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EDUCATION

• **Ph.D.** in Mathematics, *Massachusetts Institute of Technology*, Cambridge, MA, 1974
Advisor: Harold M. Stark. *Thesis:* The 4-part of the class group of a quadratic field.

• **S.B./ S.M.** in Mathematics, *Massachusetts Institute of Technology,* Cambridge, MA, 1972
Advisor: Harold M. Stark. *Thesis:* Evaluation of certain character sums.

PROFESSIONAL EXPERIENCE

• Professor, Mathematics, *Univ. of Michigan*, Ann Arbor, MI (2004–present)

• Member of Technical Staff, *A. T. & T. Labs-Research*, Florham Park, NJ (1995 – 2004).
[Official job title: "Technology Consultant"]

• Member of Technical Staff, *A. T. & T. Bell Laboratories*, Murray Hill, NJ (1974 – 1995).

Visiting Positions

• Visiting Professor, Mathematics, *Stanford University* (Fall 2010).

• Visiting Professor, Physics, *University of Paris VII* (July 2002).

• Visiting Associate Professor, Computer Science, *Rutgers University* (Spring 1984).

• Visiting Assistant Professor, Mathematics, *University of Maryland*, College Park (1978–1979).

RESEARCH INTERESTS

• Trained in number theory, have worked on topics in both pure and applied mathematics, theoretical computer science, operations research, and condensed matter physics

• Fields include: Algorithms and Computational Complexity, Cryptography, Discrete & Computational Geometry, Dynamical Systems, Linear Programming and Optimization, Low-Dimensional Topology, Mathematical Physics, Number Theory.

HONORS AND AWARDS

• *Fellow*, American Mathematical Society 2012.

• *Lester L. Ford Award*, Mathematical Association of America, 2007 (for paper in American Math. Monthly "Wild and Wooley Numbers").

• *Best Paper Award 2005,* International Society for Difference Equations, 2006.

• *Fellow*, American Association for Advancement of Science (AAAS), 2003.

• *Lester L. Ford Award*, Mathematical Association of America, 1986 (for paper in American Math. Monthly "The 3x+1 problem and its generalizations").

• *Putnam Fellow* (top 6), Putnam Examination, 1970.

PLENARY TALKS

• *American Mathematical Society, Invited Addresses:*

(1) Erdős Lecture: "From Apollonian Circle Packings to Fibonacci Numbers," AMS Meeting #1047, Urbana-Champaign, IL, March 2009;

(2) "Computational Topology: The Complexity of Unknotting", AMS National Meeting, San Diego, CA, Jan. 2002;

(3) "The Nonlinear Geometry of Linear Programming," Joint AMS/MAA Invited Address, National Meeting, Atlanta, GA, Jan. 1990.

(4) "Finding Short Vectors in Lattices and Applications", AMS Regional Meeting, Mobile, AL, March 1985.

• *Mathematical Association of America, Invited Addresses:*

(1) Earle Raymond Hedrick Lectures: (i) "Mathematical Crystals and Quasicrystals"; (ii) "Tilings with One Tile"; (iii) "Apollonian Circle Packings"; MAA Mathfest, Albuquerque,NM, Aug 2005;

(2) "The $3X + 1$ Problem", MAA Mathfest, UCLA, Aug. 2000;

(3) *MAA Polya Lecturer:* 2011-2013 (ongoing). Talks at Sectional MAA Meetings: (1) Univ. of Indianapolis, Indianapolis, IN, (2) Midland University, Midland, NE, (3) Xavier University, Cincinnati, OH, (4) Oklahoma State University, Stillwater, OK

• *British Mathematical Colloquium, Invited Address:* "Packing Space with Regular Tetrahedra," Edinburgh, SCOTLAND, April 2010.

• *26émes Journées Arithmetiques, Invited Address:,* "Smooth solutions of the equation $A+B = C$," Saint Etienne, FRANCE, June 2009.

• *New Zealand Mathematical Society, Invited Address:* "Mathematical Crystals and Quasicrystals," Massey University, Palmerston North, NEW ZEALAND, June 1994.

• *Australian Mathematical Society, Invited Address:* "Number Theory Zeta Functions and Dynamical Zeta Functions," University of Adelaide, Adelaide, AUSTRALIA, July 1994.

• *Grosswald Lectures*, Temple University, Philadelphia, PA, March 2002

• *CBMS Lectures* (Principal speaker), "Number Theory and Dynamical Systems", Fresno State Univ., August 1990.

• *IBM Lectures*, Swarthmore College, 1984.

SUPERVISION AND TRAINING

• *Graduate Students-Univ. Michigan:* Jonathan Bober (PhD. 2009); Leo Goldmakher (PhD. 2009)[joint with K. Soundararajan], Elizabeth Chen (PhD. 2010), Benjamin Weiss (PhD. 2011)[joint with M. Zieve] , Andrey Mishchenko (PhD. 2012)

Current Graduate Students: Julian Rosen, Harry Altman, Hieu Ngo. Also assisting with Will Abram (Kriz student)

• *REU Students-Univ. Michigan:* Zachary Maddock (2007); Timothy Heath (2008); Will Abram (2009), David Montague (2010)

• *AT&T Summer Interns:* Jeremy Primer, James Propp, David Grabiner, Eric Rains, David Moews, Christopher Skinner, Kannan Soundararajan, Kirin Kedlaya, Manjul Bhargava, Nicholas Eriksson

• *AT&T CRFP Fellow:* David S. Romano (Univ. California- Berkeley, Ph.D. 2000)

• *AT&T GRPW Fellow:* Amanda Galtman (Stanford University)

SERVICE

• Served on various AMS and MAA committees, and the MAA Governing Board. Served on committees for the US National Academy of Sciences.

• Served on the editorial board of various journals. Serving at present: Advances in Geometry, Advances in Applied Mathematics, Discrete & Computational Geometry, Integers, Journal of Number Theory, Michigan Mathematics Journal

• Served on panels for NSF and NSA grants; have reviewed for granting agencies of Austria, Canada, Chile, Netherlands, and Israel. Reviewer for some Simons Foundation grants.

• Served on program committees for theoretical computer science conferences: STOC, FOCS. Edited special issue of JCSS for best papers at 26-th IEEE FOCS Conference, 1985.

• Organized AMS Summer Research Conference on Mathematical Optimization.

PUBLICATIONS

3 books (edited), 1 book chapter, over 175 papers in refereed journals, 20 conference papers, 10 expository and survey papers, 5 patents. (See publication list.)