

Name: Andras Kroo
Title: Visiting Professor
Department: Mathematics and Statistics
College: Arts and Sciences

Degrees Earned

Degree, Major, (minor – optional), Institution, Year
Moscow State University, Department of Mathematics, 1971-1976, M.S.
Mathematical Institute, Hungarian Academy of Sciences, 1978, PhD

Professional Licensure and Certifications

Peer-Review Publications and Artistic Performances/Exhibitions

Articles

List of publications of András Kroó

1. J. Angelos, A. Kroó, The equivalence of the modul of continuity of the best approximation operator and of strong unicity in L_1 ,
J. Approx. Th. 46(1985), 129-136
2. J. Angelos et. al., A. Kroó, Local and global Lipschitz constants,
J. Approx. Th. 46(1986), 137-156
3. J. Angelos et. al., A. Kroó, Local Lipschitz and strong unicity constants for certain nonlinear families,
J. Approx. Th. 58(1989), 164-183
4. P. B. Borwein, R. Grothmann, A. Kroó, E. B. Saff, The density of alternation points in rational approximation,
Proc. Amer. Math. Soc. 105(1989), 881-888
5. P. Erdos, A. Kroó, J. Szabados, On convergent interpolatory polynomials,
J. Approx. Th. 58(1989), 232-241
6. A. Kroó, The problem of correctness of best trigonometric approximations of the class $wrO_H(w)c$,
Math. Notes 22(1977), 85-101 (Russian)
7. A. Kroó, The continuity of best approximations,
Acta Math. Hungar. 30(1977), 175-188

8. A. Kroó, Differential properties of the operator of best approximation, Acta Math. Hungar. 30(1977), 319-331
9. A. Kroó, On the continuity of best approximations in the space of integrable functions, Acta Math. Hungar. 32(1978), 331-348
10. A. Kroó, A comparison of uniform and discrete polynomial approximation, Analysis Math. 5(1979), 35-49
11. A. Kroó, On the uniform modulus of continuity of the operator of best approximation in the space of periodic functions, Acta Math. Hungar. 34(1979), 185-203
12. A. Kroó, On the convergence of Polya's algorithm, J. Approx. Theory, 30(1980), 139
13. A. Kroó, A note on discrete Chebyshev approximation Acta Math. Hungar. 36(1980), 129-135
14. A. Kroó, The Lipschitz constant of the operator of best approximation, Acta Math. Hung. 35(1980), 279-292
15. A. Kroó, A comparison of uniform and L_p -approximation, Proceedings of the Conference on Approximation Theory held in Gdansk (PNW, 1981), 383-393
16. A. Kroó, Deviation of best discrete and uniform polynomial approximations, Analysis Math. 7(1981), 121-130
17. A. Kroó, Error estimations for deviation of best uniform, discrete and L_p -approximations, SIAM J. Numer. Anal. 18(1981), 891-896
18. A. Kroó, On the distribution of points of maximal deviation in complex Chebyshev approximation, Analysis Math. 7(1981), 257-263
19. A. Kroó, Best L_1 -approximation on finite point sets: rate of convergence, J. Approx. Th. 33(1981), 340-352
20. A. Kroó, On strong unicity of L_1 -approximation, Proc. Amer. Math. Soc. 83(1981), 725-729
21. A. Kroó, Best L_1 -approximation of vector valued functions, Acta Math. Hungar., 39(1982), 303-310

22. A. Kroó, Some theorems on unicity of multivariate L1-approximation, Acta Math. Hungar. 40(1982), 179-189
23. A. Kroó, On unicity of complex polynomial approximation along curves, Proc. Amer. Math. Soc. 86(1982), 427-432
24. A. Kroó, Some theorems on best L1-approximation of continuous functions, Acta Math. Hungar. 44(1984), 411-419
25. A. Kroó, On strong unicity of best approximation in $C(R)$, Numer. Funct. Anal. Optimiz. 4(1981-1982), 437-443
26. A. Kroó, On the unicity of best L1-approximation by polynomials of several variables, Acta Math. Hungar. 42(1983), 309-318
27. A. Kroó, On strong unicity of best Chebyshev approximation of differentiable functions, Proc. Amer. Math. Soc. 89(1983), 611-617
28. A. Kroó, On differentiability of the operator of best L1-approximation, J. Approx. Th. 42(1984), 266-277
29. A. Kroó, On best Chebyshev approximation of differentiable functions, Acta Sci. Math. Szeged. 47(1984), 377-389
30. A. Kroó, On Chebyshev subspaces in the space of multivariate differentiable function, Trans. Amer. Math. Soc. 287(1985), 839-852
31. A. Kroó, On an L1-approximation problem, Proc. Amer. Math. Soc. 94(1985), 406-410
32. A. Kroó, On uniqueness of best L1-approximation on disjoint intervals, Math. Zeit. 191(1986), 507-513
33. A. Kroó, Chebyshev rank in L1-approximation, Trans. Amer. Math. Soc. 296(1986), 301-313
34. A. Kroó, A general approach to the study of Chebyshev subspaces in L1-approximation of continuous functions, J. Approx. Th. 51(1987), 98-111
35. A. Kroó, On uniqueness of best L1-approximation on disjoint intervals,

Math. Zeit. 191(1986), 507-513

36. A. Kroó, Chebyshev rank in L1-approximation,
Trans. Amer. Math. Soc. 296(1986), 301-313

37. A. Kroó, Best L1-approximation with varying weights,
Proc. Amer. Math. Soc. 99(1987), 66-70

38. A. Kroó, F. Peherstorfer, Interpolatory properties of best L1-approximation,
Math. Zeit. 196(1987), 249-257

39. A. Kroó, F. Peherstorfer, Interpolatory properties of best rational L1-approximation,
Constructive Approx. 4(1988), 97-106

40. A. Kroó, F. Peherstorfer, On the zeros of polynomials of minimal Lp-norm,
Proc. Amer. Math. Soc. 101(1987), 652-656

41. A. Kroó, E. B. Saff, On polynomials of minimal Lp-deviation, $0 < p < 1$,
J. London Math. Soc.(2). 37(1988), 182-192

42. A. Kroó, E. B. Saff, The density of extreme points in complex polynomial approximation,
Proc. Amer. Math. Soc. 103(1988), 203-209

43. A. Kroó, On the uniqueness of canonical points in the Hobby-Rice theorem,
Constructive Approx. 5(1989), 405-414

44. A. Kroó, M. Sommer, H. Strauss, On strong uniqueness in one-sided L1-approximation of
differentiable functions,
Proc. Amer. Math. Soc. 106(1989), 1011-1016

45. A. Kroó, F. Peherstorfer, On the distribution of extremal points of general Chebyshev polynomials,
Trans. Amer. Math. Soc. 329(1992), 117-130

46. A. Kroó, D. Schmidt, M. Sommer, Some properties of A-spaces and their relationship to L1-
approximation,
Constructive Approximation. 7(1991), 329-339

47. A. Kroó, F. Peherstorfer, On asymptotic distribution of oscillation points in rational approximation,
Analysis Math. 19(1993), 225-232

48. A. Kroó, D. Schmidt, A Haar-type theory of best uniform approximation with constraints,
Acta Math. Hungar. 58(1991), 351-374

49. A. Kroó, D. Schmidt, A Haar-type theory of best L_1 -approximation with constraints, Trans. Amer. Math. Soc. 331(1992), 310-319
50. A. Kroó, D. Schmidt, M. Sommer, One some properties of A -spaces and their relation to Hobby-Rice Theorem, J.Approx.Th., 68(1992), 136-154
51. A. Kroó, J. Swetits, Best L_1 -approximation in Sobolev spaces, J. Numer. Funct. Anal. Optimiz. 13(1992), 29-41
52. A. Kroó, J. Swetits, On density of interpolation point, a Kadec-type theorem and Saff's Principle of contamination in L_p -approximation, Constructive Approx. 8(1992), 87-103
53. A. Kroó, On certain orthogonal polynomials, Nikolski- and Turan-type inequalities and interpolatory properties of best approximants, J.Approximation Th. 73(1993), 162-179
54. A. Kroó, A geometric approach to multivariate Müntz problem, Proc. Amer. Math. Soc. 121(1994), 199-205
55. A. Kroó, On approximation by bivariate incomplete polynomials, Constr. Approx. 10(1994), 197-206
56. A. Kroó, On lacunary sums of orthogonal polynomials, J. Math. Anal. Appl. 185(1994), 107-117
57. A. Kroó, J. Szabados, On approximation by lacunary Bernstein polynomials, J. Approx. Th. 78(1994), 446-457
58. A. Kroó, J. Szabados, Approximation by lacunary Bernstein and self-reciprocal polynomials, Acta Sci. Math. Szeged. 60(1995), 467-486
59. A. Kroó, J. Szabados, Constructive properties of self-reciprocal polynomials, Analysis. 14(1994), 319-339
60. A. Kroó, J. Szabados, Weighted polynomial approximation on the real line, J. Approx. Th. 83(1995), 41-64
61. A. Kroó, On weighted polynomial approximation on the plane, East J. Approx. 1(1995), 73-81

62. A. Kroó, On approximation by ridge functions,
Constr. Approx. 13(1997), 447-460
63. A. Kroó, D. Schmidt, Some extremal problems for multivariate polynomials on convex bodies,
J. Approx. Th. 90(1997), 415-434
64. A. Kroó, J. Szabados, R. Varga, Weighted polynomial approximation of some entire functions on
the real line,
Ann. Numer. Math. 4(1997), 405-413
65. A. Kroó, D. Schmidt, A variational approach to optimizing linear functionals over Haar spaces,
Ann. Numer. Math. 4(1997), 393-403
66. A. Kroó, J. Szabados, On weighted approximation by lacunary polynomials and rational functions
on the half axis,
East J. Approx. 2(1996), 289-300
67. A. Kroó, I. Pritzker, A sharp version of Mahler's inequality for products of polynomials,
J. London Math. Soc. 31(1999), 269-278
68. A. Kroó, On Remez-type inequalities for polynomials in \mathbb{R}^m ,
Analysis Math 27(2001), 50-70
69. A. Kroó, Sz. Révész, On Bernstein and Markov-type inequalities for multivariate polynomials on
convex bodies,
J. Approx. Th. 99(1999), 134-152
70. A. Kroó, J. Szabados, Markov-Bernstein type inequalities for multivariate polynomials on sets with
cusps,
J. Approx. Th. 102(2000), 72-95
71. A. Kroó, Chebyshev-type extremal problems for multivariate polynomials on convex bodies
East J. Approx. 5(1999), 211-221
72. T. Erdélyi, A. Kroó, J. Szabados, Markov-Bernstein type inequalities on compact subsets of \mathbb{R}^n ,
Analysis Math. 26(2000), 17-34
73. A. Kroó, On multivariate polynomials with largest gradients on convex bodies,
J. Math. Anal. Appl. 253(2001) 322-333
74. A. Kroó, Universal polynomial majorants on convex bodies,
J. Approx. Th. 111(2001), 220-232

75. A. Kroó, A note on bivariate Lagrange interpolation on algebraic curves, *Studia Sci. Math.* 38(2001), 261-266
76. A. Kroó, Extremal properties of multivariate polynomials on sets with analytic parametrization, *East J. Approx.* 7(2001), 27-40
77. A. Kroó, Markov-type inequalities for surface gradients of multivariate polynomials, *J. Approx. Th.* 118(2002), 235-245
78. A. Kroó, A note on density of extremal sets in multivariate Chebyshev approximation *J. Approx. Th.* 119(2002), 127-131
79. T. Erdélyi, A. Kroó, Markov-type inequalities on certain irrational arcs and domains *J. Approx. Th.* 130(2004), 113-124
80. A. Kroó, J. Szabados, Tangential Bernstein-Markov inequalities for bivariate polynomials on curves, *East J. Approx.* 8(2002), 261-278
81. A. Kroó, Markov-type inequalities for homogeneous polynomials on smooth convex bodies, *East J. Approx.* 4(2003), 487-500
82. A. Kroó, E. B. Saff, Jackson-type theorems on some transcendental curves in R^n , *J. Math. Anal. Appl.* 301(2005), 255-264
83. A. Kroó, On Markov Inequality for Multivariate Polynomials, *Approximation Theory XI., Proceedings of the 11th Conference on Approximation Theory*, Nashboro Press (2005), 211-229
84. A. Kroó, Newman-type inequalities for multivariate polynomials, *Proceeding of the 5th International Conference on Functional Analysis and Approximation Theory*, Maratea, 2004, *Rendiconti del Circolo matematico di Palermo*, 76(2005), 59-75
85. A. Kroó, E. B. Saff, M. Yattselev, A Remez-type theorem for Homogeneous Polynomials, *J. London Math. Soc.* (2) 73 (2006), 783-796.
86. A. Kroó, F. Pehestorfer, Asymptotic representation of L_p -minimal polynomials, $1 < p < 8$. *Constructive Approx.* 25(2007), 29-39.
87. Yuliya Babenko, A. Kroó, Markov-type inequalities for homogeneous polynomials on non-symmetric star-like domains, *Frontiers in Approximation and Interpolation*, *Pure Appl. Math.* 282, 1-15, Chapman & Hall/CRC, Boca Raton,

Florida, 2007.

88. A. Kroó, On norms of factors of multivariate polynomials on convex bodies, ETNA, 11 (2006), 201-205.

89. A. Kroó, J. Szabados, On density of homogeneous polynomials on convex and star-like surfaces in R^d , East J. Approx. 11(2005), 381-404.

90. D. Benko, A. Kroó, A Weierstrass-type theorem for homogeneous polynomials, Trans. Amer. Math. Soc., to appear

91. A. Kroó, F. Peherstorfer, Asymptotic representation of L_q -minimal polynomials, Proc. Cambridge. Phyl. Soc., to appear,

92. A. Kroó, J. Szabados, Jackson type theorems in homogeneous approximation, J. Approx. Th., to appear

93. A. Kroó, On the exact Markov inequality in L_2 -norm, J. Approx. Th., to appear

Books

Chapters

Proceedings

Artistic Performances

Artistic Exhibitions

Research Monographs and Technical Reports

Funded External Grants

Hungarian National Science Foundation
2005-2008, 2001-2004, 1997-2000

Peer-Review Presentations/Posters

INVITED LECTURES AT INTERNATIONAL CONFERENCES

Blagoevgrad, Bulgaria, 1977
Gdansk, Poland, 1978
Varna, Bulgaria, 1979, 1987
College Station, Texas, USA 1986, 1989
Austin, Texas, USA 1992
Oberwolfach, Germany, 1981, 1985
Jerusalem, Israel, 1988
Maratea, Italy, 1992, 2000
Chamonix, France, 1993
Nicosia, Cyprus, 1997
St. Louise, Missouri, USA 2001
Bommerholz, Germany, 2001
Cancun, Mexico, 2003
San Antonio, USA, 2007

PLENARY LECTURES AT INTERNATIONAL CONFERENCES

Amantea, Italy, 1984
Varna, Bulgaria, 2002
Ubeda, Spain, 2003, 2004
Gatlinburg, USA, 2004
Maratea, Italy, 2004
Bommerholz, Germany, 2005

COLLOQUIUM PRESENTATIONS

Oakland University, Michigan, USA (1983, 1994, 1997)
Wayne State University, Detroit, USA (1984)
University of Texas, USA (1985)
Stockholm University, Sweden (1982)
University of Florida, USA (1986)
Tel Aviv University, Israel (1988, 2000)
Eichstatt University, Germany (1987, 1992)
Erlangen-Nurnberg University, Germany (1987, 1992)
Mannheim University, Germany (1992)
Ohio State University, USA (1994, 1996)
Central Michigan University, USA (1997)
Old Dominion University, USA (1995, 1997)
Technical University of Athens, Greece (2000)
GSF Institute of Biomathematics and Biometry, Germany (2007)
University of Houston, USA (2007)

Work or Professional Experiences

Alfred Renyi Mathematical Institute of the Hungarian Academy of Sciences, rank: Senior Research Fellow

Budapest University of Technology and Economics, rank: Full Professor

Central Michigan University, 1983-1984, visiting professor

Texas A@M University, 1985-1986, visiting professor

University of South Florida, 1986 Fall, visiting professor

Old Dominion University, 1988-1990, visiting professor

Kent State University, 1994-1997, visiting professor

Budapest University of Technology and Economics, professor

Budapest Semesters in Mathematics (lecture series for American Mathematics Majors, since 1997)
Vanderbilt University, Fall 2002, Spring 2004 & 2005, visiting professor
Emory University, Spring 2003, visiting professor
Central European University, 2004- , professor
Sam Houston State University, 2006-2007, visiting professor

VISITING RESEARCH ACTIVITY

Moscow Steklov Institute, 1978
Royal Institute of Technology, Stockholm, Sweden, 1982
Israel Institute of Technology , Haifa, 1987 and 2000

Honors and Awards

Grunwald Prize (awarded by the Hungarian Mathematical Society), 1978
Alexits Prize (awarded by the Hungarian Academy of Sciences), 1987
Renyi Prize (awarded by the Mathematical Institute of the Hungarian Academy of Sciences), 1997
Academy Prize (awarded by the Hungarian Academy of Sciences), 2001

Other Competencies

MEMBERSHIP IN EDITORIAL BOARDS OF MATHEMATICAL PERIODICALS

Journal of Approximation Theory (since 1994)
East Journal on Approximations (since 1995)
Periodica Mathematica Hungarica (since 1998)