

LIST OF PUBLICATIONS

Y. Yomdin

1. The Euler characteristic of the intersection of a complex surface with a disk, *Sib. Math. Z.*, 14 (1973), 322-336.
2. Certain properties of an isolated singularity of real polynomial mapping, *Mat. Zametki* 13 (1973), 565-572.
3. Computation of the relative local monodromy for singularities of complex hypersurfaces, *Funkz. Anal. i Priloz.* 9 (1974), no. 1, 67-68.
4. Local topological properties of complex algebraic sets, *Sib. Math. Z.*, 15 (1974), 784-805.
5. Complex surfaces with a one-dimensional set of singularities, *Sib. Math. Z.*, 15 (1974), 1061-1082.
6. Euler characteirstic of Boardman strata and the Milnor number of an isolated singularity of a complete intersection, *Funkz. Anal. i Priloz.* 10 (1976), no. 3, 80-81.
7. Some estimates for a decomposition of hypersurface singularities into the simplest ones, *Isr. J. Math.*, 36, (1980), no. 2, 126-132.
8. Applications of a generalized differential of Lipschitzian functions in some results of Singularity Theory, I and II, Preprints, Beer-Sheva, 1980.
9. On the local structure of a generic central set, *Compositio Math.* 43 (1981), no. 2, 225-238.
10. (With A. Shapiro) On Functions, representable as a difference of two convex functions, and necessary conditions in a constrained optimization, Preprint, Beer-Sheva, 1981.
11. Sufficiency of jets for Lipschitzian functions, Preprint, Beer-Sheva, 1981.
12. Some results of Singularity Theory for lipschitzian functions, Preprint, Beer-Sheva, 1982.
13. The structure of a critical set of a complete intersection singularity, *Proc. A.M.S.* 84, (1982), no. 3, 383-388.
14. Some results on finite determinacy and stability, not requiring the explicit use of smoothness, in: *Singularities, Part 2* (Arcata, Calif., 1981), *Proc. Symp. Pure Math.*, 40, A.M.S. Providence, RI, (1983), 667-674.

15. The structure of strata $\mu = \text{const}$ in a critical set of a complete intersection singularity", in: Singularities, Part 2 (Arcata, Calif., 1981), Proc. Symp. Pure Math., 40, A.M.S. Providence, RI, (1983), 663-665.
16. The geometry of critical and near-critical values of differentiable mappings, Math. Ann. 264 (1983), 495--515.
17. On functions representable as a supremum of smooth functions, SIAM J. on Math. Analysis 14, 2 (1983), 239--246.
18. Beta-spread of sets in metric spaces and critical values of smooth functions, Preprint, MPI Bonn, (1983).
19. On representability of convex functions as maxima of linear families, Preprint, MPI Bonn, (1983).
20. Maxima of smooth families, III: Morse-Sard Theorem, Preprint, MPI Bonn, (1984).
21. The set of zeroes of an "almost polynomial" function, Proceedings of the AMS, 90, N4 (1984), 538--542.
22. Global bounds for Betti numbers of regular fibers of differentiable mappings, Topology 24, 2 (1985), 145--152.
23. Quantitative version of the Kupka-Smale Theorem, Ergodic Theory and Dynamical Systems 5, 3 (1985), 440--472.
24. Critical values and representations of functions by means of compositions, SIAM J. on Math. Analysis 17, 1 (1986), 236--239.
25. On functions representable as a supremum of a family of smooth functions, II, SIAM J. on Math. Analysis 17 (1986), 961--969.
26. Metric properties of semialgebraic sets and mappings and their applications in smooth analysis, Proceedings of the Second International Conference on Algebraic Geometry, La Rabida, Spain, 1984, J.M. Aroca, T. Sahcez-Geralda, J.L. Vicente, eds., Travaux en Course, Hermann, Paris 1987, 165--183.
27. Volume growth and entropy, Israel J. Math. 57, 3 (1987), 285--300.
28. C^k resolution of semialgebraic mappings, Israel J. Math. 57, 3 (1987), 301--317.
29. Metric semialgebraic geometry with applications in smooth analysis, Preprint, 1987.

- 30 (With A. Tannenbaum) Robotic manipulators and the geometry of real semialgebraic sets, *IEEE Trans. on Robotics and Automation* 3, 4 (1987), 301--307.
31. Approximational complexity of functions, *GAFSA Proceedings, LNM 1317* (1988), 21--43.
32. (With T. Shamir) Repeatability of redundant manipulators: mathematical solution of the problem, *IEEE Trans. on Automatic Control, AC-33, No. 11*, (1988), 1004--1009.
33. Complexity of functions and entropy, *Dyn. Systems, J.C. Alexander (ed.), LNM 1342* (1988), 706--717.
34. Nonautonomous linearization, *Dyn. Systems, J.C. Alexander (ed.), LNM 1342* (1988), 718--726.
35. (With Y. Kifer) Volume growth and topological entropy for random transformations, *Dyn. Systems, J.C. Alexander (ed.), LNM 1342* (1988), 361--373.
36. (With Y. Elihai) Flexible high-order discretization, Preprint, 1989.
37. (With Y. Elihai) Global motion planning algorithm, based on a high order discretization and on hierarchies of singularities, *Proc. 28th CDC, Tampa, Florida, 1989*, 1173--1174.
38. (With M. Briskin) Vertices of reachable sets in nonlinear control problems, *Proc. 29th CDC, Honolulu, Hawaii, Dec. 1990*, 2815--2816.
39. Sard's theorem and its improved versions in numerical analysis, *Proc. A.M.S. Conf., Colorado, 1988. Lectures in Applied Math. 29* (1990), 701--706.
40. Surjective mappings whose differential is nowhere surjective, *Proc. A.M.S., Vol. 111, No. 1*(1991), 267--270.
41. Complexity of functions: some questions, conjectures and results, *J. of Complexity* 7, (1991), 70--96.
42. (With E. Kochavi and R. Segev) Numerical solution of field problems by nonconforming Taylor discretization, *Appl. Math. Modelling*, 15 (1991), 152--157.
43. Local complexity growth for iterations of real analytic mappings and semi-continuity moduli of the entropy, *Erg. Theory and Dynamical Systems* 11 (1991), 583--602.
44. (With M. Briskin) Critical and near-critical values in polynomial control problems, I: One-dimensional case, *Israel J. Math.* 78 (1992), 257--280.

45. (With M. Briskin) Extremal and near-extremal trajectories of rank zero in nonlinear control problems, in: *Optimization and Nonlinear Analysis*", A. Ioffe, M. Marcus and S. Reich (eds.), Pitman Research Notes in Mathematics, Series 244, 1992, 53--63.
46. (With M. Briskin) Semialgebraic geometry of polynomial control problems, in: *Computational Algebraic Geometry*, F. Eyssette, A. Galligo (eds), Birkha\user, 1993, 21--28.
47. (With Y. Elihai) Normal forms representation: A technology for image compression, *SPIE Vol.1903, Image and Video Processing*, 1993, 204--214.
48. (With E. Kochavi and R. Segev) Modified algorithms for nonconforming Taylor discretization, *Computers and Structures* 49, 6 (1993), 969--979.
49. (With E. Bichuch): ``High order Taylor discretization for numerical solution of parabolic PDE's", preprint, 1995.
50. (With Y. Elihai): ``Flexible high order discretization of geometric data for global motion planning", *Theoretical Computer Science A Vol. 157*, Elsevier Science B.V., (1996), 53-77.
51. (With N. Roytvarf) Bernstein Classes, *Annales De l'Institut Fourier*, **47** (1997), 3, 825-858.
52. (With J.-P. Francoise) Bernstein inequality and applications to differential equations and analytic geometry, *J. of Functional Analysis*, Vol. 146, No. 1, 1997, 185-205.
53. Oscillation of analytic curves, *Proceedings of the AMS*, **Vol. 126**, No. 2, 1998, 357-364.
54. (With M. Briskin) Algebraic families of analytic functions, I, *J. of Diff. Equations*, Vol. 136, No 2, 1997, 248-267.
55. (With M. Briskin and J.-P. Francoise) The Bautin ideal of an integrating factor of the polynomial Abel equation", *Nonlinearity*, 11, 1998, 431-443.
56. (With M. Briskin and J.-P. Francoise): Une approach au probleme de centre-foyer de Poincar\`e, *C.R.A.S., Ser. I Math.*, 326 (1998), no. 11, 1295-1298.
57. (With J.-P. Francoise) Projection of analytic sets and Bernstein inequalities, in "Singularities Symposium - Lojasiewicz 70", B. Jakubczyk, W. Pawlucki and J. Stasica (eds.), Banach Center Publications, **Vol. 44**, Warszawa 1998, 103-108.
58. Quantitative Singularity theory, A summary of a course given at the Eur. Math. Union Summer School, Cluj, Romania, 1998, preprint.

59. (With M. Blinov): "Generalized Center conditions and multiplicities for the polynomial Abel equations of small degrees, *Nonlinearity*, 12 (1999), no. 4, 1013-1028.
60. Global finiteness properties of analytic families and algebra of their Taylor coefficients, *Proceedings of the Arnoldfest, Toronto, Fields Inst. Commun.*, **24**, AMS, Providence, RI, (1999), 527-555.
61. Infinitesimal Center-Focus Problem, Generalized Moments and Delay Differential equations, *Funct. Differ. Equ.* 6, (1999), no. 1-2, 215-220.
62. (With M. Briskin and J.-P. Francoise) Center conditions, composition of polynomials and moments on algebraic curves, *Erg. Theory and Dyn. Systems*, 19 (1999), 1201-1220.
63. (With M. Briskin and J.-P. Francoise) Center conditions II: Parametric and model center problems, *Isr. J. of Math.*, **118** (2000), 61-82.
64. (With Z. Wiener) From formal numerical solutions of elliptic PDE's to the true ones, *Mathematics of Computations*, **69** (2000), no. 229, 197-235.
65. (With M. Briskin and J.-P. Francoise) Center conditions III: More on parametric and model center problems, *Isr. J. of Math.*, **118** (2000), 83-108.
66. (With M. Briskin and Y. Elichai) How can Singularity theory help in Image processing, in "Pattern Formation in Biology, Vision and Dynamix", M. Gromov, A. Carbone, Editors, World Scientific (2000), 392-423.
67. (With M. Briskin and J.-P. Francoise) Generalized moments, Center-Focus conditions and compositions of polynomials, in: "Operator theory, System theory and related topics (Proceedings of M.S. Livsic conference, Beer-Sheva-Rehovot, 1997)", *Oper. Theory Adv. Appl.*, 123, Birkhauser, Basel (2001), 161-185.
68. (With A. Grigoriev) Rotation rate of a trajectory of an algebraic vector field around an algebraic curve, *Qual. Theory of Dyn. Sys.*, **2**, No. 1, 2001, 61-66.
69. (With M. Blinov) Center and composition conditions for Abel differential equations, and rational curves, *Qual. Theory of Dyn. Sys.*, **2**, No. 1, 2001, 111 -128.
70. Center problem for Abel equation, composition of functions and moment conditions, with the Addendum by F. Pakovich, "Polynomial moment problem", *Mosc. Math. J.*, 3, No. 3, 2003, 1167-1195.
71. Geometry of Images, ICTP Lectures, August 2003.
72. (with M. Blinov and N. Roytvarf) Center and Moment conditions for Abel equation with rational coefficients, *Funct. Diff. Equations*, **10** (2003), No. 1-2, 95-106.

73. (with F. Pakovich and N. Roytvarf) Cauchy type integrals of Algebraic functions, *Israel J. of Math.*, **144** (2004), 221-291.
74. (with M. Blinov and M. Briskin) Local center conditions for the polynomial Abel equation and the cyclicity of its zero solution, *Complex Analysis and Dynamical Systems II*, *Contemp. Math.*, **382**, Amer. Math. Society, Providence, RI, 2005, pp. 65-82.
75. (with M. Briskin) Tangential Hilbert problem for Abel equation, *Mosc. Math. J.* **5** (2005), no. 1, 23-53.
76. Semialgebraic Complexity of Functions, *J. of Complexity*, **21** (2005), 111-148.
77. (with N. Roytvarf) Analytic Continuation of Cauchy Type Integrals, *Funct. Diff. Equations*, **12** (2005), No. 1-2, 233-247.
78. Some quantitative results in Singularity Theory, *Ann. Polon. Math.* **87** (2005), 277-299.
□
79. (with Rubín, Matatyahu), Reconstruction of manifolds and subsets of normed spaces from subgroups of their homeomorphism groups. *Dissertationes Math. (Rozprawy Mat.)* **435** (2005), 246 pp.
80. Analytic reparametrization of semialgebraic sets, *J. of Complexity*, **24**, 1 (2008), 54-76.
81. Generic Singularities of Surfaces, in *Singularity Theory*, Dedicated to J-P Brasselet on his 60-th birthday, Proceedings of the 2005 Marseille Singularity School and Conference, Marseille, France, 24.1-25.2, 2005. D. Cheniot, N. Dutertre, C. Murolo, D. Trotman and A. Pichon, Editors. *World Scientific*, 2007, 357-376.
82. (with M. Briskin and N. Roytvarf) Center conditions at infinity, to appear in *Annals of Mathematics*.
83. (with B. Ettinger, N. Sarig) Linear versus non-linear acquisition of step-functions, *Journal of Geometric Analysis*, **18** (2008), 2, 369-399.
84. (with D. Haviv) Uniform approximation of near-singular surfaces, *Theoretical Computer Science* **392**, 1-3 (2008), 92-100.
85. (with J.-P. Francoise and N. Roytvarf) Analytic continuation and fixed points of the Poincare mapping for a polynomial Abel equation, *JEMS*, Vol. 10, 2 (2008), 543-570.
86. (with G. Comte) Rotation of trajectories of Lipschitz vector fields, □
J. Differential Geom. **81** (2009), no. 3, 601--630.
87. (with G. Zahavi) Taylor discretization for Evolution Equations, preprint.

88. (with G. Zahavi) High-Order processing of Singular Data, *Non-Commutativity and Singularities*, Proceedings of French-Japanese symposia held at IHES, 2006. Edited by J.-P. Bourguignon, M. Kotani, Y. Maeda and N. Tose. **Advanced Studies in Pure Mathematics** **55**, *Math. Soc. of Japan*, Tokyo, 2009, 173-207.
89. (with N. Sarig) Signal Acquisition from Measurements via Non-Linear Models, *C. R. Math. Rep. Acad. Sci. Canada* Vol. 29 (4) (2007), 97-114.
90. Beta-Spread of sets in metric spaces and critical values of smooth functions, *Operator Theory: Advances and Applications*, **197** (2009), 375-389.
91. Zero Sets of Functions and their Piecewise-Polynomial Approximations, submitted.
92. Discrete Remez inequality, submitted.
93. (with D. Batenkov, N. Sarig), An “algebraic” reconstruction of piecewise-smooth functions, to appear in *SAMPTA proceedings*, 2009.
94. Singularities in Algebraic Data Acquisition, to appear.
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BOOKS

95. (with G. Comte) Tame Geometry with Application in Smooth Analysis, *Lecture Notes in Mathematics*, **Vol. 1834**, viii + 186 pp., Springer-Verlag, Berlin Heidelberg New-York, 2004.