

Biographical Sketch

Konstantin M. Mischaikow
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Education:

Ph.D. University of Wisconsin-Madison (Aug. 1985)
M.A. University of Wisconsin-Madison (Dec. 1983)
B.A. Reed College (May 1979)

Professional Appointments:

2006-present: Professor, Rutgers University
1998-2006: Director, Center for Dynamical Systems and Nonlinear Studies
1996-present: Professor, Georgia Institute of Technology
1991-1996: Associate Professor, Georgia Institute of Technology
1989-1991: Assistant Professor, Georgia Institute of Technology
1990-1991: Associate Professor, Michigan State University
1987-1990: Assistant Professor, Michigan State University
1985-1987: Visiting Assistant Professor (Research), Brown University
1984-1985: Lecturer, University of Minnesota - Minneapolis

Short Term Visiting Appointments:

May 2004 - University of Paderborn, Germany
July 2001 - Université de Cergy-Pontoise, France
Spring 2001 - Université de Orsay, France
Jan.-March 2001 - I.H.E.S., France
June 1999 - University of Bremen, Germany
July 1998 - University of Bremen, Germany
June 1994 - Universidade de São Paulo, Brazil
Fall 1989 - Institute for Mathematics and its Applications, University of Minnesota
May 1989 - Georgia Institute of Technology
June 1988 - University of Heidelberg, Germany
May 1987 - University of Heidelberg, Germany

Selected Publications:

1. *Computational Homology*, Applied Mathematical Science **157**, Springer-Verlag, 2004 (with T. Kaczynski and M. Mrozek).
2. Probabilistic Validation of Homology Computations for Nodal Domains, *Annals of Applied Probability* **17** (2007) 980–1018 (with T. Wanner).
3. A Database Schema for the Analysis of Global Dynamics of Multiparameter Systems, *SIAM J. Applied Dyn. Syst.*, **8** 757 (2009) (with Z. Arai, W. Kalies, H. Kokubu, H. Oka, and P. Pilarczyk).
4. Homological and symmetry breaking in Rayleigh-Benard convection: Experiments and simulations, *Physics of Fluids*, **19** 2007 (online) (with K. Krishan, H. Kurtuldu, M. F. Schatz, M. Gameiro, and S. Madruga).
5. Graph Approach to the Computation of the Homology of Continuous Maps, *Foundations of Computational Mathematics* **5** (2005) 199-229 (with M. Mrozek and Paweł Pilarczyk).
6. Chaos in the Lorenz equations: a computer assisted proof (with M. Mrozek), *Bulletin AMS*, Vol. 32 (1995), 66-72.

7. Construction of symbolic dynamics from experimental time series, *Phys. Rev. Lett.* 82 (1999), 1144-1147 (with M. Mrozek, A. Szymczak, J. Reiss).
8. A Rigorous Numerical Method for the Global Analysis of Infinite Dimensional Discrete Dynamical Systems, *SIAM Dynamical Systems* 3 (2004) 117-160.
9. V. Hutson, Y. Lou and K. Mischaikow, Spatial heterogeneity of resources versus Lotka-Volterra Dynamics, *J. Diff. Eqns.*, 185(1) (2002), 97-136. 5 (2005) 409-449 (with W.D. Kalies and R.C.A.M. VanderVorst).
10. J. Dockery, V. Hutson, K. Mischaikow, and M. Pernarowski, The evolution of slow dispersal rates: a reaction-diffusion model, *J. Math. Biology* 37(1998), 61-83.

Synergistic Activities:

- 1989 Frame Teaching Award, Michigan State University
- 1997-1999 Vice Chair, SIAM Dynamical Systems Activity Group
- Conferences: SIAM Pacific Rim Conference, Hawaii Aug. 2000 (Co-Organizer); Americas Conference on Differential Equations and Nonlinear Analysis, Atlanta Sept. 1998 (Co-Organizer), Venezuela Nov. 2000 (Organizing Committee), Canada July 2002 (Organizing Committee); Conley Index Conference, Poland June 1997 (Co-Organizer), Canada Aug. 2001 (Organizing Committee), Computational Homology and Materials Science, Atlanta Feb. 2006 (Co-Organizer), State-Dependent Delays in Regulatory Networks, DIMACS March 2006 (Co-Organizer), Dynamics, Topology and Computations, Bedlewo, June 2006 (Co-Organizer), Computational Homology and Fluid dynamics, Atlanta, March 2007 (Co-Organizer),
- Editorial Activities: Editor-in-Chief, *Journal of Differential Equations*; Editorial Board, *SIAM Dynamical Systems*, *SIAM Numerical Analysis*, *Journal of Dynamics and Differential Equations*, *Foundations of Computational Mathematics*, *Revista Matemática Complutense* *Discrete and Continuous Dynamical Systems*, *Topological Methods in Nonlinear Analysis*, *Journal of Nonlinear Studies*

Ph.D. STUDENTS: [1] Tomas Gedeon (1994), [2] Michael Eidenschink (1995), [3] Maria Carbinatto (1997), [4] Greg Watson (1998), [5] Andrzej Szymczak (1999) Sigma Xi: best thesis award, [6] Anthony Baker (2000), [7] Eric Boczko (2002), [8] Sarah Day (2003), [9] Marcio Gamiero (2005), [10] Todd Moeller (2005), [11] Jean-Phillip Lessard (2007), [12] Eliane Traldi, [13] Vidit Nanda, [14] Justin Bush,

POSTDOCTORAL ASSOCIATES: [1] Piotr Zgliczynski, Jagellonian U.; [2] Madjid Allili, Bishops U.; [3] Mohammed Ben Rhouma, U. of Missouri, Rolla; [4] Oliver Junge, U. of Paderbon; [5] Shangbin Ai, U. Alabama; [6] Salome Martinez, U. Chile; [7] Eiko Kin, Kyoto U.; [8] Martijn VanNoort, Imperial U.; [9] Pawel Pilarczyk, Jagellonian U.; [10] Marcio Gameiro, Hokkaido U.; [11] Debbie Yuster; [12] Jean-Phillipe Lessard; [13] Miro Kramar; [14] Jason James

RESEARCH SCIENTIST: [1] Shaun Harker

THESIS ADVISOR: Charles C. Conley

POSTDOCTORAL ADVISORS: Jack K. Hale and John Mallet-Paret, Brown University;