BERNARD SHIFFMAN

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Education:
Ph.D., University of California at Berkeley, 1968 (advisor: Shiing-Shen Chern)
B.S., Massachusetts Institute of Technology, 1964

Positions:
Professor, Johns Hopkins University, 1977–present
Chair, Department of Mathematics, Johns Hopkins University, 1990–1993, 2012–2014
Associate Professor, Johns Hopkins University, 1973–1977
Assistant Professor, Yale University, 1970–1973
C.L.E. Moore Instructor, M.I.T., 1968–1970

Visiting Positions:
Columbia University, Fall 2014
Mittag-Leffler Institute, March–April 2008
Kavli Institute of Theoretical Physics, November 2005
Université de Grenoble, June 1992, November 1995, May–June 2001, June 2003
Mathematical Sciences Research Institute, Spring 1996, June 1999
Université de Paris VI, May 1981, May 1985
Institut des Hautes Études Scientifiques, Spring 1979
Universität Kaiserslautern, Summer 1977
Institute for Advanced Study, Fall 1975

Honors & Grants:
Fellow of the American Mathematical Society, Inaugural Class 2013
National Science Foundation research grants, 1970–present
National Science Foundation conference grants, 1991, 1997, 2004, 2007
Woodrow Wilson Faculty Development Award, 1979
Alfred P. Sloan Research Fellowship, 1973–1975
National Science Foundation Graduate Fellowship, 1965–1968
Woodrow Wilson Fellow, 1964 (Honorary)

Editorial Boards:
American Journal of Mathematics, Editor-in-Chief, 1993–2005; Editor, 1992–1993; Associate Editor, 1990–1992, 2005–present.
Forum Mathematicum, Editor, 1988–1995.

Recent Major Talks:
Short Course at the Trondheim Spring School 2013 in Point Processes and Complex Analysis, Trondheim, Norway, May 2013.
University of Maryland Mathematics Colloquium, September 2012.
University of Michigan Mathematics Colloquium, December 2010.
CRM Colloquium, Montréal, November 2008.
Distinguished Visitors Lecture Series, University of Iowa, February 2008.
"Frontiers in Mathematics" Lecture Series, Texas A & M University, April 2007.
Colloquium, Institute of Mathematics, Chinese Academy of Sciences, Beijing, June 2004.

Recent Scholarly Service:
NSF Review Panels.
Faculty Editorial Board, Johns Hopkins University Press, 2008-2014.
Member of organizing committee for the International Conference on Nevanlinna Theory and Complex Geometry, Notre Dame, March 2012.
Chair of Organizing Committee for the Fields Institute Workshop on Diophantine Approximation and Complex Hyperbolic Geometry, Toronto, November 2008.
American Mathematical Society Committee on Professional Ethics, 2005–2008.
Co-organizer of CRM workshop on "The geometry of holomorphic and algebraic curves in complex algebraic varieties," Montréal, May 2007.
Co-organizer of American Institute of Mathematics Workshop on Random Analytic Functions and Surfaces, January 2006.

Research description:

My research is centered around complex geometry and analysis—in particular, the theory of holomorphic and meromorphic functions and mappings of complex manifolds. One direction of my current research involves applying pluripotential theory and the asymptotic properties of the Bergman-Szegő kernel to study the zeros and critical points of random polynomials, holomorphic functions and sections of line bundles on complex manifolds. My other interests and previous work include Kobayashi hyperbolicity, Nevanlinna defect relations, separately meromorphic functions, characterization of Moishezon manifolds, Nash-algebraic approximation of holomorphic mappings, and dynamics of rational mappings.

Selected publications:

- Uniformly bounded orthonormal sections of positive line bundles on complex manifolds; *Proceedings of the Conference on Analysis, Complex Geometry, and Mathematical Physics: In Honor of Duong H. Phong*, Contemporary Mathematics, vol. 644, Amer. Math. Soc., Providence, RI, 2015, pp. 227–240.
- (with Z. Lu) Asymptotic expansion of the off-diagonal Bergman kernel on compact Kähler manifolds, *J. Geom. Anal.*, 25 (2015), 761–782.
- (with S. Zelditch) Number variance of random zeros on complex manifolds, *Geom. Funct. Anal.* 18 (2008) 1422–1475.
- (with T. Bloom) Zeros of random polynomials on $\mathbb{C}^m$, *Math. Res. Lett.* 14 (2007), 469–479.
- (with M. R. Douglas and S. Zelditch) Critical points and supersymmetric vacua, II: Asymptotics and extremal metrics, *J. Diff. Geometry* 72 (2006), 381–427.
- (with S. Zelditch) Random polynomials with prescribed Newton polytope, *J. Amer. Math. Soc.* 17 (2004), 49–108.
- (with M. Zaidenberg) Two classes of hyperbolic surfaces in $\mathbb{P}^3$, *International J. Math.* 11 (2000), 65–101.
- (with P. Bleher and S. Zelditch), Universality and scaling of correlations between zeros on complex manifolds, *Inventiones Math.* 142 (2000), 351–395.
- (with S. Zelditch) Distribution of zeros of random and quantum chaotic sections of positive line bundles, *Commun. Math. Phys.* 200 (1999), 661–683.
- (with A. Russakovskii) Value distribution for sequences of rational mappings and complex dynamics, *Indiana Univ. Math. J.* 46 (1997), 897–932.
- (with J.-P. Demailly and L. Lempert) Algebraic approximations of holomorphic maps from Stein domains to projective manifolds, *Duke Math. J.* 76 (1994), 333–363.
- (with S. Ji and J. Kollár) A global Łojasiewicz inequality for algebraic varieties, *Trans. Amer. Math. Soc.* 329 (1992), 813–818.
- (with A. J. Sommese) *Vanishing theorems on complex manifolds*, Progress in Math. 56, Birkhäuser, Boston, 1985.
- Nevanlinna defect relations for singular divisors, *Inventiones Math.* 31 (1975), 155-182.
- (with R. Harvey) A characterization of holomorphic chains, *Annals of Math.* 99 (1974), 553–587.
- Extension of positive line bundles and meromorphic maps, *Inventiones Math.* 15 (1972), 332–347.
- On the removal of singularities of analytic sets, *Michigan Math. J.* 15 (1968), 111–120.

Recent Ph.D. students:

Junyan Zhu (Ph.D. 2015), Arash Karami (Ph.D. 2014), Timothy Tran (Ph.D. 2014), Jingzhou Sun (Ph.D. 2012), John Baber (Ph.D. 2010), Brian Macdonald (Ph.D. 2008), Scott Zrebiec (Ph.D. 2007)