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Zbigniew H. Nitecki

Research Interests: dynamical systems, graphs, braids

Personal Information

- Born May 12, 1946
Plymouth, England
- Naturalized U.S. citizen, 1956

Education

- 1962 • Graduated Hyde Park High School, Chicago
- 1965 • SB, Mathematics, University of Chicago
- 1967 • MS, Mathematics, University of California, Berkeley
- 1969 • PhD, Mathematics, University of California, Berkeley
Thesis: *The orbit structure of endomorphisms*
Directed by S. Smale

Positions

- 1980–... • Professor, *Tufts University*
- 1975-80 • Associate Professor, *Tufts University*
- 1972-5 • Assistant Professor, *Tufts University*
- 1971-2 • Assistant Professor, *The City College of New York*
- 1969-71 • Gibbs Instructor, *Yale University*

Visiting Appointments

- 2001,2002 • Gastdocent (Summer Terms), *George-August Universität, Göttingen, Germany*
(under the auspices of the DAAD (Deutscher Akademischer Austauschdienst))
- 1996 • Visiting Professor (Summer), *Institut Non Linéaire de Nice, Sophia-Antipolis, France*
- 1988-95 • Visiting Member (Summers 1988, 1991-3, 2002-3, Academic Year 1994-5), *Institut für Mathematische Stochastik, George-August Universität, Göttingen, Germany*
- 1986 • Visiting Fellow (Summer), *Mathematics Institute, University of Warwick, Coventry, U.K.*
- 1982-3 • Program Director for Geometric Analysis, *National Science Foundation, Washington, D.C.*

Personal Information (continued)

- 1979
 - Visiting Associate Professor (Spring Quarter), *Northwestern University*
 - Visitor (January-March), *Institut des Hautes Études Scientifiques, Bures-sur-Yvette, France*
- 1978
 - Visiting Associate Professor (Fall Semester), *Lefschetz Center for Dynamical Systems, Brown University*

Publications

Selected Publications, 1970-2000

- 1971
 - **Differentiable Dynamics: an Introduction to the Orbit Structure of Diffeomorphisms**
Cambridge, MA: The MIT Press, 1971. 297pp.
 - **Vvedenie v differentsial'nyu dinamiku**
[Russian translation of the above, transl. A. B. Katok; ed. V. M. Alekseev]
Moscow: Izdat. Mir, 1975. 304pp.
 - **Wei Feng Dong Li Ti Xi**
[Chinese translation of the above, transl. Zan Han-shen, Dong Zheng-xi, Ding Tong-ren, Tang Yung; ed. Liao Shan-tao]
Beijing: Beijing Da Xue Shu Xue Xi (Dept. of Math., Beijing Univ.), 1979. ?pp.
- 1984-92
 - **Differential Equations—A First Course**
[with M. Guterman]
Philadelphia: Saunders College Publ.
First edition, 1984. 651pp.
Second ed., 1988. 742 pp.
Third ed., 1992. 787 pp.
Reprint of Chaps. 1-5, 2006: Delhi: Indo American Books
- 1970
 - *On semi-stability for diffeomorphisms*
invent. math. **14** (1970) 83-122
- 1976
 - *Filtrations, decompositions and explosions*
[with M. Shub]
AJM **97** (1976) 1029-1047

Publications (continued)

- 1979 • *Shift automorphisms in the Hénon mapping*
[with R. L. Devaney]
Comm. Math. Phys. **67** (1979) 137-146
reprinted R. S. MacKay & J. D. Meiss, eds., **Hamiltonian Dynamical Systems**
Bristol and Philadelphia: Adam Hilger, 1987. pp. 555-565.
- 1980 • *Non-wandering sets of powers of maps of the interval*
[with E. Coven]
Ergodic Theory & Dyn. Syst. **1** (1980) 9-31
- 1981 • *Recurrent structure of completely unstable flows on surfaces of finite Euler characteristic*
Amer. J. Math. **103** (1981) 143-181
- 1982 • *Topological dynamics on the interval*
A. B. Katok, ed., **Ergodic Theory and Dynamical Systems II**
Boston & Basel: Birkhäuser, 1982. pp. 1-73.
[Proc., Special Year, Univ. Maryland, 1979-80]
- 1983 • *An extension of Peixoto's structural stability theorem to open surfaces of finite genus*
[with C. Camacho, M. Krych, & R. Mañe]
in J. Palis, ed., **Geometric Dynamics**
Lecture Notes in Math. **1007** (1983) 60-67
- 1995 • *Braids and the Nielsen-Thurston classification*
[with D. Benardete & M. Gutierrez]
J. Knot Theory & its Ramif. **4** (1995) 549-618
- 1999 • *Preimage entropy of mappings*
[with F. Przytycki]
Internat. J. Bifurcation & Chaos **9** (1999) 1815-1843
- Publications since 2000*
- 2002 • *Crossing matrices and Thurston's canonical form for braids*
[with J. Burillo, M. Gutierrez & S. Krstic]
Topology and its Applications **118** (2002) 293-308
- 2003 • *Entropy and preimage sets*
[with D. Fiebig & U.-R. Fiebig]
Ergodic Theory & Dyn. Syst. **23** (2003) 1785-1806

Publications (continued)

- *Topological entropy and the preimage structure of maps*
Real Analysis Exchange **29** (No. 1; 2003/2004) 7-39
- 2004 • *Embedding groups of graph automorphisms in surfaces*
[with J. Los]
Topology **43** (2004) 49-69
- 2005 • *Topological entropy of m -fold maps*
[with J. Bobok]
Ergodic Theory & Dyn. Syst. **25** (2005) 1-27
- 2006 • *Topological entropy of m -fold maps on trees*
[with J. Bobok]
Ergodic Theory & Dyn. Syst. **27** (2007) 1-31[math arxiv DS.0609299]
- 2007 • *On the genesis of symbolic dynamics as we know it*
[with E. Coven]
[math arxiv DS.0611322]

In preparation

- *Topological entropy for non-uniformly continuous maps*
[with B. Hasselblatt & J. Propp]
[arXiv:math.DS/0511495]
- **Hardcore Calculus; a Second Course in First-Year Calculus**
[542 pp.]
- **Hardcore Calculus II: Geometry, Vectors and Multi-variable Calculus**

Professional Activities

Theses Directed

- 1974 • James Padian (MS)
Flows on closed surfaces
- 1976 • Ricardo Stein (MS)
Ergodicity, entropy and Bernoulli shifts
- 1977 • John F. Collins (PhD)
Structural stability of completely unstable flows in the plane

Professional Activities (continued)

- 1986 • Tristan de Frondeville (MS)
Invariant measures for maps of the interval
- 1989 • Martha Sunderhauf (MS)
An exposition of Šarkovskii's theorem
- Liang Chen (PhD)
On the shadowing property for piecewise monotone maps
L.Chen, *Linking and the shadowing property for piecewise monotone maps*
Proceedings, Amer. Math. Soc. **113** (1991) 251-263 MR 1079695
- 1997 • Zhenhua Zhang (PhD)
Permutations and dynamical systems on the interval
W. Geller & Z. Zhang, *Maximal entropy permutations of even size*
Proceedings, Amer. Math. Soc. **126** (1998) 3709-3713 MR 1458873
- 2002 • Christopher Thomas (PhD)
Surface-realizable finite groups of outer automorphisms of finitely-generated free groups
C. Thomas, *Determining whether a finite group of outer automorphisms of a free group is geometric.*
Journal of Pure and Applied Algebra **195** (2005) 211-224 MR 2109111