

DANY LEVIATAN

Born February 21, 1942 in Jerusalem, ISRAEL.

Marital Status: Married, three children.

Education.

B.Sc.	1959-1962	Hebrew University, Jerusalem
M.Sc.	1962-1963	Hebrew University, Jerusalem
Ph.D.	1964-1966	Hebrew University, Jerusalem

Academic Experience:

1963-1965	Teaching Assistant, Hebrew University, Jerusalem, Israel.
1964-1966	Mathematician, Israel Air Force.
1965-1966	Instructor, Tel-Aviv University, Israel.
1966-1967	Lecturer, Tel-Aviv University, Israel.
1967-1969	Visiting Assistant Professor, University of Illinois at Champaign-Urbana – Fulbright scholar.
1969-1970	Visiting Associate Professor, University of Illinois at Champaign-Urbana, IL.
1970-1972	Senior Lecturer, Tel-Aviv University, Israel.
1972-1976	Associate Professor, Tel-Aviv University, Israel.
1972-1974	Head Department of Mathematics, Tel-Aviv University, Israel.
Fall 1973	Research Associate, York University, Toronto, Canada.
1974-1975	Visiting Professor, University of New South Wales, Australia.
1976-	Professor, Tel-Aviv University, Israel.
1976-1980	Dean of Faculty of Exact Sciences, Tel-Aviv University, Israel.
Summer 1978	Visiting Professor, Universität Stuttgart, Germany – DAAD grant.
Fall 1979	Visiting Professor, University of California, Riverside CA.
1980-1981	Visiting Professor, California Institute of Technology, Pasadena CA.
1981-1982	Visiting Professor, University of Connecticut, Storrs CT.
1982-1985	Head, School of Mathematics, Tel-Aviv University.
Summer 1983	Visiting Professor, Universität Würzburg Germany – DAAD grant.
1984-todate	Incumbant, Dr. Irene Halmos Chair in Approximation Theory.

Summer 1985	Visiting Professor, Università di Firenze, Italy.
1985-1986	Visiting Professor, University of Texas at Austin TX.
Summer 1987	Visiting Scholar, University of Alberta, Edmonton AB, Canada.
Summer 1988	Visiting Professor, Universidade Campinas, SP Brazil – FAPESP grant.
1991-	Editor, Journal of Approximation Theory.
Summer 1991	Visiting Scholar, University of Alberta, Edmonton AB, Canada.
Fall 1991	Visiting Professor, University of California at Riverside CA.
Winter 1992	Visiting Professor, University of South Carolina, Columbia SC.
Summer 1992	Visiting Professor, University of the Witwatersrand, Johannesburg, South Africa.
Summer 1993	Visiting Professor, INSA, Rennes, France.
1994-	Editor, Serdica Mathematical Journal.
1995-1996	Visiting Research Professor, University of South Carolina, Columbia SC.
Summer 1998	Visiting Scholar, University of Alberta, Edmonton AB, Canada.
1999-	Editor, Scientiae Mathematicae.
Fall 2000	Visiting Research Professor, University of South Carolina, Columbia SC.

Books.

Approximation Interpolation and Summability, S. Baron and D. Leviatan Eds, Israel Mathematical Conference Proceedings 4(1991),pp. 1- 284.

Multivariate Approximation and Applications, N. Dyn, D. Leviatan, D. Levin and A. Pinkus Eds, Cambridge University Press (to appear).

List of Publications.

1. "A generalized moment problem of self-adjoint operators", Israel J. Math. **4** (1966), 113-118.
2. "Generalized Bernstein polynomials" (with A. Jakimovski), Math. Z. **93** (1966), 416-426.
3. "On Hausdorff and related moment problems" (with A. Jakimovski and M. S. Ramanujan), Publ. Math., Debrecen **13** (1966), 17-23.
4. "A generalized moment problem", Israel J. Math. **5** (1967), 97-103.
5. "Generalized Bernstein power-series" (with A. Jakimovski), Math. Z. **96** (1967), 333-342.
6. "A property of approximation operators and applications to Tauberian constants" (with A. Jakimovski), Math. Z. **102** (1967), 177-204.
7. "Tauberian constants for generalized Hausdorff transformations", J. London Math. Soc. **43** (1968), 308-314.
8. "Some moment problems in a finite interval", Canadian J. Math. **20** (1968), 960-966.
9. "Moment problems and quasi-Hausdorff transformations", Canadian Math. Bull. **11** (1968), 225-236.
10. "On approximation operators of the Bernstein type", J. Approx. Theory **1** (1968), 275-278.
11. "Completeness and approximation operators" (with A. Jakimovski), Publ. Ramanujan Institute No. **1** (1969), 123-129.
12. "On the representation of functions as Laplace integrals", J. London Math. Soc. **44** (1969), 88-92.
13. "On moment sequences of operators", Illinois J. Math. **13** (1969), 249-255.
14. "Some Tauberian theorems for quasi-Hausdorff transforms", Math. Z. **108** (1969), 213-222.
15. "On a representation theorem and application to moment sequences in locally convex spaces", Math. Ann. **182** (1969), 251-262.
16. "Tauberian theorems concerning (S^*, μ) transformations", Tôhoku Math. J. **21** (1969), 389-405.

17. "A characterization of totally regular $[J, f(x)]$ transformations" (with L. Lorch), Proc. Amer. Math. Soc. **23** (1969), 315-319.
18. "Generalized Szász operators for the approximation in the infinite interval" (with A. Jakimovski), Mathematica (Cluj) **11** (34) (1969), 97-103.
19. "On the remainder in the approximation of functions by Bernstein-type Operators", J. Approx. Theory **2** (1969), 400-409.
20. "Some applications of the Gamma-operators" (with M. Müller), Archiv der Math. **20** (1969), 638-647.
21. "Tauberian estimates for the differences of Hausdorff and of quasi-Hausdorff transforms", J. London Math. Soc. (2) **2** (1970), 1-13.
22. "Gibbs phenomenon and Lebesgue constants for regular $[J, f(x)]$ means" (with L. Lorch), Acta Math. Hungarica **21** (1970), 64-85.
23. "Moment problems with functions in some köthe spaces", J. Math. Analysis and Appl. **30** (1970), 295-307.
24. "Absolute Tauberian conditions for absolute Hausdorff and quasi-Hausdorff methods", Israel J. Math. **8** (1970), 138-146.
25. "The L^p moment problems for operators in Banach spaces" (with M. S. Ramanujan), Indiana Univ. Math. J. **20** (1970), 97-106.
26. "A new approach to representation theory for convolution transforms", Pacific J. Math. **35** (1970), 441-449.
27. "An application of a convolution transform to the sequence to function analogues of Hausdorff transformations", J. d'Analyse Math. **24** (1971), 173-189.
28. "A generalization of the Mean Ergodic Theorem" (with M. S. Ramanujan), Studia Math. **39** (1971), 113-117.
29. "Remarks on some Tauberian theorems of Meyer-König, Tietz and Stieglits", Proc. Amer. Math. Soc. **29** (1971), 126-132.
30. "On the connectedness of the sets of limit points of certain transforms of bounded sequences" (with L. Lorch), Canadian Math. Bull. **14** (1971), 175-181.
31. "A representation theorem and approximation operators arising from inequalities involving differential operators", Trans. Amer. Math. Soc. **168** (1972), 85-99.
32. "On Gamma-type approximation Operators", Math. Z. **124** (1972), 208-212.
33. "On the representation of the remainder in the variation-diminishing spline approximation", J. Approx. Theory **7** (1973), 63-70.
34. "Generalized polynomial approximation" (with J. Bak, D. J. Newman and J. Tzimbarario), Israel J. Math. **15** (1973), 337-349.
35. "Some vector valued Laplace transforms", Israel J. Math. **16** (1973), 73-86.

36. "Representation of functions related to generalized completely monotonic functions", J. London Math. Soc. (2) **7** (1973), 407-416.
37. "Saturation and the mean ergodic theorem" (with U. Westphal), Mathematica (Cluj) **15** (38) (1973), 83-88.
38. "On the Jackson Müntz theorem", J. Approx. Theory **10** (1974), 1-5.
39. "Saturation theorems related to the mean ergodic theorem", Indiana Univ. Math. J. **24** (1974), 86-91.
40. "Remarks on some representation theorems for convolution transforms", Rendiconti Accademia Nazionale dei Lincei **54** (1974), 382-386.
41. "The Müntz-Jackson approximation theorem", ISNM **25** Birkhäuser (1974), 353-361.
42. "On restricted best approximation to functions with restricted derivatives" (with E. Kimchi), SIAM J. on Numer. Analysis **13** (1976), 51-53.
43. "Approximation by polynomials with restricted coefficients", Approx. Theory, II, Proc. Conference on Approx. Theory, Austin, Texas 1976, G.G. Lorentz, C.K. Chui and L.L. Schumaker, Eds., Academic Press (1976), 417-422.
44. "A representation theorem for convolution transform with determining function in L^p " (with Ch. Danon), Pacific J. Math. **62** (1976), 81-86.
45. "On the rate of approximation by polynomials with complex exponents", J. London Math. Soc. (2) **15** (1977), 305-318.
46. "The rate of approximation of functions by means of polynomials with restricted coefficients" (with J. Bak and M. v. Golitschek), Israel J. Math. **26** (1977), 265-275.
47. "Permissible bounds on the coefficients of approximating polynomials with real or complex exponents" (with M. v. Golitschek), J. Math. Analysis and Appl. **60** (1977), 123-138.
48. "On the rate of approximation by generalized polynomials with restricted coefficients", Approx. Theory III, Proc. Conference on Approx. Theory, Austin, Texas 1980. E.W. Cheney, ed., Academic Press (1980), 583-588.
49. "On the rate of approximation by Müntz polynomials satisfying constraints", Proc. Conference on Operator Theory and Approx., Oberwolfach 1980, ISNM **60** (1981), 365-370.
50. "The rate of monotone spline approximation in the L_p norm" (with H. N. Mhaskar), SIAM J. Math. Anal. **13** (1982), 866-874.
51. "The behaviour of the derivatives of the algebraic polynomials of best approximation," J. Approx. Theory **35** (1982), 169-176.

52. "Comonotone approximation by splines of piecewise monotone functions" (with H. N. Mhaskar), *J. Approx. Theory* **35** (1982), 364-369.
53. "On comonotone approximation" (with R. K. Beatson), *Canadian Math. Bull.* **26** (1983), 220-224.
54. "The degree of comonotone approximation of differentiable functions", *Proc. 2nd Edmonton Conference on Approximation Theory 1982*, *Canadian Math. Soc. Conf. Proc.* **3** (1983), 239-249.
55. "The degree of copositive approximation by polynomials", *Proc. Amer. Math. Soc.* **88** (1983), 101-105.
56. "Degree of copositive approximation", *Approx. Theory IV*, *Proc. International Symposium on Approx. Theory*, College Station, Texas 1983, C.K. Chui, L.L. Schumaker and J.C. Ward, Eds., Academic Press (1983), 587-592.
57. "Pointwise estimates for convex polynomial approximation", *Proc. Amer. Math. Soc.* **98** (1986), 471-474.
58. "New estimates on the rate of shape preserving approximation", *Approx. Theory V* (1986), 423-426.
59. "Monotone and comonotone polynomial approximation revisited", *J. Approx. Theory* **53** (1988), 1-16.
60. "Monotone polynomial approximation in L^p ", *Rocky Mountain Math J.* **19** (1989), 231-241.
61. "On approximation in the L^p -norm by reciprocals of polynomials" (with A. L. Levin and E. B. Saff), *J. Approx. Theory* **75** (1989), 322-331.
62. "Polynomials with restricted coefficients", *Approximation Theory VI* (1989), 387-390.
63. "Approximation in the L^p -norm by reciprocals of trigonometric and algebraic polynomials" (with R. A. DeVore and X. M. Yu), *Canadian J. Math.* **33** (1990), 460-469.
64. "Improved estimates in Müntz-Jackson theorems", *Progress in Approx. Theory* (1991), 575-582.
65. "Degree of approximation by polynomials with restricted coefficients", *Progress in Approx. Theory* (1991), 567-573.
66. "Shape preserving approximation by polynomials in L^p " (with X. M. Yu), preprint.
67. "Professor Amnon Jakimovski- on his sixty fifth birthday" (with S. Baron), *Approximation Interpolation and Summability*, S. Baron and D. Leviatan Eds, *Israel Mathematical Conference Proceedings* **4** (1991), 1-24.
68. "Polynomial approximation in L_p ($0 < p < 1$)" (with R. A. DeVore and X. M. Yu), *Constructive Approx.* **8** (1992), 187-201.

69. "Shape preserving polynomial approximation in $C[0, 1]$ " (with Z. Ditzian and D. Jiang), Proc. Cambridge Phil. Soc. **112** (1992), 309-316.
70. "Copositive polynomial approximation in $C[0, 1]$ " (with Y. K. Hu and X. M. Yu), J. of Analysis **1** (1993), 85-90.
71. "Convex polynomial approximation in L_p ($0 < p < 1$)" (with R. A. DeVore), J. Approx. Theory **75** (1993), 79-84.
72. "Simultaneous polynomial approximation" (with Z. Ditzian and D. Jiang), SIAM J. Math. Anal. **24** (1993), 1652-1661.
73. "Compression and nonlinear n -widths" (with R. A. DeVore, G. Kyriazis and V. M. Tikhomirov), J. Advances in Computational Mathematics **1** (1993), 197-214.
74. "Inverse theorems for best polynomial approximation in L_p $0 < p < 1$ " (with Z. Ditzian and D. Jiang), Proc. Amer. Math. Soc. **120** (1994), 151-155.
75. "Convex polynomial and spline approximation in $C[-1, 1]$ " (with Y. K. Hu and X. M. Yu), Constructive Approx. **10** (1994), 31-64.
76. "Degree of approximation by rational functions with prescribed numerator degree" (with D. S. Lubinsky), Canadian J. Math. **46** (1994), 619-633.
77. "Copositive polynomial and spline approximation" (with Y. K. Hu and X. M. Yu), J. Approx. Theory **80** (1995), 204-218.
78. "Shape preserving approximation in L_p " (with V. Operstein) Constr. Approx. **11** (1995), 299-319.
79. "Rational Müntz approximation" (with M. v. Golitschek) Annals of Numer. Math. **2** (1995), 425-438.
80. "Counter examples in convex and higher order constrained approximation" (with I. A. Shevchuk) East J. on Approx. **1** (1995), 391-398.
81. "Recent developments in shape preserving approximation" in Approximation Theory, Proc. IDoMAT 1995, M. W. Müller, M. Felten and D. H. Mache Eds, Akademie Verlag, Math. Research **86** (1995), 189-200.
82. "Convex polynomial and spline approximation in $L_p[-1, 1]$, $0 < p < \infty$ " (with R. A. DeVore and Y. K. Hu) Constr. Approx. **12** (1996), 409-422.
83. "Some estimates for convex polynomial approximation in L_p " (with Y. K. Hu and X. M. Yu) J. Orissa Math. Soc. **12-15**(1993-96), 49-57.
84. "Shape preserving approximation by polynomials and splines" Proc. International Meeting on Approximation Theory and Function Series, Budapest 1995. Budapest 1996, 63-84.
85. "On monotone and convex approximation by splines with free knots" (with A. Shadrin) Annals of Numer. Math. **4**(1997), 415-434.

86. "G. G. Lorentz and the theory of summability" (with S. Baron) in G. G. Lorentz: Mathematics from Leningrad to Austin, Selected works in real, functional and numerical analysis Vol. 1, Birkhäuser Boston 1997, 41-57.
87. "Approximation of monotone functions: a counter example" (with R. A. DeVore and I. A. Shevchuk) in Curves and Surfaces with Applications in CAGD, Proceedings of the Chamonix Conference 1996, A. Le Méhauté, C. Rabut and L. L. Schumaker, Eds, Vanderbilt Univ. Press 1997, 95-102.
88. "Some positive results and counter examples in comonotone approximation" (with I. A. Shevchuk) J. Approx. Theory **89** (1997), 195-206.
89. "Comonotone polynomial approximation in $L_p[-1, 1]$, $0 < p \leq \infty$ " (with K. Kopotun) Acta Math. Hugarica **77** (1997), 301-310.
90. "Nearly comonotone approximation" (with I. A. Shevchuk) J. Approx. Theory **95** (1998), 53-81.
91. "Degree of simultaneous coconvex polynomial approximation" (with K. Kopotun) Results in Math. **34** (1998), 150-155.
92. "Monotone approximation estimates involving the third modulus of smoothness" (with I. A. Shevchuk) Approx. Theory IX, Ch. K. Chui and L. L. Schumaker eds., Vanderbilt University Press, Nashville TN, 1998, 223-230.
93. "The Bernstein operator is the closest positive operator to a projection" (with B. L. Chalmers and M. P. Prophet) Approx. Theory IX, Ch. K. Chui and L. L. Schumaker eds., Vanderbilt University Press, Nashville TN, 1998, 75-82.
94. "The degree of coconvex polynomial approximation" (with K. Kopotun and I. A. Shevchuk) Proc. Amer. Math. Soc. **127** (1999), 409-415.
95. "Optimal interpolating spaces preserving shape" (with B. L. Chalmers and M. P. Prophet) J. Approx. Theory **98** (1999), 354-373.
96. "Constants in comonotone polynomial approximation- a survey" (with I. A. Shevchuk) Proc. IDoMAT 1998, M. W. Müller, M. Felten and D. H. Mache Eds, International Series of Numer. Math. Birkhäuser Verlag Basel, 132(1999), 145-158.
97. "Some positive results and counter examples in comonotone approximation II" (with I. A. Shevchuk) J. Approx. Theory **99** (1999), 113-143.
98. "Nearly comonotone approximation II" (with I. A. Shevchuk) Acta Sci. Math. (Szeged) **66** (2000), 115-135.
99. "More on comonotone polynomial approximation" (with I. A. Shevchuk) Constr. Approx. **16** (2000), 475-486.
100. "Interpolatory pointwise estimates for polynomial approximation" (with H. H. Gonska, I. A. Shevchuk and H.-J. Wenz) Constr. Approx. **16** (2000), 603-629.

101. "Shape preserving approximation by polynomials" J. Comp. and Applied Math. **121** (2000), 73-94.
102. "Estimates on the approximation of 3-monotone functions by 3-monotone quadratic splines" (with V. N. Konovalov) East J. Approx. **7** (2001), 333-349.
103. "Kolmogorov and linear widths of weighted Sobolev-type classes on a finite interval II" (with V. N. Konovalov) J. Approx. Theory **113** (2001), 266-297.
104. "Wavelet decompositions of non-refinable shift invariant spaces" (with S. Dekel) Appl. and Comp. Harmonic Analysis **12** (2002), 230-258.
105. "Coconvex approximation" (with I. A. Shevchuk) J. Approx. Theory **118** (2002), 20-65.
106. "Kolmogorov and linear widths of weighted Sobolev-type classes on a finite interval" (with V. N. Konovalov) Analysis Math. **28** (2002), 251-278.
107. "Nonstationary wavelets" (with Shai Dekel) in Wavelet Analysis, Twenty years' development, Series in Analysis Vol. 1, Proceedings ICCHA, Hong Kong, June 2001, Ed. D. X. Zhou, World Scientific (2002), pp. 81-99.
108. "Nearly coconvex approximation" (with I. A. Shevchuk) Serdica Math. J. **28** (2002), 361-378.
109. "Shape preserving widths of weighted Sobolev-type classes of positive, monotone, and convex functions on a finite interval" (with V. N. Konovalov) Constr. Approx. **19** (2003), 23-58.
110. "Shape preserving widths of Sobolev-type classes of s -monotone functions on a finite interval" (with V. N. Konovalov) Israel J. Math. **133** (2003), 239-268.
111. "Shape preserving widths of weighted Sobolev-type classes" (with V. N. Konovalov) Proc. IDoMAT 2001 M. Buhmann and D. H. Mache Eds, International Series of Numer. Math. **142** Birkhäuser Verlag Basel (2003), 79-94.
112. "Coconvex polynomial approximation" (with I. A. Shevchuk) J. Approx. Theorey **121** (2003), 100-118.
113. "Adaptive multivariate piecewise polynomial approximation" (with Shai Dekel), SPIE **5207** in Wavelets: Appl. in Signal and Image Processing X, M. A. Unser, A. Aldroubi, and F. Laine Eds (2003), 125-133.
114. "On the relation between piecewise polynomial and rational approximation in $L_p(\mathbb{R}^2)$ " (with Shai Dekel) Constr. Approx. **20** (2003), 73-91.
115. "On measuring the efficiency of kernel operators in $L_p(\mathbb{R}^d)$ " (with Shai Dekel) Advances in Comp. Math. **20** (2004), 53-65.
116. "Free knot splines approximation of s -monotone functions" (with V. N. Konovalov) Advances in Comp. Math. **20** (2004), 347-366.

117. "On bivariate smoothness spaces associated with nonlinear approximation" (with Shai Dekel and Micha Sharir) *Constr. Approx.* **20** (2004), 625-646.
118. "The Bramble-Hilbert lemma for convex domains" (with S. Dekel), *SIAM J. Math. Anal.* **35** (2004), 1203-1212.
119. "Simultaneous approximation by greedy algorithms" (with V. N. Temlyakov), *Advances in Comp. Math.* (to appear).
120. "Widths of Sobolev-type classes with quasi-seminorms" (with Z. Ditzian and V. N. Konovalov), *Rocky Mountain Math. J.* **35** (2005), 445-478.
121. "On 3-monotone approximation by piecewise polynomials" (with A. V. Prymak), *J. Approx. Theory* **133** (2005), 147-172.
122. "On local and piecewise multivariate polynomial approximation" (with Shai Dekel), *Found. of Comput. Math.* **4** (2004), 345-368.
123. "Convex approximation in the uniform norm: conclusion" (with K. Kopotun and I. A. Shevchuk), *Canadian Math. J.* (to appear).
124. "Simultaneous greedy approximation in Banach spaces" (with V. N. Temlyakov), *J. of Complexity* (to appear).
125. "Adaptive multivariate approximation using binary space partitions and geometric wavelets" (with Shai Dekel), *SIAM J. Numer. Analysis* (to appear).
126. "Freeknot splines approximation of Sobolev-type classes of s -monotone functions (with V. N. Konovalov), *Advances in Comp. Math.* (to appear).
127. "Coconvex approximation in the uniform norm- the final frontier" (with K. Kopotun and I. A. Shevchuk), *Acta Math. Hung.* (to appear).
128. "Nearly monotone and nearly convex approximation in L_p " (with K. Kopotun and A. Prymak), *Proc. Amer. Math. Soc.* (submitted).
129. "Kolmogorov and linear widths of Sobolev-type classes of s -monotone functions" (with J. Gilewicz and V. N. Konovalov), *J. Approx. Theory* (submitted).