ILAN VARDI

Curiculum vitae

Address
IHES
35 route de Chartres
91440 Bures–sur–Yvette
France
Phone: (33) 01 60 92 66 36, Fax: (33) 01 60 92 66 09
email: `ilan@ihes.fr`, web site: `www.ihes.fr/ ilan`

Research interests

Number theory, modular forms, complex analysis, probability theory, computation, discrete mathematics, combinatorics, history of mathematics.

Publications

1. *Deterministic percolation,* to appear, Communications in Mathematical Physics.
2. *What is ancient mathematics?* to appear, Mathematical Intelligencer.
3. With Y.–F. S. Pétermann and J.–L. Rémy, *On a functional differential equation related to Golomb's sequence,* to appear, Journal de Théorie des Nombres de Bordeaux.
4. With A. Carbone, M. Gromov and P. Przinkiewicz, Preface to *Pattern Formation in Biology, Vision, and Dynamics,* World Scientific, London, 1999.
5. *Premiers chiffres significatifs et nombres algébriques,* C. R. de l'Académie des Sciences, Série I **328** (1999), 749–754.
6. *Prime Percolation,* Experimental Mathematics **7** (1998), 275–288.
7. *Archimedes' Cattle Problem,* American Math. Monthly. **105** (1998), 305–319.
8. *The St. Petersburg game and continued fractions,* C. R. de l'Académie des Sciences **324**, Série I (1997) 913–918.
9. *Code and Pseudo Code,* Mathematica Journal **6** Issue 2 (1996), 66–71.
10. *The limiting distribution of the St. Petersburg game,* Proceedings of the A.M.S. **123** (1995), 2875–2882.
11. With I. Rivin and P. Zimmermann, *The N–queens problem,* American Math. Monthly **101** (1994), 629–939
12. *Dedekind sums have a limiting distribution,* Inter. Math. Research Notices (1993), 1–12, in Duke Math. J. **69** (1993).
13. *The error term in Golomb's sequence,* J. of Number Theory **48** (1992), 1–11.
14. *Computational Recreations in Mathematica,* Addison–Wesley 1991.
15. *A sampler of elegant programs,* Mathematica Journal **1** (1991), 53–55.
16. With H.A. Cunningham, *A vector–sum process produces curved aiming paths under rotated visual–motor mappings,* Biological Cybernetics **64** (1990), 117–128.
17. *Determinants of Laplacians and Multiple Gamma Functions,* SIAM Journal on Math. Analysis **19** (1988), 493–507.

18. *Definite Integrals an Introduction to Analytic Number Theory,* American Math. Monthly **95** (1988), 308–315.
19. *A Relation between Dedekind Sums and Kloosterman Sums,* Duke Math. Journal **55** (1987), 189–197.
20. *On the Spectrum of the Metaplectic Group with Applications to Dedekind Sums,* Ph.D. thesis, MIT 1982.

Preprints

1. *Leading digits, lattice points, and algebraic numbers,* submitted. (IHES preprint M/98/81)
2. With Y.-F.S. Pétermann et J.–L. Rémy, *Discrete derivatives of sequences.* (IHES preprint M/99/21)
3. *Multiple weight enumerators of codes,* IHES preprint 1999.
4. *Archimedes, the Sand Reckoner,* IHES preprint M/98/78.
5. *A Classical Reeducation,* book in preparation.

Problems

1. With D.E. Knuth, Problem 6581 (the asymptotic expansion of $\binom{2n}{n}$), American Mathematical Monthly **95** (1988), p. 774.
2. Problem 6587 (determinants of Kloosterman sums), American Mathematical Monthly **95** (1988), p. 963.
3. *A lattice spiral, Mathematica* Journal, **1** (1991), 56.

Employment

IHES — Bures–sur–Yvette
January 1999–July 2000, Visitor.

INRIA — Rocquencourt
December 1998, Chercheur invité.

INRIA, Lorraine — Nancy
September–October 1998, Chercheur invité.

Caltech — Pasadena, CA
1997–1998, Visiting scholar.

Occidental College — Los Angeles, CA
1997, Visiting Associate Professor.

Stanford University — Stanford, CA
Fall 1996, Visiting Scholar.

MSRI — Berkeley, CA
July 1996, Professor, Summer Graduate Workshop in Computation.

Caltech — Pasadena, CA
January 1996, Visiting scholar.

Macalester College — St. Paul, MN
1995–1996, Visiting Assistant Professor.

MSRI — Berkeley, CA
1994–1995, Research Professor.

Oklahoma State University — Stillwater, OK
1993–1994, Visiting Assistant Professor.

Rutgers University — New Brunswick, NJ
Fall 1992, Visiting scholar.

Wolfram Research — Champaign, IL
1989–1991, Algorithms development.

INRIA — Rocquencourt, France
Mai 1991, Chercheur invité.

INRIA — Rocquencourt, France
Novembre 1989, Chercheur invité.

Stanford University — Stanford, CA
1987–1989, Research assistant.

Stanford University — Stanford, CA
1983–1985, Acting assistant professor.

Institute for Advanced Studies — Princeton, NJ
1982–1983, Assistant to A. Selberg.

Respondents

Philippe Flajolet, INRIA, Rocquencourt, France.

Mikhael Gromov, IHES, Bures–sur–Yvette, France.

Peter Sarnak, Mathematics Department, Princeton University.

Doron Zeilberger, Mathematics Department, Temple University.

Education MASSACHUSETTS INSTITUTE OF TECHNOLOGY — Cambridge, MA
Ph.D. in mathematics, Dorian Goldfeld advisor, September 1982.

MCGILL UNIVERSITY — Montreal, Canada
B.Sc. in mathematics, June 1978.

Teaching Occidental College 1997: Mathematics for the liberal arts. Computer science for the liberal arts. Calculus I–II.

MSRI, July 1996: Graduate workshop in symbolic computation.

Macalester College 1995–96: Calculus I–II. Mathematics for the liberal arts. Problems seminar (Putnam competition).

MSRI, 1994–95: Courses in symbolic computation, continued fractions, and *Mathematica.*

Oklahoma State University, 1993–94: Linear algebra. Mathematiques for computer science. Geometry for grade school teachers.

Stanford, 1983–85: Linear algebra, calculus, complex analysis.

Talks given

1. IHES, July 12, 1999, "The legacy of Archimedes."
2. IHES, May 12, 1999, "Leading digits and algebraic numbers."
3. IHES, May 6, 1999, "Deterministic percolation."
4. Inst. Henri Poincaré, April 12 1999, Seminar in elementary and analytic number theory, "La percolation dans la théorie des nombres."
5. University of Paris VI, February 25, 1999, Seminaire d'arithmétique, "Chiffres de tête et nombres algébriques."
6. University of Lyon I, February 18, 1999, number theory seminar, "Chiffres de tête et nombres algébriques."
7. December 1998, INRIA, Rocquencourt, "Introduction à la théorie analytique des nombres (d'après Rubinstein et Sarnak)".
8. December 1998, Séminaire de théorie des nombres de Bordeaux, "Chiffres de tête et nombres algébriques".
9. November 1998, Séminaire de théorie des nombres de Nancy–Metz, "La percolation dans la théorie des nombres".
10. October 1998, INRIA Rocquencourt, "Les fractions continues d'Euclide jusqu'au présent".
11. October 1998, INRIA, Lorraine, "Les bœufs d'Archimede".
12. August 1998, Stanford University, High School Math Camp, "What is Ancient Mathematics?"
13. June 1997, UCSD Colloquium, "Number theoretic percolation."
14. May 1997, University of Cambridge, "Archimedes, the Sand Reckoner."
15. May 1997, University of Warwick, Conference for David Epstein 60th Birthday: "The St. Petersburg Game and Continued Fractions."

16. April 1997, special Classics lecture series, Occidental College, "A classical reeducation."
17. March 1997, invited address, Joint MAA SIAM meeting, Los Angeles, "A classical reeducation."
18. May 1996, University of Minnesota combinatorics seminar: "The n–queens problem."
19. April 1996, Macalester College student seminar: "Archimedes' cattle problem."
20. April 1996, University of Minnesota probability theory seminar: "The St. Petersburg game and continued fractions."
21. March 1996, University of Minnesota combinatorics seminar: "Multiple weight enumerators of codes."
22. January 1996, Caltech analysis seminar: "The St. Petersburg game."
23. January 1996, Caltech number theory seminar: "Continued fraction arithmetic."
24. November 1996, Macalester College student seminar: "The n–queens problem."
25. October 1995, Macalester college faculty seminar: "An introduction to symbolic computation."
26. October 1994, A.M.S. fall meeting, Stillwater OK, "Continued fraction arithmetic."
27. April 1994, Colloquium, Oklahoma State University, "Introduction to symbolic computation."
28. October 1993, Colloquium, Oklahoma State University, "Multiple weight enumerators of codes."
29. September 1993, Number Theory Seminar, Oklahoma State University, "The distribution of the St. Petersburg game."
30. July 1993, SIAM conference, Philadelphia, "Multiple weight enumerators of codes."
31. October 1992, Princeton–Rutgers Number Theory and Harmonic Analysis seminar, "Dedekind sums have a limiting distribution."
32. October 1992, Number Theory Seminar, Columbia University, "Dedekind Sums and Continued Fractions."
33. September 1992, Colloquium, Rutgers University, "The Distribution of Dedekind Sums."
34. May 1991, ETH, Zurich, Switzerland, "Computational Recreations."
35. May 1991, INRIA, Rocquencourt, "Évaluation numérique de produits d'Euler".
36. May 1991, INRIA, Rocquencourt, "Programmation en Mathematica."
37. March 1991, ATT Bell Laboratories, "The n–queens problem."
38. January 1991, Second Mathematica Conference, San Francisco, CA, "Elegant Programming in Mathematica."
39. July 1990, Number Theory Seminar, Stanford University, "The error term in Golomb's sequence."
40. January 1990, First Mathematica Conference, Redwood City, CA, "Mathematics and Mathematica."
41. November 1989, INRIA, Rocquencourt, "Le problème des n reines".

42. November 1989, INRIA, Rocquencourt, “Le terme d’erreur dans la suite de Golomb”.
43. December 1988, AFLB (Algorithms seminar), Stanford University, “Medical applications of combinatorial optimization.”
44. February 1987, Seminar in Symbolic Computation, Stanford University, “A survey of Algebraic Techniques”.
45. January 1987, 12’th Annual Interdisciplinary Conference in cognitive psychology, Jackson Hole, “A Differential Equation Model of Visual Motor Adaptation”, with H.A. Cunningham.
46. July 1986, Seminar on Primality Testing, Stanford University, “The Goldwasser-Killian probabilistic algorithm.”
47. July 1985, Number Theory Days, Stanford University, “Integrals, an Introduction to Analytic Number Theory”.
48. Feruary 1984, Number Theory Seminar, Stanford University, “Special Values of Dirichlet Series”.
49. October 1983, Number Theory Conference, San Luis Obispo, “A relation between Dedekind Sums and Kloosterman Sums”.
50. June 1982, Summer Institute in Number Theory, University of Texas at Austin, “A relation between Dedekind Sums and Kloosterman Sums”.
51. May 1982, Number Theory Seminar, Courant Institute,“Modular Forms of Half Integral Weight”.

Personal information

Born: Paris, March 29, 1957.

Citizenship: Canadian.