

## CURRICULUM VITAE

### **DMITRY KHAVINSON**

Date of Birth: January 8, 1956

Citizenship: Citizen of U.S.A

Department of Mathematics and Statistics

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### **EDUCATION**

Ph.D. Brown University, Providence Rhode Island, Mathematics, 1983

M.S. Moscow State Pedagogical Institute, Moscow, USSR,  
Mathematics, 1978

Precollege--Moscow Special High School of Mathematics No. 2, 1973

### **PROFESSIONAL EXPERIENCE**

#### **Positions Held**

Visiting Professor, Centre de Recherches Mathematiques, Montreal, 1/4/16 - 6/30/16.

Visiting Distinguished Professor, University of Bergen, Norway, 8/12/15 - 12/17/15.

Distinguished University Professor, University of South Florida, 2014-

Visiting Professor, The Mittag-Leffler Institute, Djursholm, Sweden, 8/11 - 12/11.

Professor of Mathematics, University of South Florida, 2006 - 2014.

National Science Foundation, Program Director for Analysis, 2005- 2006.

Distinguished Professor of Mathematics, University of Arkansas, 2003- 2006.

Chairman, Department of Mathematics, University of Arkansas, 2001- 2004.

National Science Foundation, Program Director for Analysis, 1999-2001.

Visiting Professor, The Mittag-Leffler Institute, Djursholm, Sweden, 11/99 - 12/99.

Professor of Mathematics, University of Arkansas, 1996- 2001.

Visiting Professor, Universidad de La Laguna, La Laguna, Spain, 3/95 - 6/95.

Visiting Professor, Royal Institute of Technology, Stockholm, Sweden, 2/93 - 6/93.

Visiting Professor, University of Michigan, Ann Arbor, 9/92 - 1/93.

Visiting Professor, Technion University, Haifa, Israel, 6/92-7/92.

Visiting Professor, The Mittag-Leffler Institute, Djursholm, Sweden, 5/91- 6/91.

Visiting Professor, Royal Institute of Technology, Stockholm, Sweden, 1/91 - 5/91.

Lady Davis Visiting Professor of Mathematics, 12/15/88 - 1/15/89. Bar Ilan University,  
Ramat Gan, Israel.

Visiting Associate Professor, Indiana University, Bloomington, 8/88 - 5/89.

Associate Professor, University of Arkansas, 1988 - 1995.

Assistant Professor, University of Arkansas, 1983 - 1988.

Visiting Professor, University of Alabama, 1/87 - 5/87, Tuscaloosa, Alabama.

Visiting Professor, Royal Institute of Technology, Stockholm, Sweden, 3/86 - 6/86.

Teaching Assistant, Brown University, 1981 - 1983.

Mathematics Teacher, public high school, Moscow, 1978 - 1979.

Computer Programmer, Moscow State Pedagogical Institute Computer

Center, Moscow, 1977 - 1978. Program writing in FORTRAN and ALGOL pertaining to  
numerical methods in psychology.

### **Teaching Experience**

High school - calculus, geometry, algebra, trigonometry

College - calculus (freshman and advanced), linear algebra, finite mathematics, honors calculus, advanced undergraduate and graduate courses.

*Senior Thesis Directed:* R. Ross, graduated in the Spring of 1995. R. Jason Reed, graduated Summa Cum Laude in the Spring of 2000.

#### *Ph.D. Thesis directed:*

Jill Hemmati (Guerra), "Certain Problems in Holomorphic PDE's", graduated Spring 1998., awarded a NSF Fellowship 1999-2000.

Dawit Aberra, "The Reflection Principle, the Schwarz Potential and Quadrature", graduated Summer 2000.

Zdenka Guadarrama, "Two Extremal Problems in Complex Analysis", graduated in the Fall of 2006.

Erik Lundberg, "Problems in Classical Potential Theory with Applications to Mathematical Physics", defended in the Fall of 2010.

Lisa De Castro, "Analytic Functions with Real Boundary Values in Smirnov Classes  $E^p$ ", defended in the Summer of 2013.

Matthew Fleeman, "Analytic Content and Putnam's inequality in Bergman Space", defended in March 2016.

Zeyed M. Zoalroshd, "On Spectral Properties of Single Layer Potentials", defended in March 2016.

#### *M.S. Thesis directed:*

Kenneth Killian, "Maxwell's Problem for Point Charges in the Plane", graduated Summer 2008.

#### *M.S. students directed:*

Erika Oshiro, graduated Fall 2013.

#### *Ph.D. Committee member:*

V. Korzhova, Dept. of Computer Science and Engineering, USF, 2009, Chair of the Committee.

P. Mohanty, Dept. of Comp. Sci. and Eng. , USF, 2007.

E. Lundberg, Dept. of Math. And Stat., Major Professor, USF, 2006-2010.

M. Lytrides, Dept. of Math., University of Cyprus, Exterior Examiner, 2011.

L. De Castro, Dept. of Math. And Stat., Major Professor, USF, 2009 – 2013

J. Van Name, Dept. of Math. And Stat., USF, 2013

M. Manolaki, Dept. of Math., University College, Dublin, Exterior Examiner, 2013

M. Younsi, Dept. of Math., Laval University, Quebec City, Exterior Examiner, 2014

M. Fleeman, Dept of Math. and Stat., USF, Major Professor, 2011 – 2016.

Z. Zoalrohd, , Dept of Math. and Stat., USF, Major Professor, 2011 – 2016.

K. Hilton, Dept. of Math. and Stat., USF, 2017

#### *Master's Committee member:*

S. Bleiler, Dept. of Mathematics and Statistics, USF, 2008.

A. Age, Dept. of Mathematics and Statistics, USF, 2010.

#### *Independent Studies Directed:*

*Graduate Students:* H. Liu (1995-98), D. Aberra (1996-

2000), Hemmati (1993-1998), A.Bain (2001-), J. Brown (2002), Z.Kali (2001-),

R.Deon (2001, 2002), E. Lundberg, R. Restrepo, USF, (2006-2007), E. Lundberg

(2007-2010), K. Killian (2007 -2008), M. Rabinovich (2007 -2009), N. Cover (2007),

M. Fleeman, USF, 2012-2016, Z. Zoalroshd, USF, 2011-2016.

J. Park, USF 2014-2015.

S. M. Zoalroshd, USF, 2012-2016.

E. Oshiro, USF, 2011-2013.

L. De Castro (2009-2013), USF.

L. Kuznia (2008-2010).

K. Killian, Dept. of Math. and Stat., M.S. thesis, Major Professor, 2007-.2008.

E. Lundberg was awarded a Graduate Student Award for Academic and Professional Achievements, University of South Florida, 2009.

In 1992-93, V. Shklover wrote two papers under my supervision before transferring to the University of Maryland for family reasons.

*Undergraduate and High School Students:*

J. Reed (1995-2000), awarded a Barry Goldwater Fellowship in 1998, defended Senior Honors thesis (under my Direction), graduated Summa Cum Laude, Spring 2000.

G. Zayas-Caban (2008).

M. Rabinovich (2007-2009), Shorecrest Preparatory High School, St. Petersburg, FL, a semifinalist in 2008-2009 Siemens-Westinghouse Competition and a finalist in the 2009 Intel Science Talent Search.

T. Channagri, 2013, Directed reading.

### **Professional Service:**

Membership: American Mathematical Society

Associate Editor, Complex Variables and Elliptic Equations, 1990 - .

Associate Editor, Computational Methods and Function Theory, 2001-

Associate Editor, Journal of Mathematical Analysis and Applications, 2001 –

Associate Editor, Analysis and Mathematical Physics, Birkhauser, 2010 – 2016

Editor-in-Chief, Analysis and Mathematical Physics, Burkhauser, 2016 -

Associate Editor, Complex Analysis and its Synergies, Springer, 2013 -

Subcommittee of the Joint AMS-ASL-IMS Committee on Translations from Russian and Other Foreign Languages, member, 1985-87.

Referee for Math. Zentral., NSF and various research journals.

The Galilee Research Center for Applied Mathematics of ORT Braude College, Member of the Academic Advisory Committee, 2005-

### **University Service:**

Organized, with Professor D. Luecking, an annual research seminar in analysis for the faculty and graduate students, 1983-88.

Graduate Committee, member, 1984-88, 1990-93, 1996-99.

1985 Spring Lecture Series Committee, Chairman.

Spring Lecture Series Committee, member, 1986, 1995, 1996, 1997.

1988 Spring Lecture Series Committee, co-chairman.

AMS Regional Meeting, organizer of a special session in complex analysis, March 1990, March 1997.

Colloquium Chairman, 1989-90, 1998-99.

Library Committee Member, 1989 - 99.

1994-1995 Calculus Committee, member.

College of Arts and Sciences, University of Arkansas, Research Committee, member, 1989-90.

College of Arts and Sciences, University of Arkansas, Honors Committee, member, 1996-98.

Hiring Committee, member, 1995-96, 1996 - 1997.

Ad-hoc Committee on Improvement of the Department

Graduate Programs, chair, 1998 - 99.

Molecular Informatics Committee, member, 2002 - 2005.

University of South Florida, Department of Mathematics, Hiring Committee, Chair, 2006-2009.

University of South Florida, Department of Mathematics, Organized Analysis Seminar for Faculty and Graduate Students, 2006-.

University of South Florida, Internal Research Awards, panelist and reviewer, 2006-.

University of South Florida, Department of Mathematics, Graduate Committee, member, 2007 – 2009, 2012 - 2015.

University of South Florida, Department of Mathematics, Lecture Series Committee, member, 2007 – 2011, 2013 - 2015 .

University of South Florida, Department of Mathematics, Internal Advisory Board for the NSF sponsored calculus reform project at the USF (STEP Grant), 2008-2012.

University of South Florida, College of Arts and Sciences Tenure and Promotion Committee, 2008-2010.

University of South Florida, School of Natural Sciences and Mathematics, Tenure and Promotion Committee, 2008-2009.

University of South Florida, Task Force on Faculty Roles, Responsibilities, and Rewards, 2008-2009.

University of South Florida, Globalization Student Poster Competition, a judge, 2008 - 2009.

University of South Florida, Department of Mathematics, Advisory Committee, 2010-2012, 2014-2016.

University of South Florida, Department of Mathematics, Colloquium Committee, co-Chair, 2013 - 2014.

A Joint Florida Analysis Seminar (FLOAS), (organized together with R. Teodorescu and C. Beneteau), includes USF, U. of Florida, UCF, New College and Florida Southern College, 2011 - <http://myweb.usf.edu/~razvan/FAS3/>

Member of the Search Committee, School of Natural Sciences and Mathematics, USF 2012-2013

University of South Florida, College of Arts and Sciences, Distinguished University Professor Recommending Committee 2014, a member.

NSF Reviewing Panel on Geometric Function Theory, March 2017, a member.

## GRANTS AND AWARDS

Fellowship in Mathematics at Brown University, 1980-81.

Fellowship in Mathematics at Brown University, 1981-82.

NSF EPSCOR Grant for summer 1984, #ISP-801147, \$3,000.

NSF Grant for summer research, June 15, 1984-Nov. 15, 1986, #DMS-8400582, \$22,491.

Full-time research appointment, spring semester 1986, University of Arkansas.

NSF Grant for summer research, June 1, 1987-Nov. 30, 1989, #DMS-8618755, \$22,000.

Argonne Universities Trust Fund Award for partial support of a regional mathematical sciences conference, "The Schwarz Function and Its Generalization to Higher Dimensions," (with I. Monroe), April 7-9, 1988, Fayetteville, AR, \$5,000.

NSF Grant #DMS 8717883 for partial support of the conference, "The Schwarz Function and Its Generalization to Higher Dimensions," (with I. Monroe), April 7-9, 1988, Fayetteville, AR, \$4,000.

NSF Grant for summer research, #DMS 8819569, June 1, 1989-November 30, 1991, \$33,101.

Full-time research appointment, spring semester 1991, University of Arkansas.

NSF Grant for summer research #DMS 9022938, June 1, 1991-May 31, 1993, \$16,000.

Fulbright College of Arts and Sciences, Dean's Summer Scholarship, 1992, \$5,000.

Fulbright College of Arts and Sciences, Research Incentive Grant, 1994 - 1995, \$1,000.

Fulbright College of Arts and Sciences, Teaching Incentive Grant, 1997 - 1998, \$930.00 (joint with Mark Arnold).

Teaching Enhancement Award, University of Arkansas Teaching Support Center, 1997-1998, \$500.00.

NSF Grant for Summer Research, #DMS-9703915, 9/1/97 - 7/31/99, extended to 2002 due to the NSF appointment, \$53,904.

NSF Grant for Summer Research, DMS –0139008, 6/1/02-11/30/05, \$49,346, extended to 06/30/07.

SILO Advisory Council Undergraduate Research Fellowship, 12/1/97-10/31/98, \$2,650. (with Jason Reed).

University of Arkansas Mentor Student Research Award, October 23, 2000, \$1,000

NSF service award, 1999-2000, \$600

NSF service award, 2000-2001, \$1200

University of Arkansas, 20 years of service award, \$500.

Fulbright College of Arts and Sciences, 2005 Research travel award, \$500.

NSF performance award. 2005, \$1500.

NSF performance award, 2006, \$4,000.

NSF Grant for Summer Research, DMS -0701873, 11/01/06-06/30/07, \$25,233.

Achievement through Content Expertise (ACE) with Hillsborough County and Florida Department of Education, a consultant, 01/2007-08/2007, \$16,000.

USF Thrust Area: Computational tools for discovery. Grant for Graduate education and Research in computer vision and pattern recognition, 2007-2009, \$1,000,000, consultant and co-PI.

NSF Grant #DMS 0753705 for partial support of the conference "Joint Norway – USA Workshop in Complex Analysis and Mathematical Physics", (with C. Beneteau), June 9-13, 2008, Bergen, Norway, \$20,000.

Banff International Research Station for Mathematical Innovation and Discovery Award to support participation in the workshop “Hausdorff Geometry of Complex Polynomials, Positive Charge Distributions and Normal Operators”, Banff, June 29 - July 5, 2008.

American Institute of Mathematics Award to support participation in the SQuaRE workshop “Hausdorff Geometry of Complex Polynomials, Positive Charge Distributions and Normal Operators”, Palo Alto, July 6 - July 11, 2008.

2007 Outstanding Associate Editor Award, Journal of Mathematical Analysis and Applications, \$200.

USF CAS Conference Coordination Award for SEAM XXV, March 2009, \$990, (with C. Beneteau, T. Bieske and S. Kouckekian).

USF College of Engineering Interdisciplinary Scholarship Program Award, \$15K, also supported by CAS (\$10K), 2009, (with D. Goldgof, CSE).

NSF Grant #DMS 0849032 for partial support of the conference “25<sup>th</sup> Southeastern Analysis Meeting”, (with C. Beneteau, T. Bieske and S. Kouckekian), USF, Tampa, March 20-22, 2009, \$23,820.

UF – USF – FSU Partnership, Florida Partnership to Rejuvenate and Optimize Mathematics and Science Education, FLPRoMiSE, a consultant, 01/2009 – 08/2010, \$65,000.

NSF Grant for Summer Research, DMS-0855597, 06/01/09-11/30/13, \$122,344.

USF CAS Conference Coordination Award for April 2010 Workshop on Gravitational Lensing, \$1,000, (with R. Teodorescu).

Established Researcher Grant, USF, 2010-2011, \$5,000.

Theodore and Venette Askounes-Ashford Distinguished Scholar Award for 2010, \$1,000, USF.

American Institute of Mathematics Award to support participation in the SQuaRE workshop “Hausdorff Geometry of Complex Polynomials, Positive Charge Distributions and Normal Operators”, Palo Alto, July 12 - July 16, 2010.

NSF Grant #DMS 1019602 for partial support of the conference "US-Chile Workshop: Complex Analysis and Mathematical Physics; Pucon, Chile, December 2010", (with C. Beneteau and R. Teodorescu), \$31,000.

USF Proposal Enhancement Grant, November 1, 2011 – October 31, 2012, \$24,600 (with D. Goldgof and R. Teodorescu).

NSF Grant #DMS-1301577 for partial support of the conference “Israel - USA Conference on Complex Analysis and Dynamical Systems VI, Naharia, May 2013” (with C. Beneteau and R. Teodorescu), \$20,000.

2013 Outstanding Associate Editor Award, Journal of Mathematical Analysis and Applications, \$200.  
 USF Office of Research and Innovation Grant Enhancement Award, \$200, 2013.  
 American Institute of Mathematics Award to support participation in the SQuaRE workshop “Hausdorff Geometry of Complex Polynomials, Positive Charge Distributions and Normal Operators”, Palo Alto, October 14 – October 18, 2013.  
 Distinguished University Professor, University of South Florida, 2014.  
 USF Office of Research and Innovation Grant Enhancement Award, \$200, 2014.  
 NSF Grant #DMS-1464939 for partial support of the conference “Israel - USA Conference on Complex Analysis and Dynamical Systems VII, Naharia, May 2015” (with C. Beneteau), \$30,000.  
 2015 USF Outstanding Faculty Achievement Award.  
 USF Proposal Enhancement Grant, 5/2015-5/2016, (joint with R. Teodorescu), \$25,000.  
 NSF Grant #DMS-1603527 for partial support of Canada - US Summer School on Spectral Theory and Applications “Spectral theory and its applications”, to be held at the Université Laval (Quebec City, CA), July 4-14, 2016, (with C. Beneteau), \$24,767.  
 2015 Outstanding Associate Editor Award, Journal of Mathematical Analysis and Applications, \$200.  
 2016 Outstanding Associate Editor Award, Journal of Mathematical Analysis and Applications, \$200.  
 Complex functions, operators, partial differential equations and applications in mathematical physics, a conference in honor of D. Khavinson’s 60<sup>th</sup> birthday, Mittag-Leffler Institute, Djursholm, Sweden, 6/12-6/16, 2017,  
[http://sites.baylor.edu/matthew\\_fleeman/dima-khavinson-60/](http://sites.baylor.edu/matthew_fleeman/dima-khavinson-60/)  
 Simon Foundation Collaboration Grant for Mathematicians, “Complex Analysis and Applications”, 9/1/17 – 8/31/22, \$42,000.

**Area of Specialization:** Analysis.

**Thesis Title:** "On a geometric approach to problems concerning Cauchy integrals and rational approximation"

**Thesis Advisor:** Professor John Wermer

**RESEARCH IN PROGRESS:**

1. *Holomorphic Partial Differential Equations and Classical Potential Theory*, (with E. Lundberg), a monograph in preparation.
2. *Isoperimetric Sandwiches and Approximation by Analytic and Harmonic Functions*, (with C. Beneteau), a monograph in preparation.

## PUBLICATIONS (all publications are refereed):

### Books

1. *Holomorphic Partial Differential Equations and Classical Potential Theory*, Universidad de La Laguna Press, 1996, ISBN# 84-600-9323-9.
2. *Quadrature Domains and their Applications*, co-editor (with P.Ebenfelt, B. Gustafsson and M. Putinar), Operator Theory Advances and Applications, vol. 156, Birkhäuser, 2005, 277pp., ISBN # 3-7643-7145-5.
3. *Complex and Harmonic Analysis*, co-editor (with A. Carbery, P. Duren and A. Siskakis), Proceedings of the International Conference May 25-27, 2006, Aristotle University of Thessaloniki, DEStech Publications, 2007, 327pp, ISBN #978-1-932078-73-2.
4. *Complex Analysis and Dynamical Systems VI*, co-editor, Conference Proceedings (Naharia, 2013), Contemporary Mathematics 653, Amer. Math. Soc., Providence RI, 2015, ISBN 978-1-4704-1653-9.

### Articles

1. *Remarks concerning boundary properties of analytic functions of  $E_p$  classes*, Indiana Math. J., 31 (6) (1982), 779-787.
2. *Factorization theorems for certain classes of analytic functions in multiply connected domains*, Pacific J. Math., 108 (2) (1983), 295-318.
3. *Sets of finite perimeter, Cauchy integrals and rational approximation*, *Approximation Theory IV*, Academic Press, eds. C. Chui, L.Schumaker and J. Ward, 567-573.
4. *Annihilating measures of the algebra  $R(X)$* , J. Funct. Anal., 58 (2) (1984), 175-193.
5. *On removal of periods of conjugate functions in multiply connected domains*, Mich. Math. J., 31 (1984), 371-379.
6. *The Cauchy-Green formula and rational approximation on the sets with a finite perimeter in the complex plane*, J. Funct. Anal., 64 (1) (1985), 112-123.
7. *A note on Toeplitz operators*, Lecture Notes in Math. No. 1166, Geometry of Banach spaces, eds. N. Kalton and E. Saab, June 24-29, 1984, 89-95, Springer-Verlag, 1985.
8. *On an extremal problem in the theory of rational approximation*, J. of Approximation Theory, 50 (2) (1987), 127-132 (with D. Luecking).
9. *Smirnov classes of analytic functions in multiply connected domains*, Appendix to English Transl. of S. Ya. Khavinson's *Foundations of the theory of extremal problems for bounded analytic functions and their various generalizations*, Amer. Math. Soc. Transl., 129 (1986), 57-61.
10. *On a geometric localization of the Cauchy potentials*, Mich. Math.J. 33 (1986), 377-385.
11. *Symmetry and uniform approximation by analytic functions*, Proc. Amer. Math. Soc., 101 (3) (1987), 475-483.
12. *The isoperimetric inequality and rational approximation*, Amer. Math. Monthly, 96 (1) (1989), 18-30 (with T. Gamelin).
13. *On uniform approximation by harmonic functions*, Mich. Math. J. 34 (1987), 465-473.
14. *F. and M. Riesz theorem, analytic balayage and problems in rational approximation*, Constructive Approximation, 4 (1988), 341-356.
15. *Hankel operators in multiply connected domains*, Complex Variables, 13 (1989), 21-33 (with J. M. Anderson).
16. *Duality and uniform approximation by solutions of elliptic equations*, Operator Theory, Advanced and Applications, 35 (1988), 129-141, Birkhäuser.
17. *Remarks on the reflection principle for harmonic functions*, J. d'Analyse, 54 (1990), 60-76 (with H.S. Shapiro).

18. *The Vekua hull of a plane domain*, Complex Variables, 14 (1990), 117-128 (with H.S. Shapiro).
19. *Remarks concerning cyclic vectors in Bergman and Hardy spaces*, Mich. Math. J., 38 (1991), 191-205 (with J. Akeroyd and H.S. Shapiro).
20. *On reflection of harmonic functions in surfaces of revolution*, Complex Variables, 17 (1991), 7-14.
21. *Singularities of harmonic functions in  $C_n$* , Proc. Symp. Pure and Applied Math., A.M.S., 52 (1991), Part 3, 207-217.
22. *An extremal problem for harmonic functions in the ball*, Canadian Math. Bulletin, 35 (2) (1992), 218-220.
23. *Contractive zero-divisors in Bergman spaces*, Contemporary Math., 137 (1992), 217-220, A.M.S., Providence, R.I. (with P. Duren, H.S. Shapiro and C. Sundberg).
24. *Remarks concerning spectral properties of some operators arising in potential theory*, Quarterly J. Math., 43 (1992), 387-407 (with J.M. Anderson and V. Lomonosov).
25. *Spectral estimates of Cauchy's transform in  $L_2(W)$* , J. Integral Equations and Operation Theory, 15 (1992), 901-919 (with J. Arazy).
26. *Dirichlet's problem when the data is an entire function*, Bull.London Math. Soc., 24 (1992), 456-468 (with H.S. Shapiro).
27. *Contractive zero divisors in Bergman spaces*, Pacific J. Math., 157 (1) (1993), 37-56 (with P. Duren, H.S. Shapiro and C. Sundberg).
28. *Analytic continuation and the heat equation: I. Fredholm's first paper*, Expositiones Math., 12 (1994), 79-95 (with H.S. Shapiro).
29. *Approximation by harmonic vector fields*, Houston J. Math., 20 (1) (1994), 75-92 (with B. Gustafsson).
30. *Invariant subspaces in Bergman spaces and the biharmonic equation*, Mich. Math. J., 41 (1994), 247-259 (with P. Duren, H.S. Shapiro and C. Sundberg).
31. *Invariant subspaces in Bergman spaces and Hedenmalm's boundary value problem* (with H.S. Shapiro), Arkiv för Math., Vol. 32, 2 (1994), 309-321.
32. *An isoperimetric problem*, Linear and Complex Analysis, Problem Book 3, Part II, V.P. Khavin and N.K. Nikolsky, eds., Lecture Notes Math., 1574 (1994), 133-135, Springer-Verlag.
33. *A note on entire solutions of the eiconal equation*, Amer. Math. Monthly, 102, 2 (1995), 159-161.
34. *On Dirichlet series with gaps* (with J.M. Anderson and H.S.Shapiro), Revista Math. Iber., Vol. II, 2 (1995), 453-476.
35. *Extremal functions in invariant subspaces of Bergman spaces*, (with P. Duren and H.S. Shapiro), Illinois J. Math., 40 (1996), 202-210.
36. *Rectangular parallelepipeds in ellipsoids* (with J. Duncan and H.S.Shapiro), SIAM Review, 38 (1996), 655-657.
37. *On annihilators of harmonic vector fields* (with B. Gustafsson), Zapiski Nauchnykh Seminarov POMI, 232 (1996), 90-108.
38. *Cauchy's problem for harmonic functions with entire data on a sphere*, Bull. Can. Math. Soc., 40 (1) (1997), 60-66.
39. *Analytic continuation of Jacobi polynomial expansions* (with P. Ebenfelt and H. S. Shapiro), Indagationes Math. N. S., 8 (1), 1997, 19-31.
40. *Point-to-point reflection of harmonic functions across real analytic hypersurfaces in  $R_n$*  (with P. Ebenfelt), J. d'Analyse, 68 (1996), 145-182.
41. *Boundary correspondence and dilatation of harmonic mappings* (with P. Duren), Complex Variables, 33 (1997), 105-112.
42. *Extending solutions of holomorphic partial differential equations across real hyper-surfaces* (with P. Ebenfelt and H. S. Shapiro), J. London Math Society, (2) 57 (1998), No. 2, 411-432.



43. *The Schwarz potential in  $R^n$  and Cauchy's problem for the Laplace equation*, TRITA-MAT-1989-36, Royal Institute of Technology, Stockholm, 112 pp. (with H.S. Shapiro).
44. *Bohr's power series theorem in several variables* (with H. P. Boas), PAMS, 125 (10) (1997), 2975-2979.
45. *A remark on a paper by T. Qian*, *Complex Variables*, 32 (4) (1997), 341-344.
46. *Do solid tori have Pompeiu property?* (with C. Berenstein), *Expositiones Math.*, 15 (1997), 87-93.
47. *Approximation of continuous functions in  $L1$  norm by elements of a uniform algebra* (with F. Pérez-González & H. S. Shapiro), *Constr. Approx.*, 14 (1998), 401-410.
48. *Certain linear extremal problems in Bergman spaces of analytic functions* (with M. Stessin), *Indiana Univ. Math J.*, 46 (1997), 933-974.
49. *Wandering subspaces in Hardy spaces*, (with M. Stessin and T. Lance), *Mich Math J.*, 44 (1997), 597-606.
50. *Vitae: F.W. Wiener*, (with H. Boas), *Math. Intelligencer*, 22(2000),No.2, 73-75.
51. *Best approximation in the supremum norm by analytic and harmonic functions*, (with H.S. Shapiro), *Arkiv för Math.*, 32(2), 2001, 339-359.
52. *Extreme Pick-Nevanlinna Interpolants*, (with S. Fisher), *Can. J. Math.*, 59(1999), 977-996.
53. *On approximation in the mean by analytic and harmonic functions*, (with H.S. Shapiro and J. McCarthy), *Indiana Univ. J.*, 49, No. 4 (2000), 1981-1513..
54. *A free boundary problem related to single layer potentials*, (with P.Ebenfelt and H.S.Shapiro), *Ann. Acad. Fennicae, Ann. Acad. Sci. Fenn.*, Vol 27, fasc. 1, 2002 pp 22-46.
55. *On a maximal number of zeros of certain harmonic polynomials*, (with G. Swiatek), PAMS, vol. 131 No. 2 (2002), 409 - 414.
56. *An inverse problem for the double layer potential*, (with P.Ebenfelt and H.S.Shapiro), *Computational Meth. Function Theory J.*, Vol 1 (2001), No.2, 387-402.
57. *Weak compactness in certain star-shift invariant subspaces*, (with J. Akeroyd and H. S. Shapiro), *J. Functional Anal.*, 202 (2003), 98 - 122.
58. *Remarks on the Bohr phenomenon*, (with C. Beneteau and A. Dahlner), *Computational Methods in Function theory* 4 (2004), No. 1, 1--19.
59. *Algebraic aspects of the Dirichlet problem with rational data* (with P. Ebenfelt and Harold S. Shapiro), *Operator Theory Advances and Applications*, vol. 156, Birkhäuser, 2005, 151-172.
60. *On the maximal number of zeros of certain rational harmonic functions* (with G. Neumann), *Proc. Amer. Math. Soc.*, 134 (2006), no. 4, 1077-1085.
61. *On a theorem of J. Globevnik*, *Contemporary Math.* Vol. 382 (2005), 227-228.
62. *Inverse boundary value problems, quadrature domains and applications* (with. A. Solynin and D. Vassilev), *Computational Methods in Function Theory*, (5) 2005, No. 1, 19-48.
63. *Extremal problems in Bergman spaces of analytic functions*, (with D. Aharonov, C. Beneteau, H. S. Shapiro), *S. Ya. Khavinson Memorial Volume*, V. Eiderman and M. Samokhin editors, *Operator Theory Advances and Applications*, vol. 158, Birkhäuser, 2005, 59-86
64. *Smooth functions in star-invariant subspaces*, (with K. Dyakonov), *Contemporary Mathematics* 393 (2006), 59-66, edited by Alec L. Matheson, Michael I. Stessin, Richard M. Timoney.
65. *On Poincare's variational problem in potential theory*, (with M. Putinar and Harold S. Shapiro), *Archive Rat. Mech.*, 185(2007), 143-184.  
<http://www.springerlink.com/content/3518r73331670r57/>.

66. *Algebraicity in the Dirichlet problem in the plane with rational data* (with S. Bell, P. Ebenfelt and H. S. Shapiro), *Complex Variables and Elliptic Equations*, Vol. 52, Nos. 2-3, February-March 2007, 235-244.
67. *On the classical Dirichlet problem in the plane with rational data* (with S. Bell, P. Ebenfelt and H. S. Shapiro), *J. d'Analyse*, 100(2006), 157-190.
68. *The isoperimetric inequality via approximation theory and free boundary problems*, (with Catherine Beneteau), *Computational Methods in Function Theory*, 6 (2006), No. 2, 253--274.
69. *Approximating  $\overline{z}$  in Smirnov and Bergman norms*, (joint with Z. Guadarrama), *Banach Spaces of Analytic Functions*, *Contemporary Mathematics*, Volume 454, 2008, 43-61, edited by Rita A. Hibscheiler and Thomas H. MacGregor.
70. *On a uniqueness property of harmonic functions*, (with Harold S. Shapiro), *Comput. Methods in Function Theory*, Volume 8 (2008), Number 1, 143-150.
71. *A survey of certain extremal problems for non-vanishing analytic functions*, (with Catherine Beneteau), *Proceedings of the Conference in Complex and Harmonic Analysis* (Thessaloniki, May 2006), DEStech Publications, 2007, 45 - 61.
72. *Robert Jentzsch, mathematician and poet*, (with Peter Duren and Anne-Katrin Herbig), *Math. Intelligencer*, Volume 30 (2008), No. 3, pp. 18-24.
73. *Gravitational lensing by elliptical galaxies, and the Schwarz function*, (with C. D. Fassnacht and C. R. Keeton), [arXiv:0708.2684v1](https://arxiv.org/abs/0708.2684v1) [math-ph], <http://arxiv.org/abs/0708.2684>, "Analysis and Mathematical Physics", edited by B. Gustafsson and A. Vasil'ev, *Proceedings of the Conference on New Trends in Complex and Harmonic Analysis*, Voss, 2007, Burkhäuser, 2009, 115-129.
74. *From the fundamental theorem of algebra to astrophysics: a 'harmonious' path*, (with G. Neumann), *A Feature Article in the Notices of the Amer. Math. Soc.*, Vol. 55, Issue 6, 2008, 666 – 675.
75. *Planar elliptic growth*, (with M. Mineev-Weinstein and M. Putinar), *Complex Analysis and Operator Theory*, 2009, Vol. 3, No. 2, 425 – 451. <http://dx.doi.org/10.1007/s11785-008-0093-7>
76. *Robert Jentzsch, mathematiker und poet*, (with P. Duren and A.-K. Herbig), *Mitteilungen Deutschen Mathematiker-Vereinigung*, Band 16, Heft 4 (2008), 233-240.
77. *The search for singularities of solutions to the Dirichlet problem: recent developments*, (with E. Lundberg), *Centre de Recherches Mathématiques, CRM Proceedings and Lecture Notes*, v. 51, 2010, ed. by J. Mashredi, Th. Ransford and K. Seip, 121-132..
78. *Transcendental harmonic mappings and gravitational lensing by isothermal galaxies*, (with E. Lundberg), *Complex Analysis and Operator Theory*, Vol. 4, Issue 3 (2010), 515-524.
79. *Recurrence relations for orthogonal polynomials and algebraicity of solutions of the Dirichlet problem*, (with N. Stylianopoulos), in "Around the Research of Vladimir Maz'ya II", *Partial Differential Equations*, ed. by A. Laptev, pp. 219-228, Springer, 2010.
80. *Linearization models for parabolic dynamical systems via Abel's functional equation*, (with M. Elin, S. Reich and D. Shoikhet), 2009, 43 pp., <http://arxiv.org/abs/0907.2571>, *Ann. Acad. Sci. Finn., Ser A I, Math.*, Vol. 35, 2010, 1 - 34.

81. *Malmheden's theorem revisited*, (with M. Agranovsky and H. S. Shapiro), 2009, 22 pp., [http://arxiv.org/PS\\_cache/arxiv/pdf/0908/0908.1837v2.pdf](http://arxiv.org/PS_cache/arxiv/pdf/0908/0908.1837v2.pdf), Expositiones Math., 28(2010), 337-350.
82. *Lemniscates do not survive Laplacian growth*, (with M. Mineev-Weinsstein, M. Putinar and R. Teodorescu), <http://arxiv.org/abs/0912.2129>, Mathematical Research Letters, 17(2010), no.2, 335 -341.
83. *Two dimensional shapes and lemniscates*, (with P. Ebenfelt and H. S. Shapiro), *Complex analysis and dynamical systems IV. Part 1*, 45–59, [Contemp. Math., 553](http://arxiv.org/abs/1003.4567), Amer. Math. Soc., Providence, RI, 2011, <http://arxiv.org/abs/1003.4567>
84. *A remark on "Gravitational lensing and the maximal number of images": 5 radial objects can lens 27 images*, (with E. Lundberg), 2010, 4pp.
85. *Borcea's variance conjectures on the critical points of polynomials*, (with R. Pereira, M. Putinar, E. Saff and S. Shimorin), in *Notions of Positivity and the Geometry of Polynomials*, Series: Trends in Mathematics, Birkhäuser, Basel, 2011, pp. 283 – 309.  
[http://arxiv.org/PS\\_cache/arxiv/pdf/1010/1010.5167v1.pdf](http://arxiv.org/PS_cache/arxiv/pdf/1010/1010.5167v1.pdf)
86. *Gravitational lensing by a collection of objects with radial densities*, (with E. Lundberg), *Analysis and Mathematical Physics*, 2011, [Volume 1, Numbers 2-3](http://arxiv.org/abs/1010.5167v1.pdf), 139- 145.
87. *Analytic functions in Smirnov classes  $E^p$  with real boundary values*, (with L. De Castro), 2011, 6 pp., *Complex Analysis and Operator Theory*, Vol. 7, No.1 (2013), 101 - 106.
88. *A survey of linear extremal problems in analytic function spaces*, (with C. Bénéteau), *Centre de Recherches Mathématiques, CRM Proceedings and Lecture Notes*, Vol. 55 (2012), 33 - 46.
89. *An overdetermined problem in potential theory*, (with E. Lundberg and R. Teodorescu), 2012, 18pp., *Pacific J. Math.*, v. 265, No.1 (2013), 85-111.
90. *Analytic functions in Smirnov classes  $E^p$  with real boundary values II*, (with L. De Castro), *Analysis and Mathematical Physics*, vol. 3, Issue 1 (2013), 21 - 35.
91. *Boundary behavior of universal Taylor series*, (with S. J. Gardiner), 2013, 8 pp., *Comptes Rendus Mathématique, Ser I.*, 352 (2014), 99 - 103.
92. *A tale of ellipsoids in potential theory*, (with E. Lundberg), 2013, 19 pp., <http://arxiv.org/submit/796880>, *Notices of the Amer. Math. Soc.*, 61 (2014), No. 2, 148 - 155.
93. *Menahem Max Schiffer, Selected Papers, Vols. 1&2*, ed. by P. L. Duren and L. Zalcman, *Commentaries*, pp. 202, 234, 258, 455. Burkhäuser, 2013.
94. *Extremal domains for self-commutators in the Bergman space*, (with M. Fleeman), 2013, 10 pp., *Complex Analysis and Operator Theory*, Vol. 9, No. 1 (2015), 99 – 111, <http://arxiv.org/abs/1311.1842>
95. *Problems for polynomials of one and several variables*, *Workshop on Dirichlet Series and Function Theory in Polydisks*, Oberwolfach, 2014, pp. 1-3.
96. *Selected Problems in Classical Function Theory*, (with C. Bénéteau), *CRM Conference on Invariant Subspaces of the Shift Operator*, Montreal, 2013, *Centre de Recherches Mathématiques, CRM Proceedings and Lecture Notes*, 11 pp., *Contemp. Math.*, v.638 (2015), 255-265.

97. *Maximum Principles and Sharp Constants for Solutions of Elliptic and Parabolic Systems*, by G. Kresin and V. Maz'ya, a book review, *Bulletin of the American Mathematical Society*, v. 51, No.4 (2014), 701 - 704.
98. *Sun Hong Rhie: an Obituary*, (with D. Bennett), *Physics Today*, 67(3), 64(2014), <http://dx.doi.org/10.1063/PT.3.2318>
99. *A note on the spectral area of Toeplitz operators*, (with Ch. Chu), *Proc. Amer. Math. Soc.*, Vol.144, No.6 (2016), 2533 – 2537.
100. *Zeros of harmonic polynomials, critical lemniscates and caustics*, (with S.-Y. Lee and A. Saez), <http://arxiv.org/abs/1508.04439>, 2015, 18pp.
101. *Approximating  $z^*$  in the Bergman space*, (with M. Fleeman), *Recent Progress on Operator Theory and Approximation in Spaces of Analytic Functions, Conference on Completeness Problems, Carleson Measures, and Spaces of Analytic Functions*, Institut Mittag-Leffler, Djursholm, Sweden, eds. C. Beneteau et al., *Contemporary Math.*, 679, 2016, 79-90. <http://arxiv.org/abs/1509.01370>
102. *Orthogonal polynomials, reproducing kernels and zeros of optimal approximants*, (with C. Beneteau, C. Liaw, D. Seco and A. Sola), 2015, preprint, 22 pp., *J. London Math. Soc.*, (2016) 94 (3): 726-746.
103. *Dirichlet's problem with entire data posed on an ellipsoidal cylinder*, (with E. Lundberg and H. Render), *Potential Analysis*, 46(2017), No.1, 55-62, <http://arxiv.org/abs/1602.02837.pdf>
104. *Polynomial lemniscates and their fingerprints: from geometry to topology*, (with A. Frolova and A. Vasil'ev), preprint, 2017, 27 pp.
105. *An asymptotic Gauss-Lucas theorem*, (with R. Bøgvad and B. Shapiro), 2015, preprint, 4pp., <http://arxiv.org/pdf/1510.02339.pdf>
106. *A free boundary problem associated with the isoperimetric inequality*, (with A. Abanov, C. Beneteau and R. Teodorescu), 2016, preprint, 16 pp.
107. *The Dirichlet problem for the slab with entire data and a difference equation for harmonic functions*, (with E. Lundberg and H. Render), *Canadian Math. Bulletin*, 60(2017), no. 1, 146-153, <http://arxiv.org/abs/1602.01823>.
108. *Zeros of optimal polynomial approximants: Jacobi matrices and Jentzsch-type theorems*, (with C. Beneteau, C. Liaw, D. Seco and B. Simanek), 32 pp., 2016, <http://arxiv.org/pdf/1606.08615v1.pdf>
109. *A thought on approximation by bi-analytic functions*, 2016, preprint, 5 pp., Fields Institute, Conference in Memory of A. Boivin, accepted.
110. *In Memoriam Alexander Vasil'ev (1962–2016)*, (with B. Gustafsson, D. Prokhorov, A. Sergeev and R. Teodorescu), [Anal. Math. Phys.](http://arxiv.org/abs/1701.01111) **7** (2017), no. 1, 1–8.
111. *Remarks on inner functions and optimal approximants*, (with C. Beneteau, M. Fleeman, D. Seco and A. Sola), 17 pp., 2017, *Canadian Math. Bulletin*, accepted.

**TRANSLATIONS**

1. S. Ya. Khavinson, *Foundations of the theory of extremal problems for bounded analytic functions and their various generalizations*, Amer. Math. Soc. Transl., 129 (1986), 1-57.
2. S. Ya. Khavinson, *Extremal problems for analytic functions satisfying additional constraints inside the domain*, Amer. Math. Soc. Transl., 129 (1986), 61-114.
3. K.V. Osipenko, *Heinz' problems and optimal extrapolation of analytic functions defined with an error*, Math. USSR Sbornik, 54 (2) (1986), 551-559.
4. L.R. Volevich and S.G. Gindikin, *Convolutors in spaces of distributions and related problems for convolution equations*, Selecta Mathematica Sovietica, 2 (1), 9-50, Birkhäuser 1982.
5. V.S. Azarin, *On the regularity of the growth of Fourier coefficients of the logarithm of the modulus of an entire function*, Selecta Mathematica Sovietica, 2 (1) 51-63, Birkhäuser 1982.
6. F.G. Nasibov, *On extremal problems in the classes  $B_a$* , Soviet Math. Dokl. 35 (3) (1987), 512-515.
7. Encyclopedia of Mathematical Sciences, Volume 15, *Commutative Harmonic Analysis I*, Springer-Verlag, 1991, 268 pp.
8. S. Ya. Khavinson, *Approximation by Linear Superpositions*, American Mathematical Society Translations, 159 (1996), 190 pp.

**PAPERS PRESENTED (1993 - )**

1993	January	Contractive zero divisors, Colloquium, Brown University, Providence, RI
	February	Contractive zero divisors, Colloquium, Uppsala University, Uppsala, Sweden
	March	Contractive zero divisors, Colloquium, University of Linköping, Sweden
	April	Invariant subspaces in Bergman spaces, Stockholm Analysis Seminar, Stockholm University
	May	The Riemann function and its applications, Analysis Seminar, Royal Institute of Technology, Stockholm Work of H.S. Shapiro, Conference in honor of the retirement of H.S. Shapiro, Royal Institute of Technology, Stockholm First paper of I. Fredholm, Colloquium, University of Jyväskylä, Finland
1994	January	The Reflection principle revisited, AMS winter meeting, Cincinnati, Special session on holomorphic differential equations
	July	Extremal problems in Bergman spaces, one hour invited lecture at the AMS Summer Conference on Bergman Spaces, Mount Holyoke, MA
1995	January	The Reflection principle revisited, Colloquium, University of Maryland, College Park

	February	The Reflection principle revisited, Colloquium, University of Kentucky, Lexington
	March-May	A short course on “Holomorphic PDE and Potential Theory, Universidad de La Laguna (Spain)
	June	The Reflection principle revisited, two one-hour lectures, Universidad de Autonoma Barcelona, Spain
1996	Feb-March	The reflection of harmonic functions across real-analytic hypersurfaces, Northwestern University
	September	The isoperimetric inequality revisited September 20, Trondheim, Norway
		Best approximation in the mean by analytic functions, Conference on Bergman Spaces, invited
1997	February	The Schwarz reflection principle revisited
		Best approximation in the mean by analytic functions, Washington University, St. Louis
1998	January	The reflection principle, Colloquium, University of Sydney, Australia, invited
		Szegő’s theorem on extension of expansions of spherical harmonics, Colloquium, University of New South Wales, Australia, invited
	March	Approximation of Continuous functions in $L^1$ -norm, AMS Meeting, Manhattan, Kansas
		Analytic continuation of Dirichlet Series, AMS meeting, Louisville, Kentucky.
	July	Approximation in the mean by harmonic functions, Analysis Seminar, University of Michigan, invited
	October	The reflection principle, Analysis Seminar, University of Illinois, Chicago, invited
1999	January	Approximation in the mean, AMS winter meeting, San Antonio
	May	Conference on PDE at Carmiel College, Israel
		Participant in the Round Table on <i>How to write mathematics</i> , San Antonio
		Bounded Approximation by Analytic and Harmonic Functions, Colloquium at Technion in Haifa
		Three lectures on Approximation in the mean by harmonic functions--Colloquiums at Technion and Bar Ilan University, and a one-hour invited talk at the Conference on PDE and Approximation Theory

	December	Uniform approximation by harmonic functions, one-hour invited talk at Mittag-Leffler Institute, Sweden
2000	June	Best approximation by harmonic and analytic functions, invited talk at the Joint AMS-Scandinavian Math Society meeting in Odense, Denmark
2001	January	Approximation in the mean by harmonic functions, AMS winter meeting, New Orleans.
	May	Szego's theorem and extensions of solutions of holomorphic PDEs, Colloquium, Brown University.
	October	An inverse problem for double layer potentials, Colloquium, Oklahoma State University, Washington University in St. Louis.
2002	September	Three questions on harmonic functions, VOTCAM conference, University of Richmond, invited principal speaker, 2 lectures.
	October	An inverse problem for double layer potentials, CIRM conference on spaces of analytic functions and operator theory, Marseilles, invited 1 hour talk.
	December	The isoperimetric inequality revisited, SUNY at Albany, invited colloquium talk.
2003	March	Weak compactness in star invariant subspaces, SEAM, Principal Speaker, 1 hour invited talk.
	June	Weak compactness in star invariant subspaces, AMS-RMSE joint meeting, Seville, invited talk
	July	The isoperimetric inequality revisited, Function Theory Conference, Metz, France, invited talk.
	October	Remarks on the Bohr Phenomenon, AMS meeting in Chapel Hill, NC, special session, invited.  Zeros of Harmonic Polynomials, Colloquium, Seton Hall University, invited.

2004	February	Zeros of rational harmonic functions with applications to gravitational microlensing, Functiontheorie meeting, Oberwolfach, 1hr invited talk.
	June	Extremal problems for analytic functions in Bergman spaces, two invited lectures at Bar Ilan University, Ramat Gan, Israel
	September	Zeros of rational harmonic functions and gravitational microlensing, Distinguished Visitor Lectures, Bucknell University
	October	Zeros of rational harmonic functions and gravitational microlensing, Colloquium, SUNY at Albany, invited
	November	The isoperimetric inequality revisited, Colloquium, Bucknell University, invited
2005	January	On the maximal number of zeros of certain rational harmonic functions, Special Session at the AMS Winter meeting in Atlanta, invited.
	April	On the maximal number of zeros of certain rational harmonic functions, SEAM, invited.
	May	Research in Pairs with Harold S. Shapiro and M. Putinar, Oberwolfach, invited.
	June	The isoperimetric inequality and some free boundary problems, one hour plenary lecture at the CMFT 2005 conference, Joensuu.
	July	Workshop on gravitational microlensing, AIM Palo Alto, invited.
	September	Valency of certain harmonic functions and gravitational microlensing, Texas Tech University, Colloquium talk, invited.
	October	Some algebraic aspects of the Dirichlet problem, Conference on recent advances in operator related function theory, a plenary talk, Madrid.  Zeros of rational harmonic functions and microlensing, Colloquium talk, Virginia Tech.



- 2006 January
- Lightning bolts and the Dirichlet problem, Conference on Complex Analysis and Dynamical Systems, Naharia, Israel, invited talk.
- Algebraic aspects of the Dirichlet problem, Conference on Planar Harmonic mappings, Technion, Haifa, a plenary talk.
- Algebraic aspects of the Dirichlet problem, Colloquium talk, Virginia Tech, invited.
- From the Fundamental Theorem of Algebra to astrophysics; a “harmonious” path, Colloquium talk, Mississippi State University, invited.
- February
- From the Fundamental Theorem of Algebra to astrophysics; a “harmonious” path, Colloquium talk, University of South Florida, invited.
- March
- From the Fundamental Theorem of Algebra to astrophysics; a “harmonious” path, Colloquium talk, University of California at San Diego, invited.
- From the Fundamental Theorem of Algebra to astrophysics; a “harmonious” path, Colloquium talk, George Washington University, invited.
- From the Fundamental Theorem of Algebra to astrophysics; a “harmonious” path, Colloquium talk, University of Tennessee, invited.
- April
- From the Fundamental Theorem of Algebra to astrophysics; a “harmonious” path, Colloquium talk, University of Delaware, invited.
- Dirichlet problem with the rational data, AMS Meeting in Durham, NH, Special Session on Complex Analysis, invited.
- May
- Algebraic aspects of the Dirichlet problem, Complex and Harmonic Analysis Conference, Thessaloniki, Greece, invited talk.
- September
- Potential theory viewed from the complex space, Conference on Complex Analysis and Potential Theory, Istanbul, Turkey, a plenary talk.

- November From the Fundamental theorem of Algebra to Astrophysics: A “Harmonious” Path, Analysis Seminar, University of California at Santa Barbara, invited.
- 2007 January Lensing by point masses and elliptical galaxies, Geometric and Stochastic Gravitational Lensing Workshop: Applications to Dark Matter and Black Holes, Petters Research Institute, Dangria, Belize, an invited talk.
- On a classical Dirichlet problem in the plane with rational data, Conference on Inverse Problems, Homogenization and Related Topics in Analysis, Orlando, FL, an invited talk.
- May Gravitational lensing by elliptical galaxies and Schwarz function, New Trends in Complex and Harmonic Analysis, Bergen, Norway, a plenary talk.
- Some nonlinear extremal problems in Banach spaces of analytic functions, Conference on Extremal Problems in Complex and Real Analysis, Moscow, Russia, an invited 1 hr talk.
- July Gravitational lensing by elliptical galaxies and Schwarz function, Quadrature domains and Laplacian growth symposium, BIRS, Banff, 1 hr. invited talk.
- October From the Fundamental theorem of Algebra to Astrophysics: A “Harmonious” Path, University of Tampa, Colloquium talk, invited.
- From the Fundamental theorem of Algebra to Astrophysics: A “Harmonious” Path, Penn State, MASS Colloquium talk, invited.
- 2008 March From the Fundamental theorem of Algebra to Astrophysics: A “Harmonious” path, Los Alamos National Laboratory, Colloquium talk, invited.
- May From the Fundamental theorem of Algebra to Astrophysics: A “Harmonious” path, 2 hour Colloquium talk for graduate students, University of Cyprus, invited.
- “Fingerprints” of two dimensional shapes and lemniscates, Colloquium talk, University of Cyprus, invited.

- June Searching for singularities of solutions of the Dirichlet problem: recent developments, Workshop on Complex Analysis and Mathematical Physics, Nordfjordeid, Norway, a plenary talk.
- August From the Fundamental theorem of algebra to astrophysics: a ``harmonious path'', A Workshop on Laplacian growth and related topics, Centre de recherches mathematiques, Universite de Montreal, a plenary talk.
- December Searching for singularities of solutions of the Dirichlet problem: recent developments, A Conference on Hilbert Spaces of Analytic Functions, Centre de recherches mathematiques, Universite de Montreal, a plenary talk.
- 2009 January Fingerprints of the two-dimensional shapes and lemniscates, an invited talk at the Special Session on Function Theoretic Operator Theory, Joint Mathematics Meeting, AMS, Washington, DC, 2009.
- May From the Fundamental theorem of algebra to astrophysics: a ``harmonious path'', Department of Physics, Hebrew University, Jerusalem, a colloquium talk.
- Searching for singularities of solutions of the Dirichlet problem: recent developments, University of Cyprus, a colloquium talk.
- Fingerprints of the two-dimensional shapes and Lemniscates, Complex Analysis and Dynamical Systems IV, Naharia, Israel, an invited talk.
- June From the fundamental theorem of algebra to astrophysics: A "harmonious" path, Los Alamos National Laboratory, a colloquium talk, invited.
- September Norwegian Fall School in Analysis for Ph D students and young researchers, A mini-course ``Analytic Continuation in Classical Potential Theory'', Trondheim, Norway, invited.

- October From the fundamental theorem of algebra to astrophysics: A “harmonious” path, Duke University, a colloquium talk, invited.
- On a uniqueness property of harmonic functions, Classical Analysis in One and Several Complex Variables, Chapel Hill, NC, an invited talk.
- December Classical potential theory and holomorphic PDE, Erwin Schroedinger Institute, Vienna, an invited talk.
- From the fundamental theorem of algebra to astrophysics: A “harmonious” path, Renyi Institute of Hungarian Academy of Sciences, a colloquium talk.
- 2010 March Malmheden’s theorem revisited, UCSD at La Jolla, a colloquium talk, invited.
- April Malmheden’s theorem revisited, AMS Western Sectional Meeting, Special Session on Geometric Function Theory, an invited talk.
- May Malmheden’s theorem revisited, Conference on Complex Analysis, UIUC, an invited talk.
- October From the fundamental theorem of algebra to astrophysics: a “harmonious” path, UCF at Orlando, a colloquium talk, invited.
- November “Fingerprints” of the two-dimensional shapes and lemniscates, A Workshop on Integrable and Stochastic Laplacian Growth in Modern Mathematical Physics, Banff, an invited talk.

- December                    ``Fingerprints'' of the two-dimensional shapes and lemniscates, Complex Analysis and Mathematical Physics, an international conference, Chillan, Chile, a plenary talk.
- 2011 February              ``Fingerprints'' of the two-dimensional shapes and lemniscates, University of New Mexico, Albuquerque a colloquium talk, invited.  
From algebra to astrophysics, UNM-PNM Statewide Mathematics Contest Public Lecture, Albuquerque, invited.
- From algebra to astrophysics, PiMuEpsilon Mathematics Club, University of South Florida.
- April                         From the fundamental theorem of algebra to astrophysics: a "harmonious" path, IUPUI, a colloquium talk, invited.
- Fingerprints of the two-dimensional shapes and lemniscates, an invited talk at the Special Session on Complex Analysis and Banach Algebras, AMS Spring Eastern Sectional Meeting, Worcester, Massachusetts.
- May                         Linear extremal problems in Banach spaces of analytic functions, Complex Analysis and Dynamical Systems V, Akko, Israel, a plenary talk.
- June                         Extremal problems for nonvanishing analytic functions in Bergman space, Computational Complex Analysis and Approximation Theory, Protaras, Cyprus, an invited talk.
- Linear extremal problems in Banach spaces of analytic functions, Complex Analysis and Potential Theory, Centre de Recherches Mathematiques, Montreal, a 1 hr invited talk.

- September      Linear extremal problems in Banach spaces of analytic functions, Workshop on Univalent Functions and Control, Mittag-Leffler Institute, Djursholm, Sweden, a 1hr invited talk.
- From the fundamental theorem of algebra to astrophysics: a “harmonious” path, University of Lund, a colloquium talk, Lund, Sweden, invited.
- November      From the fundamental theorem of algebra to astrophysics: a “harmonious” path, Royal Institute of Technology, Stockholm, an analysis seminar talk, invited.
- December      Algebra and Astrophysics, a public lecture for high school Seniors, Mittag-Leffler Institute, Djursholm, Sweden, invited.
- The isoperimetric inequality and free boundary problems, Workshop on Geometric Analysis and Mathematical Physics, Mittag-Leffler Institute, Djursholm, Sweden, a 1 hr invited talk.
- 2012    March      Holomorphic PDE in  $C^n$ , Potential Theory and Hele-Shaw Processes in  $R^n$ , a mini-course (jointly with E. Lundberg), Harmonic and Complex Analysis and Applications 2012, Tenerife, Canary Islands, Spain.
- July              Holomorphic PDE in  $C^n$ : J. Leray’s theory of propagation of singularities, 9<sup>th</sup> AIMS Conference on Dynamical Systems and Differential Equations, Orlando, FL, invited.
- August           Extremal domains for the analytic content, Workshop on Complex Analysis and Integrable Systems, in memory of B. Korenblum, Mittag-Leffler Institute, Djursholm, Sweden, 1hr, invited.
- September      Extremal domains for the analytic content, Conference on Complex and Harmonic Analysis, in honor of M. Katsoprinakis, University of Crete, Heraklion, Crete, 1hr, invited.

- October From the Fundamental theorem of algebra to astrophysics: a ‘‘harmonious’’ path, a colloquium talk, University of Michigan, Ann Arbor, invited.
- December Analytic functions in Smirnov classes with real boundary values, Canadian Mathematical Society Winter Meeting, Montreal, invited.
- 2013 March Holomorphic PDE and Potential Theory, 1 hour tutorial, 2d International Workshop on Nonlinear and Modern Mathematical Physics, Tampa, invited.
- May An Overdetermined Boundary Value Problem, Conference on Complex Analysis and Dynamical Systems VI, Naharia, Israel, invited.
- June Algebraic aspects of the Dirichlet problem, Conference in honor of Professor A. G. O’Farrell, Maynooth College, Ireland, 1 hour invited talk.
- Two – dimensional shapes and lemniscates, An International Workshop on Conformal Geometry in Mapping, Imaging and Sensing, Imperial College, London, 1 hour invited talk.
- August Selected problems in classical function theory, Invariant Subspaces of the Shift Operator, Centre de Recherches Mathematiques, Montreal, Canada, 1 hr invited talk.
- September An Overdetermined Boundary Value Problem, Norwegian University of Science and Technology, Trondheim, 1 hour invited talk.
- December From the Fundamental theorem of algebra to astrophysics: a ‘‘harmonious’’ path, Optimization, Moments Problem and Geometry II, Graduate Student Winter School/Workshop, National University of Singapore, an invited talk.
- 2014 January The fundamental theorem of algebra and a problem in gravitational lensing. S.- H. Rhie's work, 18<sup>th</sup> International Conference on Gravitational Microlensing, Santa Barbara, an invited talk.

- February      Some open problems for polynomials in one and several variables, Workshop on Dirichlet series and function theory in polydisks, MFO, Oberwolfach, invited.
- March          Boundary behavior of universal power series, AMS Regional Meeting, Special Session on Invariant Subspaces of Function Spaces, Knoxville, TN, invited.
- April          The Fundamental Theorem of Algebra, Complex Analysis and ... Astrophysics, International Conference on Complex and Related Fields, St. Petersburg, Russia, a plenary talk.
- May            The Fundamental Theorem of Algebra, Complex Analysis and... Astrophysics, ISM Conference, Laval University, Quebec City, a keynote invited talk.
- June            Some open problems for polynomials of one and several variables, Complex and Harmonic Analysis Workshop, Holon, Israel, an invited talk.
- ``Isoperimetric sandwiches'' and function theory, Annual Meeting of the Israel Mathematical society, Special Session on Mathematics of M. Schiffer, Tel Aviv, Israel, invited.
- July            Boundary behavior of universal power series, Perspectives of Modern Complex Analysis, Bedlewo, Poland, an invited talk.
- October        Problems for polynomials of one and several variables, Workshop on Hausdorff Geometry and Critical Points, Institute of Mathematics and Informatics, Sofia, Bulgaria, an invited talk.
- Problems for polynomials of one and several variables, Workshop on Optimal Point Configurations and Applications, Schroedinger Institute, Vienna, Austria, an invited talk.
- November     ``Fingerprinting'' the lemniscates, Red Raider Mini-symposium: Complex Analysis, Potential Theory Special Functions and Applications, Texas Tech, Lubbock, a plenary talk.
- The isoperimetric inequality revisited, 2014 Lecture Series at the University of Tampa, an invited talk.



- 2015 January ``Isoperimetric sandwiches'' in function-theoretic operator theory, AMS Annual Winter Meeting, Special Session on Progress in Multivariate Operator Theory, San Antonio, invited.
- March From C.- F. Gauss to A. Einstein, from algebra to relativity and astrophysics via complex analysis, 2015 USF Distinguished University Professor Lecture.
- April "Between two truths of the real domain, the easiest and shortest path quite often passes through the complex domain." P. Painleve, 1900. FIU, Miami, a seminar talk.
- "Between two truths of the real domain, the easiest and shortest path quite often passes through the complex domain." P. Painleve, 1900. FAU, Boca Raton, a seminar talk.
- From C.- F. Gauss to A. Einstein, from algebra to relativity and astrophysics via complex analysis, FAU, Boca Raton, a colloquium talk.
- May Approximating  $z^*$  by analytic functions, Complex Analysis and Dynamical Systems VII, Naharia, Israel, an invited talk.
- June Approximating  $z^*$  by analytic functions, Completeness Problems, Carleson Measures and Spaces of Analytic Functions, Mittag-Leffler Institute, Djursholm, Sweden, 1 hr invited talk.
- October The Fundamental Theorem of Algebra, Complex Analysis and ... Astrophysics, University of Bergen, a colloquium talk.
- Isoperimetric "sandwiches" and some free boundary problems via approximation by analytic and harmonic functions, University of Bergen, a minicourse.
- November "Fingerprinting" the lemniscates, Universitat Autònoma, Barcelona, a colloquium talk.
- December "Fingerprinting" the lemniscates, Stockholm University, Analysis Seminar.

- A variation on the theme of analytic continuation, Stockholm University, a colloquium talk.
- 2016 January Isoperimetric "sandwiches", free boundary problems and approximation by analytic and harmonic functions, Joint Analysis Seminar, McGill, U. de Montreal, Concordia University.
- February The Fundamental Theorem of Algebra, Complex Analysis and... Astrophysics, Universite de Montreal, a colloquium talk.
- July The spectral properties of several classical function-theoretic operators and geometry, 2016 CRM Summer School on Spectral Theory and Applications, Laval University, a 1 hr invited talk.
- Harmonic polynomials and rational functions: recent progress, open problems and applications, 7<sup>th</sup> ECM, Mini-Symposium on Zeros of Harmonic Functions, Berlin, an invited talk.
- ``Isoperimetric sandwiches'', free boundary problems and approximation by analytic and harmonic functions, A Conference on New Trends in Approximation Theory, Fields Institute, Toronto, a 1hr invited talk.
- November The Fundamental Theorem of Algebra, Complex Analysis and ... Astrophysics, Brown University, an invited talk.
- 2017 January A note on the spectral area of Toeplitz operators, Joint AMS and MAA Winter Meeting, Special Session on Operator Theory, Function Theory and Models, Atlanta, invited.
- March Dirichlet's problem with entire data posed on an ellipsoidal cylinder, Southeastern Analysis Meeting, Knoxville, invited.
- July Vanishing of reproducing kernels in spaces of analytic functions, Mathematics Congress of the Americas, Session on Operators on Function Spaces, Montreal, invited.
- September Vanishing of reproducing kernels in spaces of analytic functions, Southeastern AMS Meeting, Special Session on Complex Analysis, Harmonic Analysis and Approximation Theory, Orlando, FL, invited.