

Curriculum Vitae and Publications
Robert W. Brooks

Date of Birth: September 16, 1952
Place of Birth: Washington, D.C.
Citizenship: Israeli, US

Address:

Department of Mathematics
The Technion
Haifa, Israel

Telephone: 04-829 4218
Electronic Mail: rbrooks@tx.technion.ac.il

Education

Harvard University, Ph. D., 1977
Harvard University, B. A., M. A., 1974

Ph.D. Thesis: "On the Smooth Cohomology of Groups of Diffeomorphisms,"
Harvard University, October, 1977.
Ph.D. Advisor: Raoul Bott

Employment

The Technion, Professor of Mathematics, Sept. 1995-present.

MIT, Visiting Scholar, Fall 2001.

Hebrew University, Fulbright Senior Scholar, Sept. 1993-June 1994.

University of Southern California, Professor, 1988-1997.

University of California at Los Angeles, Visiting Professor, Fall, 1991
University of California at Los Angeles, Visiting Professor, 1989-1990
University of Southern California, Associate Prof., 1985-1988
University of Southern California, Visiting Assoc. Prof., 1984-1985
Courant Institute for Mathematical Sciences, New York University, Visiting Member, 1983-1984
University of Maryland, Assistant Professor, 1979-1984
State University of New York at Stony Brook, Instructor, 1977-1979

Short Term Visiting Positions

1. Institute for Physical Sciences and Technology, University of Maryland 1980-81 (half time)
2. Institut des Hautes Études Scientifiques, Bures-sur-Yvette, France Dec. 1981-Jan. 1982
3. Mathematical Sciences Research Institute, Berkeley, 1984-85 (short visits)
4. University of California at San Diego, May-June 1987
5. California Institute of Technology June-July 1987
6. Bar Ilan University, Ramat Gan, Israel Dec. 1987 - Jan. 1988
7. Institut des Hautes Études Scientifiques May - June 1988
8. Mathematical Sciences Research Institute, Berkeley, 1988-89 (short visits)
9. Institut Fourier, University of Grenoble, Grenoble, France June 1991
10. Mathematical Sciences Research Institute, Berkeley, 1991-92 (short visits)

11. Mathematische Institut, Gottingen, Germany, August 1992
12. Professeur Invité, ENS Lyon, France, March 1999
13. Visiting Professor, University of Toronto, February 2002.

Honors

1. Alfred P. Sloan Fellowship, 1984
2. Invited Hour Speaker, American Mathematical Society meeting, Claremont, California November 12-13, 1988
3. Associate Editor, Journal of Geometric Analysis
4. Distinguished Visiting Professor, Bucknell University, February 1993.
5. Fulbright Senior Scholar, Israel, Sept. 1993-June 1994.
6. Distinguished Visitor, Texas Tech. University, December, 1994.
7. Guastella fellowship, Sept. 1995- Aug. 1997.
8. Associate Editor, Israel Journal of Mathematics, 1997-present.
9. Taub Prize for Excellence in Research, Technion, 2001.
10. Kurt Mahler Prize in Mathematics, Technion, 2001.

Ph.D. theses directed

1. Richard Tse, "A Lower Bound for the Number of Isospectral Surfaces of Arbitrarily Large Genus g ," 1988
2. Gregory T. Quenell, "Trace-Formula Methods in the Spectral Geometry of Graphs," May, 1992

Master's theses directed

1. Dan Mangoubi, "Riemann Surfaces and 3-Regular Graphs," June 2001, with highest honors.

Publications

1. Appendix to some formulas for the characteristic classes of group actions, by R. Bott, Springer Lecture Notes 652 (1978), pp. 57-61.
2. The van Est theorem for groups of diffeomorphisms, (with P. Trauber), The Hadronic Journal (1977), pp. 916-934.
3. Volumes and characteristic classes of foliations, Topology (1979), pp. 295-304.
4. Some remarks on bounded cohomology, in *Riemann Surfaces and Related Topics*, Ann. Math. Studies 97 (1981), pp. 53-63.
5. The dynamics of 2-generator subgroups of $PSL(2, \mathbf{C})$, (with Peter Matelski), in *Riemann Surfaces and Related Topics*, Ann. Math. Studies 97 (1981), pp. 65-71.
6. Exponential growth and the spectrum of the Laplacian, Proc. Amer. Math. Soc. 82 (1981), pp. 473-477.
7. The Fundamental Group and the Spectrum of the Laplacian, Comm. Math. Helv. 56 (1981), pp. 581-596.
8. Amenability and the Spectrum of the Laplacian, Bull. Amer. Math. Soc. (1982), pp. 87-89.
9. A Relation Between Growth and the Spectrum of the Laplacian, Math. Zeit. 178 (1981), pp. 501-508.
10. Collars in Kleinian Groups, (with Peter Matelski), Duke Math. J. 49 (1982), pp. 163-182.
11. The \hat{A} -genus of Complex Hypersurfaces and Complete Intersections, Proc. Amer. Math. Soc. 87 (1983), pp. 528-532.
12. The Spectral Geometry of Foliations, Amer. J. Math. 106 (1984), pp. 1001-1012.
13. Some Riemannian and Dynamical Invariants of Foliations, *Differential Geometry*, Proc. Md. Special Year, Birkhauser, 1983, pp. 56-72.

14. Bounded Cohomology for Surface Groups (with C. Series), *Topology* 23 (1984), pp. 29-36.
15. The Godbillon-Vey Invariant of a Transversely Homogeneous Foliation (with W. Goldman), *Trans. Amer. Math. Soc.* 286 (1984), pp. 651-664.
16. Volumes in Seifert Space (with W. Goldman), *Duke Math. J.* 51 (1984), pp. 529-545.
17. On the Spectrum of Non-Compact Manifolds of Finite Volume, *Math. Zeit.* 187 (1984), pp. 425-432.
18. On Branched Coverings of 3-Manifolds, preprint.
19. On Branched Coverings of 3-Manifolds which Fiber over the Circle, *J. Reine Ang. Math.*, 362 (1985), pp 87-101.
20. (book) *Differential Geometry*, Proc. Md. Special Year, Birkhauser Progress in Mathematics, Vol. 32, 1983 (ed., with A. Gray and B. Reinhart).
21. The Spectral Geometry of the Apollonian Packing, *Comm. Pure and Appl. Math.* XXXVII (1985), pp. 357-366.
22. The Bottom of the Spectrum of a Riemannian Covering, *J. Reine Ang. Math.*, 357 (1985), pp. 101-114.
23. On the Deformation Theory of Classical Schottky Groups, *Duke Math J.* 52 (1985) pp. 1009-1024.
24. The First Eigenvalue in a Tower of Coverings, *Bull. Amer. Math. Soc.* 13 (1985) pp.137-140.
25. The Spectral Geometry of a Tower of Coverings, *J. Diff. Geom.*, 23 (1986) pp. 97-107.
26. Combinatorial Problems in Spectral Geometry, in *Curvature and Topology of Riemannian Manifolds*, Springer Lecture Notes , Vol 1201 (1986), pp. 14-32.

27. The First Eigenvalue of a Scalene Triangle (with P. Waksman), Proc. AMS. 100 (1987), pp. 175-182.
28. On the Angles Between Certain Arithmetically Defined Subspaces of \mathbf{C}^n , Ann. Inst. Fourier XXXVII (1987), pp. 175-185.
29. On Manifolds of Negative Curvature with Isospectral Potentials, Topology 26 (1987), pp. 63-66.
30. Circle Packings and Co-Compact Extensions of Kleinian Groups, Invent. Math. 86 (1986), pp 461-469.
31. Isospectral Surfaces of Small Genus (with R. Tse), Nagoya Math J. 107 (1987), pp. 13-24.
32. Some Remarks on Volume and Diameter of Riemannian Manifolds, J. Diff. Geom. 27 (1988), pp. 81-86.
33. Isospectral Potentials on a Surface of Genus 3, in Drasin (editor), *Holomorphic Functions and Moduli*, Vol. I, Springer Verlag (1988), pp. 203 - 207.
34. Constructing Isospectral Manifolds, Amer. Math. Monthly 95 (1988), pp. 823-839.
35. A Construction of Metrics of Negative Ricci Curvature, J. Diff. Geom. 29 (1989), pp. 85-94.
36. Isospectral Sets of Conformally Equivalent Metrics, (with P. Perry and P. Yang), Duke Math. J., 58 (1989), pp. 131-150.
37. Designer Metrics on Riemannian Manifolds, in Cheng, Choi and Greene (eds.), *Recent Developments in Geometry*, Contemporary Math vol. 101 (1989), pp. 31-46.
38. Injectivity Radius and Low Eigenvalues of Hyperbolic Manifolds, J. Reine Ang. Math. 390 (1988) pp. 117-129.
39. The Spectral Geometry of k -Regular Graphs, J. d'Analyse. 37 (1991), pp. 120-151.

40. Isospectral Problems in Conformal Geometry, in Boyom, Morvan, Verstraelen (eds.), *Geometry and Topology of Submanifolds II*, World Scientific (1990), pp. 50-64.
41. Isospectral Families of Conformally Equivalent Riemannian Metrics (with C. Gordon), *Bull. AMS* 23 (1990), pp. 433-436.
42. The Spectral Geometry of Flat Disks (with Y. Eliashberg and C. McMullen), *Duke Math J.* 61 (1990), pp. 119-131.
43. Correction to “Isospectral Surfaces of Small Genus,” (with R. Tse), *Nagoya Math J.* vol. 117 (1990), p.227.
44. Finiteness of Diffeomorphism Types of Isospectral Manifolds (with P. Perry and P. Petersen V), in R. Greene and S. T. Yau (eds), *Differential Geometry*, Proc. Symp. Pure Math. 54 (1993), pp. 89-94.
45. Some Relations Between Spectral Geometry and Number Theory, in Apanosov et. al. (eds.), *Topology 90*, Walter de Gruyter, 1992, pp. 61-75.
46. The Continued Fraction Parameter in the Deformation Theory of Classical Schottky Groups, *Comtemp. Math.* 136 (1992), pp. 41-54.
47. Compactness and Finiteness Theorems for Isospectral Manifolds (with P. Perry and P. Petersen V), *J. Reine Ang. Math.* 426 (1992), pp. 67-89.
48. Spectral Geometry (book), in preparation, to appear in Cambridge Univ. Press.
49. On Cheeger’s Inequality (with P. Perry and P. Petersen V), *Comm. Math. Helv.* 68 (1993), pp. 599-621.
50. Spectral Geometry and the Cheeger Constant, in J. Friedman (ed), *Expanding Graphs*, Proc. DIMACS Workshop, Amer. Math. Soc. (1993), pp. 5-19.
51. Some Examples in L^p Spectral Geometry (with P. Perry and P. Petersen), *J. Geo. Anal.* 3 (1993), pp. 293-313.

52. Spectral Geometry in Dimension 3 (with P. Perry and P. Petersen), Acta Math. 173 (1994), pp. 283-305.
53. L^p Spectral Geometry, Contemp. Math. 173 (1994), pp. 71-87.
54. An L^p Spectral Bootstrap Theorem (with P. Glezen), Contemp. Math. 173 (1994), pp. 89- 97.
55. (book) Proceedings of the AMS Summer Conference in Spectral Geometry, (editor, with C. Gordon and P. Perry), Contemp. Math. 173 (1994).
56. Trace-Formula Methods in Spectral Geometry, J. Fourier Anal. Appl. Kahane Special Issue (1995), pp. 87-95.
57. Factorization of $N^2 + 1$ and the Modular Group (with Hershel Farkas), to appear.
58. Cheng's Theorem in L^p Spectral Geometry, Algebra y Anlyza 8 (1996), pp. 98-102; St. Petersburg Mathematical Journal 8 (1997), pp. 255-258.
59. Reflections on the First Eigenvalue, Texas Tech Visiting Scholars' Lectures, Texas Tech University Mathematics Series 9 (1997), pp. 71-84.
60. Inverse Spectral Geometry, Andersson and Lapidus (eds.), *Progress in Inverse Spectral Geometry*, Birkhauser Trends in Mathematics, pp. 115-132.
61. Uniformization of Some Quotients of Modular Curves (with Y. Kopelevich) , Contemp. Math. 201 (1997), pp. 155-164.
62. Number Theory, Theta Identities, and Modular Curves (with H. Farkas and I. Kra), Contemp. Math. 201 (1997), pp. 125-154.
63. Platonic Surfaces, Comm. Math. Helv. 74 (1999). pp. 156-170.
64. Some Relations between Graph Theory and Riemann Surfaces, Israel Math. Conf. Proc. 11 (1997), pp. 61 -73.

65. Some Geometric Aspects of the Work of Lars Ahlfors, in Brooks and Sodin (eds.), *Lectures in Memory of Lars Ahlfors*, Isr. Math. Conf. Proc. 14 (2000), pp. 31-39.
66. Mutually Isospectral Riemann Surfaces (with R. Gornet and W. Gustafson), *Adv. Math.* 138 (1998), pp. 302-322.
67. Twist Surfaces, in Picardello and Woess (eds), *Random Walks and Discrete Potential Theory*, Cambridge University Press, 1999, pp. 85-103.
68. Isospectral Surfaces and Isospectral Graphs, Séminaire de Théorie Spectrale et Géométrie 1996-97, pp. 105-113.
69. Riemann Surfaces with Large First Eigenvalue (with Eran Makover), *J. d'Anal.* 83 (2001), pp. 243-258.
70. Non-Sunada Graphs, *Ann. Inst. Fourier* 49 (1999), pp. 707-725..
71. The Sunada Method, *Contemp. Math.* 231 (1999), pp. 25-35.
72. The Spectral Geometry of Belyi Surfaces (with Eran Makover), to appear in *Proc. Levin Symp.*
73. Isoscattering Schottky Manifolds (with R. Gornet and P. Perry), *GAF* 10 (2000), pp. 307-326.
74. The First Eigenvalue of a Riemann Surface (with Eran Makover), *ERA-AMS* 5 (1999), pp. 76-81.
75. Typical Surfaces and Random Graphs, *Sem. Geom. Th. Spec.* 17 (1999), pp. 99-103.
76. (book) *Lectures in Memory of Lars Ahlfors* (ed., with M. Sodin) *Isr. Math. Conf. Proc.* 14 (2000)
77. Random Construction of Riemann Surfaces (with Eran Makover), to appear.

78. Isophasal Scattering Manifolds in Two Dimensions (with P. Perry), *Comm. Math. Phys.* 223 (2001), pp. 465-474.
79. "Isopolar Surfaces," Appendix to "Determinants of Laplacians and Isopolar Metrics on Surfaces of Infinite Area" by D. Borthwick, C. Judge, and P. Perry, to appear.

Meetings Organized

1. AMS Special Session on "Differential Geometry and 3-Manifolds" (with W. Neumann and S. Wolpert), College Park, Maryland, October 1982.
2. AMS Special Session on "Spectrum of the Laplacian" (with S. Y. Cheng), Claremont, California, November 1988.
3. AMS Special Session on "Spectral Geometry" (with P. Perry), Los Angeles, California, November 1992.
4. AMS Summer Research Conference on "Spectral Geometry" (with C. Gordon and P. Perry), Seattle, Washington, July, 1993.
5. Mathematical Sciences Research Institute Workshop on "Spectral Geometry" (with C. Gordon and D. Webb), Berkeley, California, November, 1993
6. NSF-CNRS Workshop on "Inverse Spectral Geometry" (with C. Gordon, D. Webb, and P. Bérard), Dartmouth College, Hanover, New Hampshire, February, 1996.
7. Ahlfors Memorial Lectures (with W. Abikoff and U. Srebro), Technion, November-December, 1996.
8. NSF-CNRS Workshop on "Inverse Spectral Theory," (with C. Gordon, D. Webb, and P. Bérard), Grenoble, February and June, 1997.
9. International Workshop on "Geometric Methods in Analysis," (with L. Saloff-Coste), Technion, December 1-5, 1997.

10. Journées de Géométrie Spectrale et Théorie des Représentations à la Mémoire de Hubert Pesce (with P. Bérard, G. Besson, Y. Colin de Verdière, C. Gordon), Institut Fourier, Grenoble, June 10-12, 1998.
11. International Conference in Geometry and Topology (with Y. Moriah and B. Wajnryb), Technion, January 5-12, 1999.
12. International Workshop in Spectral Geometry (with Carolyn Gordon), Technion, June 13-16, 1999.
13. Workshop on Inverse Spectral Problems (with Carolyn Gordon and Peter Perry), Dartmouth College, Hanover, New Hampshire, June 25-29, 2001
14. Institute for Advanced Studies Special Anniversary Conference (with D. Bshouti, R. Loewy, M. Marcus, and S. Reich), Technion, January 14-17, 2002.

Selected Invited Talks

Talks 2000-2001

1. Geometric Analysis Seminar, Technion, November 2.
“A Statistical Approach to the Cheeger Constant of Graphs and Surfaces.”
2. Colloquium, Ben Gurion University, November 7.
“Random Construction of Riemann Surfaces.”
3. Haifa Area Topology and Geometry Seminar, Technion, November 21.
“Diffeomorphisms of Surfaces: an Overview.”
4. International Conference on Spectral and Transport Properties of Random Network Models, Göttingen, December 4-8.
“A Statistical Approach to Spectral Geometry of Graphs and Surfaces.”
5. Sémin, ENS Lyon, February 26.
“On the Cheeger Constant and the Selberg Conjecture.”

6. Combinatorics Seminar, Hebrew University, March 26.
“A Probabilistic Approach to the Cheeger Constant.”
7. Annual Workshop on Harmonic and Complex Analysis, Israel Mathematical Union, Tel Aviv, May 18.
“Cheeger Constants of Riemann Surfaces.”
8. Colloquium, Haifa University, June 3.
“Riemann Surfaces and Random Graphs.”
9. International Conference on Complex Analysis and Dynamical Systems, ORT Braude College, Karmiel, June 19-22.
“Random Construction of Riemann Surfaces.”
10. Workshop on Inverse Spectral Problems, Dartmouth College, June 25-29.
“Poisson-Dirichlet and Me.”
11. International Conference on Progress in Partial Differential Equations, Edinburgh, Scotland, July 9-13
12. Topological Analysis of Manifolds and Submanifolds, Tel Aviv, August 5-10.
“Riemann Surfaces and 3-Regular Graphs.”

Talks 1999-2000

1. Haifa Area Geometry and Topology Seminar, Technion, October 12.
“Riemann Surfaces and 3-Regular Graphs.”
2. Haifa Area Geometry and Topology Seminar, Technion, October 31.
“Spaces of Riemann Surfaces: An Overview.”
3. Kaley Colloquium, Technion, January 12.
“What is Spectral Geometry?”

4. Penn Geometry-Topology Seminar, University of Pennsylvania, February 17.
“Random Construction of Riemann Surfaces.”
5. Colloquium, Dartmouth College, February 24.
“The First Eigenvalue of a Riemann Surface.”
6. Geometry Seminar, Dartmouth College, February 22 and 29.
“Isoscattering.”
7. Special Seminar, Harvard University, March 2.
“Random Construction of Riemann Surfaces.”
8. Analysis-Geometry Seminar, Northeastern University, March 3.
“Isoscattering.”
9. Mini-Conference “Day of Spectral Theory,” Weizmann Institute, March 28.
The First Eigenvalue of a Riemann Surface.”
10. International Conference on Geometric and Combinatorial Group Theory, June 13-21.
“Trivalent Graphs and Random Riemann Surfaces.”
11. Workshop on Spectral Geometry, University of Kentucky, June 20-22.
“The Cheeger Constant Revisited.”
“Isospectral Riemann Surfaces.”
12. Seminar, Dartmouth College, August 17.
“The Cheeger Constant Revisited.”
13. Colloquium, Texas Tech University, August 24.
“Random Construction of Riemann Surfaces.”
14. Geometry Seminar, Texas Tech University, August 28.
“Riemann Surfaces with Large First Eigenvalue and Congruence Surfaces.”

Talks 1998-99

1. Seminar in Geometric Analysis, Technion, December 3.
“Random Constructions of Riemann Surfaces.”
2. Jerusalem Combinatorics Seminar, Jerusalem, December 7.
“Random Constructions of Riemann Surfaces.”
3. International Workshop on Geometry and Topology, Technion, January 5-12.
“Riemann Surfaces with Large First Eigenvalue.”
4. Seminar “Geometry and Dynamics,” Tel Aviv University, January 18.
“Random Construction of Riemann Surfaces.”
5. Haifa Area Topology and Geometry Seminar, Technion, February 18.
“Schottky Manifolds and Isospectrality.”
6. Séminaire Arthur Besse, École Polytechnique, Paris, March 8.
“Random Construction of Riemann Surfaces.”
7. Séminaire de Mathématiques Pures, ENS Lyon.
March 10: “Riemann Surfaces and 3-Regular Graphs.”
March 17: “Random Riemann Surfaces.”
8. Séminaire de Théorie Spectrale et Géométrie, Grenoble, March 11.
“Random Construction of Riemann Surfaces.”
9. Sém’In, ENS Lyon, March 15. “Riemann Surfaces with Large First Eigenvalue.”
10. German-Israel Workshop on Spectral and Scattering Theory, Hebrew University, May 10- 14.
“Isoscattering Schottky Manifolds.”
11. Conference on Riemann Surfaces, Jerusalem, June 1-7.
“Random Construction of Riemann Surfaces.”

12. International Workshop on Spectral Geometry, Technion, June 13-16.
“Riemann Surfaces with Large First Eigenvalue.”

Talks 1997-1998

1. Haifa Area Topology and Geometry Seminar, Technion, October 28.
“Isospectral Graphs and Isospectral Surfaces.”
2. Seminar in Complex Analysis, Technion, November 10.
“Spectral Geometry of Twist Surfaces.”
3. Conference in “Entire Functions in Modern Analysis,” Tel Aviv University, December 14-19.
“Spectral Geometry of Belyi Surfaces.”
4. Mathematics Colloquium, Bar Ilan University, December 21.
“Riemann Surfaces and Graphs.”
5. Seminar, Erwin Schrödinger Institute, Vienna, February 26.
“Riemann Surfaces with Large First Eigenvalue.”
6. Midrasha Mathematica “Groups and Probability,” Jerusalem, March 19.
“Finite Nilpotent Groups and Isospectral Riemann Surfaces.”
7. Jerusalem Topology and Geometry Seminar, Jerusalem, March 25.
“Riemann Surfaces with Large First Eigenvalue.”
8. Seminar, Geometry and Topology, Tel Aviv University, March 31.
“Isoscattering.”
9. Session in Topology and Geometry, Israel Mathematical Union, Jerusalem, May 12.
“Isoscattering Schottky Groups.”

10. Seminar, Mathematical Physics, Weizmann Institute, May 18.
“Non-Sunada Isospectral Graphs.”
11. International Workshop on Topology, Tel Aviv University, June 1.
“Riemann Surfaces with Large First Eigenvalue.”
12. Journées de Géométrie Spectrale et Théorie des Représentations à la Mémoire de Hubert Pesce, Grenoble, June 10-12.
“Non-Sunada Graphs.”
“Can You Hear the Shape of a Manifold?”
13. Workshop in Spectral Geometry, ESI Vienna, June 15.
“Riemann Surfaces with Large λ_1 .”
14. Seminar, University of Kentucky, August 13.
“Random Constructions of Riemann Surfaces.”
15. Seminar, Dartmouth College, August 18.
“Random Constructions of Riemann Surfaces.”

Talks 1996-1997

1. Seminar in Conformal Geometry, Technion, October 28.
“Mutually Isospectral Riemann Surfaces”
2. Ahlfors Memorial Lectures, Technion, November 25.
“Geometric Aspects of the Work of Lars Ahlfors”
3. Seminar in Geometry of Groups, Univ. Paul Sabatier, Toulouse, February 13.
“Platonic Surfaces.”
4. Workshop in Spectral Geometry, Grenoble, February 18-21.
“Mutually Isospectral Riemann Surfaces.”

5. Jerusalem Topology and Geometry Seminar, March 5.
“Mutually Isospectral Riemann Surfaces and Graphs.”
6. Seminar in Mathematical Physics, Technion, March 24.
“Recovering a Manifold from its Spectrum.”
7. National Topology and Geometry Seminar, Tel Aviv University, April 11.
“Twist Surfaces.”
8. International Workshop on “Modern Ergodic Theorems,” Technion, March 16-21.
“A Selberg Theorem for the Dual Platonic Graphs.”
9. International Workshop on “Positive Solutions of Elliptic and Parabolic Differential Equations,” Technion, May 26- June 1.
“The Ahlfors-Schwarz Lemma in Spectral Geometry.”
10. Conference in Random Walks and Discrete Potential Theory, Cortona, June 22-28.
“First Eigenvalue Estimates on Finite Graphs.”
11. Seminar, Dartmouth College, July 1.
“Twist Surfaces.”
12. Special Seminar, Stony Brook, July 3.
“Twist Surfaces.”
13. Nevanlinna Colloquium, Lausanne, August 14-20.
“The Ahlfors-Schwarz Lemma in Spectral Geometry.”

Talks 1995-6

1. Seminaire de Theorie Spectrale et Geometrie, Universite de Grenoble, October 26.
“Platonic Surfaces.”
2. Seminar in Conformal Geometry, Technion, October 30
“Isospectral Riemann Surfaces.”
3. German-Israeli Workshop on Partial Differential Equations and Mathematical Physics, Hebrew University, December 4-9
“Cheeger and Sobolev Constants in Spectral Geometry.”
4. Analysis Seminar, Bar-Ilan University, November 12.
“Platonic Surfaces.”
5. Kalei Colloquium, Technion, November 22.
“The Shape of Sound.”
6. Seminar in Conformal Geometry, Technion, December 25.
“Embedding Modular Curves via Theta Functions.”
7. Seminar in Geometry and Topology, Tel-Aviv University, January 3.
“Spectral Geometry in Dimension 3.”
8. Colloquium, University of Haifa, January 9.
“Platonic Surfaces and Graphs.”
9. Topology and Geometry Seminar, Hebrew University, January 21.
“Circle Packings as Moduli for Riemann Surfaces.”
10. Complex Analysis Seminar, SUNY Stony Brook, February 7.
“Platonic Surfaces”
11. NSF-CNRS Spectral Geometry Workshop, Dartmouth College, February 14.
“Seidel Switching”

12. Mathematics Colloquium, Dartmouth College, February 15.
“Platonic Surfaces and Graphs”
13. Special Seminar, Harvard University, February 21.
“Platonic Surfaces and Graphs”
14. Geometry-Topology Seminar, Dartmouth College, February 22.
“Theta Functions and Modular Curves”
15. Workshop on Complex Function Theory, Ashkelon, May 14.
“Zillions of Isospectral Manifolds”
16. Combinatorics Seminar, Hebrew University, May 29.
“Platonic Surfaces and Graphs”
17. Combinatorics Seminar, Technion, June 13.
“The Selberg Trace Formula for Graphs”
18. Geometric Analysis Seminar, Texas Tech University, June 21.
“Embedding of Modular Curves via Theta Functions”
19. NSF-CBMS Regional Conference in the Mathematical Sciences, Texas Tech University, June 28.
“Mutually Isospectral Riemann Surfaces”

Talks 1994-95

1. Workshop on Automorphic Forms and Number Theory, MSRI, Berkeley, October 24-28.
“Platonic Surfaces.”
2. ESA Distinguished Visitor, Texas Tech University, December 6 and 8.
“The Geometry of Sound”
“Platonic Surfaces.”

3. AMS Special Session on Exrtremal Riemann Surfaces, San Francisco, January 4-7.
“Factorization of $N^2 + 1$ and the Modular Group.”
4. Colloquium, University of California at Irvine, January 26.
“Platonic Solids.”
5. Colloquium, Stanford University, February 9.
“The First Eigenvalue of the Platonic Surfaces.”
6. Western States Mathematical Physics Meeting, California Institute of Technology, February 27 and 28.
“The First Eigenvalue of the Platonic Surfaces.”
7. Seminaire de Mathematiques, Universit”e de Cergy-Pontoise, Paris, May 17.
“Spectral Geometry and the Cheeger Constant.”
8. Seminaire de Cohomologie Bornee, Ecole Polytechnique, Paris, May 18.
“Platonic Surfaces.”
9. Special Session in Complex Analysis, Joint AMS-IMU meeting, Jerusalem, May 22-26.
“Platonic Surfaces.”
10. Colloquium, Technion, May 29.
“Platonic Surfaces.”

Talks 1993-1994

1. Euler Institute, St. Petersburg, Russia, Conference on Spectral Theory and the Theory of Wave Propagation, October 11-22.
“Spectral Geometry in Dimension 3.”

2. St. Petersburg Mathematical Institute, St. Petersburg, Seminar in Ergodic Theory and Dynamical Systems, October 20.
“Spectral Geometry and the Cheeger Constant.”
3. Colloquium, Hebrew University, November 4.
“Reconstructing a Manifold from its Spectrum.”
4. Landau Center Symposium on Complex Analysis, Hebrew University, November 10.
“The Spectral Geometry of Riemann Surfaces.”
5. Combinatorics seminar, Hebrew University, November 24.
“Isospectral Plane Domains and Graphs (after Gordon–Webb–Wolpert).”
6. Colloquium, Technion, November 29.
“Spectral Geometry with L^p Bounds.”
7. Mathematics Colloquium, Bar Ilan University, December 5.
“Spectral Geometry in Dimension 3.”
8. PDE Seminar, Hebrew University, December 23.
“Spectral Geometry and the Cheeger Constant.”
9. Topology Seminar, Hebrew University, January 26.
“Bounded Cohomology: An Historical Survey.”
10. Operator Theory and Applications Seminar, Weizmann Institute, January 30.
“On a Class of Isospectral Problems.”
11. Session in Number Theory, Annual Meeting of the Israel Mathematical Union, April 21.
“Selberg’s $3/16$ Theorem and the Cheeger Constant.”

12. Topology Seminar, Hebrew University, June 13.
“Topological Volumes.”
13. Israeli PDE Meeting, Hebrew University, June 17.
“The Spectral Geometry of Flat Disks.”
14. International Conference and Summer School in Progress in Inverse Spectral Geometry, June 27-July 2, Stockholm, Sweden.
“ L^p Spectral Geometry” (two lectures) and
“Non-Sunada Graphs.”

Talks 1991-1993

1. AMS Summer Conference in Spectral Geometry, Seattle, July 17-23, 1993.
“ L^p Spectral Geometry.”
2. London Mathematical Society Conference in “Hyperbolic Geometry,” Durham, England, July 4-10, 1993.
“Spectral Geometry of Hyperbolic Manifolds.”
3. Colloque en l’Honneur de J.P. Kahane, Université de Paris Sud, Orsay, Paris, June 29-July 3, 1993.
“Trace-formula Methods in Spectral Geometry.”
4. Hyperbolic Geometry Seminar, University of Warwick, Coventry, England, June 24, 1993.
“Spectral Geometry and the Cheeger Constant.”
5. Special Lecture Series, UCLA, May 19, 21, and 24, 1993.
“ L^p Spectral Geometry.”
6. PDE/ Geometric Analysis Seminar, Johns Hopkins University, April 28-29, 1993.
“Some Relations between Spectral Geometry and Number Theory.”
“Spectral Geometry in Dimension 3.”

7. Clifford Lecture Conference, Tulane University, March 29- April 1, 1993.
“ L^p Spectral Geometry.”
8. Distinguished Visiting Professor, Bucknell University, February 14-19, 1993.
“Isospectral Manifolds and Graphs,” February 16
“Graphs and Circle Packings,” February 18.
9. Colloquium, Dartmouth College, February 11, 1993.
“ L^p Spectral Geometry.”
10. Colloquium, University of Arizona, November 19, 1992.
“Spectral Geometry in Dimension 3.”
11. Spectral Theory Seminar, Mathematishe Institut, Universitat Göttingen, August 28, 1992.
“Spectral Geometry in Dimension 3.”
12. DIMACS Workshop on Expanding Graphs and Applications, Princeton University, May 11-14 1992.
“On Cheeger’s Inequality.”
13. Geometry/Topology Seminar, University of Pennsylvania, May 8, 1992.
“Spectral Geometry in Dimension 3.”
14. PDE Seminar, UCLA, February 5, 1992.
“A Spectral Bound for the Cheeger Constant.”
15. Seminar on Eigenvalues, Harvard University, October 22 and 29, 1991.
“The Spectral Geometry of k -Regular Graphs.”
16. Basic Notions Seminar, Harvard University, October 21, 1991.
“Isospectral Manifolds and Isospectral Plane Domains.”

17. NSF-George Washington University Colloquium, October 25, 1991.
“Circle Packing.”
18. Seminaire d’Analyse Université Paris VI & Université Paris Sud, Institut Henri Poincaré, Paris, June 27, 1991
“Some Relations between Spectral Geometry and Number Theory.”
19. Seminaire de Theorie Spectrale et Geometrie, Grenoble, France.
June 13, 1991:
“Spectral Geometry in dimension 3
June 17:
“Some Relations between Spectral Geometry and Number Theory.”
20. Colloquium, Caltech, May 28, 1991.
“Some Relations between Spectral Geometry and Number Theory.”
21. GADGET conference “Rencontres de Theorie Spectrale et Geometrie,” Aussois, France, April 7-14 1991.
“Compacité des Ensembles Isospectrales.”
22. Miniconference on Spectral Geometry, Univeristy of Kentucky, March 12, 1991.
“The Selberg Trace Formula: A Geometer’s View.”
23. Workshop on Automorphic Forms and Related Topics, UC Santa Barbara, March 26, 1991.
“Spectral Geometry and Congruence Subgroups.”
24. Western States Mathematical Physics Meeting, Caltech, February 12, 1991.
“Finiteness Theorems for Isospectral Manifolds.”