eigenfunctions of some anharmonic oscillators, *Annales de l’institut Fourier*, vol 58, issue 2 (2008) 603–624.
- [70] M. Kazarian and B. Shapiro, A Giambelli-type formula for subbundles of the tangent bundle, *Pacific J. Math.* vol 230, issue 1 (2007) 233–255.
- [71] V. Kostov, and B. Shapiro, On the Schur-Szegő composition of polynomials, *C. R. Math. Acad. Sci. Paris* vol 343, issue 2 (2006) 81–86.
- [72] A. Degtyarev, T. Ekedahl, I. Itengberg, B. Shapiro, and M. Shapiro, On total reality of meromorphic functions, *Annales de l’institut Fourier*, vol 57, issue 6 (2007) 2015–2030.
- [73] T. Ekedahl, B. Shapiro, and M. Shapiro, First step towards total reality of meromorphic functions, *Mosc. Math. J.* vol 6, issue 1 (2006) 95–106.
- [74] Yu. Burman and B. Shapiro, Around matrix-tree theorem, *Math. Res. Lett.* vol 13, issue 5–6 (2006) 761–774.
- [75] J. Borcea, R. Bøgvad, and B. Shapiro, On rational approximation of algebraic functions, *Adv. Math.* vol 204, issue 2 (2006) 448–480.
- [76] A. Gabrielov, D. Novikov, and B. Shapiro, Mystery of point charges, *Proc. London Math. Soc.* (3) vol 95, issue 2 (2007) 443–472.
- [77] J. Borcea and B. Shapiro, Classifying real polynomial pencils, *Int. Math. Res. Not.* vol 69 (2004) 3689–3708.
- [78] J. Borcea and B. Shapiro, Hyperbolic polynomials and spectral order, *C. R. Math. Acad. Sci. Paris*, vol 337, issue 11 (2003) 693–698.
- [79] A. Postnikov and B. Shapiro, Trees, parking functions, syzygies, and deformations of monomial ideals, *Trans. Amer. Math. Soc.* vol 356, issue 8 (2004) 3109–3142.
- [80] V. Sedykh and B. Shapiro, On two conjectures concerning convex curves, *Internat. J. Math.* vol 16, issue 10 (2005) 1157–1173.
- [81] B. Shapiro, M. Shapiro and A. Vainshtein, Periodic de Bruijn triangles: exact and asymptotic results, *Discrete Math.* vol 298 issue 1–3 (2005) 321–333.
- [82] B. Shapiro, *Underground ” Jewish University”*, Multiple facets of quantization and supersymmetry, World Sci. Publishing, River Edge, NJ (2002) 36–39.

- [83] T. Bergkvist, H. Rullgård and B. Shapiro, On Bochner-Krall orthogonal polynomial systems, *Math. Scand.* vol 94, issue 1 (2004) 148–154.
- [84] B. Shapiro and A. Vainshtein, Counting real rational functions with all real critical values. Dedicated to V. I. Arnold on occasion of his 65th birthday, *Moscow Math. J.* vol 3, issue 2 (2003) 647–659.
- [85] S. Natanzon, B. Shapiro and A. Vainshtein, Topological classification of generic real rational functions, *J. Knot Theory Ramifications*, vol 11, issue 7 (2002) 1063–1075.
- [86] V. Kostov and B. Shapiro, On arrangements of roots for a real hyperbolic polynomial and its derivatives, *Bull. Sci. Math.* vol 126, issue 1 (2002) 45–60.
- [87] G. Måsson and B. Shapiro, On polynomial eigenfunctions of a hypergeometric-type operator, *Experiment. Math.* vol 10, issue 4 (2001) 609–618.
- [88] B. Shapiro and A. Vainshtein, On the number of connected components in the space of M -polynomials in hyperbolic functions, *Adv. in Appl. Math.* vol 30, issue 1-2 (2003) 273–282.
- [89] B. Shapiro, M. Shapiro, A. Vainshtein and A. Zelevinsky, Simply laced Coxeter groups and groups generated by symplectic transvections. Dedicated to W. Fulton on occasion of his 60th birthday, *Michigan Math. J.* vol 48 (2000) 531–551.
- [90] A. Postnikov, B. Shapiro, M. Shapiro, Algebras of Curvature Forms on Homogeneous Manifolds, *Differential topology, Infinite-dimensional Lie algebras and applications*, *Amer. Math. Soc. Transl. Ser 2*, vol 194, (2000) 227–235.
- [91] B. Shapiro, M. Shapiro, Projective convexity in \mathbb{P}^3 implies Grassmann convexity, *Internat. J. Math.* vol 11, issue 4 (2000) 579–588.
- [92] B. Khesin and B. Shapiro, Homotopy classification of non-degenerate quasi-periodic curves on the 2-sphere. *Geometric combinatorics (Kotor, 1998)*, *Publ. Inst. Math. (Beograd)*, (N.S) vol 66, issue 80 (1999) 127–156.
- [93] B. Shapiro, M. Shapiro and A. Vainshtein, Skew-symmetric vanishing lattices and intersection of Schubert cells, *Internat. Math. Res. Notices* no. 11, (1998) 563–588.
- [94] B. Shapiro, M. Shapiro, On ring generated by Chern 2-forms on $\mathbb{S}L_n/B$, *C. R. Acad. Sci. Paris Sér. I Math.* vol 326, issue 1 (1998) 75–80.
- [95] M. Kazarian, R. Montgomery and B. Shapiro, Characteristic classes for the degenerations of two-plane fields in four dimensions, *Pacific J. Math.* vol 179, issue 2 (1997) 355–370.
- [96] B. Shapiro, M. Shapiro and A. Vainshtein, On combinatorics and topology of pairwise Intersections of Schubert cells in $\mathbb{S}L_n/B$ (1997), *Arnold-Gelfand Mathematical Seminars*, Birkhäuser Boston, Boston, MA, 397–437.
- [97] B. Shapiro, ∂ -free maps satisfy the homotopy principle, *Indag. Math. (NS)* vol 9, issue 1 (1998) 107–111.
- [98] B. Shapiro, M. Shapiro and A. Vainshtein, Connected components in the intersection of two open opposite Schubert cells in $SL_n(R)/B$, *Internat. Math. Res. Notices*, no. 10, (1997) 469–493.
- [99] B. Shapiro, Discriminants of convex curves are homeomorphic, *Proc. Amer. Math. Soc.* vol 126, issue 7 (1998) 1923–1930.
- [100] B. Shapiro, On the number of connected components of the space of trigonometric polynomials of degree n with $2n$ distinct critical values (in Russian), *Mat. Zametki*, vol 62 (1997), 635–640. (English transl. in *Math. Notes* vol 62, issue 3–4 (1997) 529–534.
- [101] B. Shapiro and V. Welker, Combinatorics and topology of stratifications of the space of monic polynomials with real coefficients, *Result. Math.* vol 33, issue 3–4 (1998) 338–355.
- [102] V. Sedykh and B. Shapiro, On Young hulls of convex curves in \mathbb{R}^{2n} , *J. Geom.* vol 63, issue 1–2 (1998) 168–182.
- [103] B. Shapiro, Tree-like curves and their number of inflection points. *Differential and symplectic topology of knots and curves*, *Amer. Math. Soc. Transl. Ser. 2* vol 190 (1999), 113–129.
- [104] A. Gorodentsev and B. Shapiro, On associated discriminants for polynomials in one variable, *Beiträge Algebra Geom.* vol 39, issue 1 (1998) 53–74.
- [105] B. Shapiro, M. Shapiro and A. Vainshtein, Ramified coverings of S^2 with one degenerate branching point and enumeration of edge-ordered graphs, *Topics in singularity theory* *Amer. Math. Soc. Transl. Ser. 2*, vol 180 (1997) 219–227.
- [106] B. Shapiro, Normal forms of the Whitney umbrella with respect to a cone-preserving contact group (Russian), *Funktsional. Anal. i Prilozhen.* vol 31, issue 4 (1997), 635–640 (English transl. in *Funct. Anal. Applic.* vol 31, issue 2 (1997) 91–94.
- [107] B. Shapiro, M. Shapiro and A. Vainshtein, Kazhdan-Lusztig polynomials for certain varieties of incomplete flags. *Disc. Math.* vol 180 (1998) 345–355.
- [108] B. Shapiro, On singularities of smooth maps to a space with a fixed cone, *Math. Scand.* vol 77, issue 1 (1995) 19–44.
- [109] B. Shapiro, M. Shapiro, On the boundary of totally positive upper triangular matrices, *Linear Algebra Appl.* vol 231 (1995) 105–109.

- [110] B. Shapiro, M. Shapiro and A. Vainshtein, Topology of intersections of Schubert cells and Hecke algebra. *Discr. Math.* vol 153, issue 1-3 (1996) 305–318.
- [111] K. Jewell, P. Orlik and B. Shapiro, On the complements of affine subspace arrangements, *Topology Appl.* vol 56 (1994) 215–233.
- [112] B. Shapiro, The mixed Hodge structure of the complement to an arbitrary arrangement of affine complex hyperplanes is pure, *Proc. Amer. Math. Soc.* vol 117, issue 4 (1993), 931–934.
- [113] B. Khesin and B. Shapiro, Swallowtails and Whitney umbrellas are homeomorphic, *J. Algebraic Geom.* vol 1, issue 4 (1992) 549–560.
- [114] B. Khesin and B. Shapiro, Nondegenerate curves on S^2 and orbit classification of the Zamolodchikov algebra, *Comm. Math. Phys.* vol 145 (1992) 357–362
- [115] B. Shapiro and M. Shapiro, On the number of connected components in the space of closed non-degenerate curves on S^n , *Bull. Amer. Math. Soc. (N.S.)* vol 25, issue 1 (1991) 75–79.
- [116] B. Shapiro and M. Shapiro, The M-property of flag varieties, *Topology Appl.* vol 43, issue 1 (1992) 65–81.
- [117] B. Shapiro and A. Vainshtein, Euler characteristics for links of Schubert cells in the space of complete flags, *Adv. Sov. Math. Theory of singularities and its applications* vol 1 (1990), 273–286, AMS, Providence, RI.
- [118] B. Shapiro, Spaces of linear differential equations and flag manifolds. (Russian) *Izv. Akad. Nauk SSSR Ser. Mat.* vol 54, issue 1 (1990), 173–187 (English transl. in *Math. USSR - Izv.* vol 36, issue 1 (1991), 183–197.
- [119] V. Kostov and B. Shapiro, The flags in R^3 , transversal to a given set of flags, form an M -manifold. (Russian), *Vestnik Moskov. Univ. Ser. I Mat. Mekh.* vol. 44 , issue 5, (1989) 26–30. (English transl. in *Mosc. Univ. Math. Bull.* vol 44, issue 5 (1989), 31–36)
- [120] B. Shapiro, Linear differential equations and real flag manifolds. (Russian), *Funktsional. Anal. i Prilozhen.* vol 23, issue 1 (1989), 92–93. (English transl. in *Funct. Anal. Appl.* vol 23, issue 1 (1989), 82–83)
- [121] A. Vainshtein and B. Shapiro, Singularities of the boundary of a domain of hyperbolicity. (Russian), *Itogi Nauki i Tekhniki, Current problems in mathematics. Newest results*, 236, *Akad. Nauk SSSR, Vsesoyuz. Inst. Nauchn. i Tekhn. Inform., Moscow*, vol 33 (1988), 193–214 (English transl. in *J. Soviet Math.* vol 52, issue 4 (1990), 3326–3337)
- [122] A. Vainshtein and B. Shapiro, Multi-dimensional analogues of the Newton and Ivory theorems. (Russian), *Funktsional. Anal. i Prilozhen.* vol 19, issue 1 (1985), 20–24. (English transl. in *Functional Anal. Appl.* vol 19 (1985), 17–20)
- [123] A. Vainshtein, L. Reitblat, and B. Shapiro, Asymptotic behavior of the solution of difference equations of two variables. (Russian), *Differentsial' nye Uravneniya* vol. 20, issue 8 (1984), 1433–1437. (no English translation available, recorded on Mathscinet)
- [124] A. Vainshtein and B. Shapiro, Structure of a set of \bar{a} -representable numbers. (Russian), *Izv. Vyssh. Uchebn. Zaved. Mat.* (1980), issue 5, 8–11. (English transl. in *Soviet Math. (Izv. VUZ)* 1980.
- [125] B. Shapiro, An algorithm for construction of a chain covering of an undirected graph. (Russian), *Moskov. Inst. Inzh. Zheleznodorozh. Transporta Trudy, Prikl. Mat. i Zadachi Zheleznodorozh. Transporta*, vol. 640 (1979), 138–142, (no English translation available, recorded on Mathscinet).

MISCELLANEA, CONFERENCE PROCEEDINGS, PREPRINTS ETC

- [126] B. Shapiro, A. Vaintrob, On algebras and matroids associated to undirected graphs, arXiv:2005.06160
- [127] R. Bøgvad, D. Khavinson, B. Shapiro, On asymptotic Gauss-Lucas theorem, arXiv:1510.02339v1.
- [128] B. Shapiro, M. Tater, Polynomial solutions of the Heun equation, *Acta Polytechnica*, vol 51(4), (2011) 90–94.
- [129] B. Shapiro, M. Shapiro, Linear ordinary differential equations and Schubert calculus, *Proc. of the 17-th Gökova Geometry and Topology conference*, 2010, 79–87.
- [130] B. Shapiro, Root asymptotics for the eigenfunctions of univariate differential operators, *Acta Polytechnica*, vol 50(5) (2010) 77–83.
- [131] B. Shapiro, and M. Tater, Asymptotics of spectral polynomials, *Acta Polytechnica* vol 47(2-3) (2007) 32–35.
- [132] B. Shapiro and A. Vainshtein, The Maslov index for a quadruple of Lagrangian planes and the index of a two-folded closed trajectory of the Birkhoff billiards in \mathbb{R}^{n+1} . (Russian), *Proc. 13th USSR Sem. on Operator Theory in Functional Spaces*, Kuřbyshev (1988), 39 (no English translation available).

- [133] B. Shapiro, M. Shapiro and A. Vainshtein, Generalized Lyashko–Looijenga map, ramified coverings of the sphere, and enumeration of edge-labeled k -trees, Proc. 8th Intl. Conf. on Formal Power Series and Algebr. Combinatorics, (1996), 421–426.
- [134] B. Shapiro, M. Shapiro and A. Vainshtein, Magic of Entringer numbers and Olivier functions, Proc. 14th Intl. Conf. on Formal Power Series and Algebr. Combinatorics, (2002), 211–219.
- [135] B. Shapiro and A. Vainshtein, About the Newtonian attraction of ellipsoids. (Russian) Kvant, issue 5 (1990), 18–25 (no English translation available and no record on Mathscinet)
- [136] B. Shapiro, The boundary of disconjugate domain for linear Hamiltonian systems. (Russian), Uspekhi Mat. Nauk, vol 43, issue 4 (1988), 170–171 (no English translation available and no record on Mathscinet)
- [137] A. Vainshtein and B. Shapiro, Singularities of hyperbolic polynomials and the boundary of a domain of hyperbolicity. (Russian), Uspekhi Mat. Nauk vol 40, issue 5 (1985), 305.
- [138] A. Guterman and B. Shapiro, A note on positivity preservers, preprint available from my homepage.
- [139] J-E.Björk, J.Borcea and B. Shapiro, Hypergeometric-type integrals and Fuchsian differential operators, preprint available from my homepage.

MORE RESEARCH IN PROGRESS

- [140] D. Novikov, B. Shapiro, Counting real zeros of exponential sums, in preparation.
- [141] G. Nenashev, A. Postnikov, B. Shapiro, M. Shapiro, Algebras generated by curvature forms on $\mathbb{S}L_n/P$ and Schubert calculus, in preparation.
- [142] Y. Burman, B. Shapiro, Inertia minimizers in the inverse moment problem in logarithmic potential theory, in preparation.
- [143] T. Grøsfjeld, B. Shapiro, K. Zarembo, On level crossing in random matrix pencils. III. Analogs of Wigner’s and Girko’s laws, in preparation.
- [144] B. Shapiro, Variation on a theme of Kac-Murdock-Szegö and Kuijlaars-van Assche-Tilli. Probabilistic approach, in preparation.