

Curriculum Vitae
Mary Silber

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Northwestern University
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Education: Ph.D. in Physics, 1989
University of California, Berkeley
Thesis Advisor: Professor E. Knobloch

B.S. in Physics, 1981
California State University, Sonoma

Positions: September 2005 – present, Professor
September 1999 – August 2005, Associate Professor
September 1993 – August 1999, Assistant Professor
Department of Engineering Sciences and Applied Mathematics
Northwestern University

2007 – present, Faculty,
Northwestern Institute on Complex Systems (NICO)
Northwestern University.

September 2009–2011, Visiting Faculty
Department of Geophysical Sciences
University of Chicago

October 1991 – August 1993, Research Fellow
Department of Applied Mechanics
California Institute of Technology

September 1990 – September 1991, Postdoctoral Fellow
Center for Dynamical Systems and Nonlinear Studies
Mathematics Department
Georgia Institute of Technology

September 1989 – August 1990, Postdoctoral Visiting Member
Institute for Mathematics and its Applications
University of Minnesota, Minneapolis

Research: Applied Dynamical Systems. Pattern Formation. Bifurcation Theory.
Delay equations. Feedback control. Piecewise smooth dynamical systems.
Mathematical modeling of biological & environmental systems. Tipping points.
Mathematics and Climate Research Network: <http://www.mathclimate.org>.
Mathematics of Climate Tipping Points Focus Group Leader:
<http://www.mathclimate.org/research/tipping>

Membership:

Association for Women in Mathematics (AWM)
Society for Industrial and Applied Mathematics (SIAM)
SIAM Activity Group on Dynamical Systems

Awards and Honors:

SIAM fellow, class of 2012.
NSF Division of Mathematical Sciences CAREER Award, 1995-9
U.S. Department of Education Graduate Research Fellowship, 1988-9
Zonta International Amelia Earhart Award, 1984-5
Ambrose Nichols Alumni Association Award, Sonoma State University, 1981-2
Sonoma State University, student commencement speaker 1981

Current Support:

NSF Division of Mathematical Sciences grant, “Collaborative Research: Mathematics and Climate Change Research Network”, 2010-2015, Lead PI: C.K.R.T. Jones, UNC, Chapel Hill (\$340,660)

Prior Support:

NSF Division of Mathematical Sciences grant, “Bifurcation theory and delay equations: applications to controlling pattern formation and modeling protein translation”, 2007-2012 (\$383,366)

NSF Interdisciplinary Grant in the Mathematical Sciences, “IGMS: Coupling and feedback in the climate system”, 2009-2010 (\$99,953)

NSF Division of Mathematical Sciences grant, “Temporal and Spatio-Temporal Forcing of Oscillatory and Excitable Systems”, 2003-2008 (\$300,924)

NSF-IGERT grant (with S.H. Davis, H. Riecke, S.A. Solla and P.B. Umbanhowar), “Dynamics of Complex Systems in Science and Engineering”, 2000-2006 (\$2,936,836)

Engineering and Physical Sciences Research Council (EPSRC), United Kingdom, “*Visiting Fellowship for Professor Mary Silber: Mode Interactions and Instabilities of Patterns*”, awarded to Dr. A.M. Rucklidge, University of Leeds, 2003-2005 (£4,056)

NASA Microgravity Fluid Physics grant, “Competing Instabilities and the Spatio-Temporal Dynamics of Interfacial Wave Patterns”, 2000-2004 (\$325,250)

NSF Division of Mathematical Sciences grant, “Symmetry-Breaking and Pattern Formation, with Applications to Parametrically Excited Surface Waves”, 1999-2003 (\$189,300)

NSF Division of Mathematical Sciences SCREMS grant (with D. Chopp and H. Riecke), “Scientific Computing Research Environments for the Mathematical Sciences”, 1998-2001 (\$40,000+\$40,000 matching)

NSF CAREER Award, “Dynamical Systems with Symmetry: Applications to Physical Problems”, 1995-2000 (\$137,488)

NATO Collaborative Research Grant (with Prof. M.R.E. Proctor and Dr. A.M. Rucklidge, Cambridge University), “Symmetry-Breaking Instabilities in Magnetoconvection”, 1995-1998 (\$7,800)

NSF Division of Mathematical Sciences grant, “Symmetry-Breaking Bifurcations and Pattern Formation”, 1994-1998 (\$74,999)

NSF Division of Mathematical Sciences grant, “Symmetry-Breaking in Spatially-Extended Systems and in Globally-Coupled Oscillator Arrays”, planning grant 1994-1995 (\$17,970)

Ph.D. Students:

Stephen L. Judd, Ph.D. 1999, “*A Bifurcation Analysis of Turing Patterns in Reaction-Diffusion Systems*”.

John J.K. Derwent, Ph.D. 2000, “*Bifurcation Analysis of Circular Arrays of Josephson Junctions*”.

Chad M. Topaz, Ph.D. 2002, “*Pattern Formation in Two-Frequency Forced Faraday Waves*”.

Kimberly A. Montgomery, Ph.D. 2004, “*Feedback Control of Traveling Wave Solutions to the Complex Ginzburg Landau Equation and A Nonlinear Analysis of the Amplification Properties of Auditory Hair Cells*”.

Anne Catllá, Ph.D. 2005, “*Pattern Formation in Impulsively Forced Faraday Waves*”.

Luis Mier y Teran, Ph.D. in physics 2010, jointly supervised with Prof. Vassily Hatzimanikatis, “*Reduction of Mechanistic Models of Protein Translation and mRNA Degradation: Applications to Gene Regulatory Circuits*”.

Tiffany M. Psemeneki, Ph.D. 2011, “*Stabilization of Traveling Waves in the One-Dimensional Complex Ginzburg-Landau Equation Using Spatio-Temporal Feedback Control*”.

Genevieve Brown, Ph.D. 2011, “*An Analysis of Hopf Bifurcation Problems with Time-Delayed Feedback Control*”

Karna Gowda, Ph.D. expected 2016.

Kaitlin Hill, Ph.D. expected 2017.

Yuxin Chen, Ph.D. expected 2018.

Postdoctoral Associates:

Maria Higuera, 2000–2001, present position: Profesor Contratado Doctor, Departamento Fundamentos Matemáticos, Escuela Técnica Superior Ingenieros Aeronauticos, Universidad Politécnica de Madrid.

Jeff Porter, 2000–2002, present position: Profesor Contratado Doctor, Instituto de Microgravedad Ignacio da Riva, Universidad Politécnica de Madrid.

Cristian Huepe, 2002-2005, present position: NSF funded independent investigator.

Claire Postlethwaite, 2006-2008, present position: Senior Lecturer, Department of Mathematics, University of Auckland.

Yi-Ping Ma, 2012-2013, present position: Instructor and Research Associate, Applied Mathematics, University of Colorado, Boulder.

Sarah Iams, 2013-present.

Editorial Boards:

Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal, 2011–.

SIAM Review, Education Section, 2011–.

Chaos, Advisory Board, 2012–.

Physica D, 2007–2010.

SIAM Journal on Applied Dynamical Systems, 2001–2009.

Dynamical Systems; an International Journal, 2000–2002.

Professional Society Service Activities:

Chair, SIAM Fellows Canvassing Committee, 2013-2015.

Elected, 2 consecutive terms, SIAM council, 2008-2013.

Executive Committee of the SIAM Council, SIAM, 2009-2011.

Elected, Vice Chair, SIAM Dynamical systems activity group, 2005-2007.

Elected, Advisory Board for SIAM Dynamical Systems Activity Group, 1995–1997 and 2001–2003.

Nominating Committee, SIAM activity group in dynamical systems, 2007, 2009.

Crawford Prize Committee, SIAM Dynamical Systems Activity Group, 2002–2003; 2012–13 (Committee Chair)

Nominating Committee, American Physical Society Division of Fluid Dynamics, 2003-2004.

Conference and Workshop Organizing Activities:

SIAM Annual meeting Co-chair, Boston, MA 2016.

Workshop Organizer, “Tipping points: fundamentals and applications”, International Centre for Mathematical Sciences, Edinburgh UK, Sept. 2013.

Panelist, Forward looking panel, SIAM Conference on Applications of Dynamical Systems, Snowbird UT, May 2011.

Co-chair, 4th SIAM Conference on Applications of Dynamical Systems, 1997.

Organizing Committees, SIAM Conference on Applications of Dynamical Systems, 2015 (13th conference), 2007 (9th conference) and 1999 (5th conference).

Diversity in STEM Service Activities (examples):

Advisory Board, COACH, an organization assisting in the success and impact of women scientists and engineers through innovative programs and strategies, 2012–
<http://coach.uoregon.edu/coach/>

Invited panel speaker, “On the Importance of Good Mentoring and having an Engaging Community”, AWM–SIAM Workshop, SIAM Annual Meeting, Chicago, IL, July 2014.

SIAM representative to the Joint Committee on Women (JCW) in the Mathematical Sciences, 2007-2012.

JCW liaison to the SIAM Diversity Advisory Committee, 2010-2012.

Selection Committee, AWM-SIAM Sonia Kovalevsky Lecture, 2010, 2011 (Chair).

Chair, Organizing Committee, Association for Women in Mathematics Workshop, 2007.

Travel Grant Selection Committee, Association for Women in Mathematics, 2003.

Panel Discussion Participant, Association of Women in Mathematics Sponsored Panel on “Launching a Career in Mathematics”, AMS/MAA Joint Meeting, 1997.

Examples of Review Activities:

External Reviewer for the mathematics department, Bowdoin College, 2009.

Content specialist for site visit to NSF-IGERT program in Nonlinear Systems at Cornell University, 2002.

Panel review of NSF and EPSRC (UK) proposals: panels for Mathematical Physics, Applied Dynamical Systems, Mechanics and Materials, IGERT awards, Focus Research Group (FRG) proposals, Research Training Group (RTG) proposals, CAREER awards, Instrumentation and Laboratory Improvement proposals.

Selected Service Activities Northwestern University:

McCormick School of Engineering and Applied Sciences Promotion and Tenure Committee, 2006 (appointed dept. representative), 2007–2008 (elected McCormick Representative), 2011–2012 (elected McCormick Representative).

Member, Faculty Search Committee, Earth and Planetary Sciences, 2014-2015.

Member, Faculty Search Committee, Environmental Engineering and Sciences, 2011-2012 and 2013-2014

Organizing Committee, Workshop on Mathematics in the Geosciences, Northwestern University, October, 2011.

Executive Committee, Northwestern Institute on Complex Systems (NICO), 2014-present.

Member, Academic Standing Committee, 2000–2009.

Executive Committee, NSF-IGERT program “Dynamics of Complex Systems in Science and Engineering”, 2000–2006.

Organizing Committee, Interdisciplinary Seminar in Nonlinear Science, from Inception (1997)–2006.

Faculty consultant to student-run “Seminar for Women in Science and Engineering”, 2003–2005.

Member, Faculty Search Committee, Mathematics Department, 1999–2001.

Member, Tech Undergraduate Committee, 1995–2000.

Member, ABET Process 2000 Committee, 1995–1999.

Co-organizer of University of Chicago/Northwestern University Nonlinear and Complex Systems Workshops, October 1997, May 1998, October 1998, May 1999.

Selected Applied Mathematics Department Service Activities:

Chair, Engineering Sciences and Applied Mathematics Department Vision Committee, 2014-2015.

Graduate Curriculum Committee, 2014-2015.

Applied Mathematics Undergraduate Advisor, 1996–present.

Applied Mathematics Preliminary Exam Committee, 1993–present.

Faculty Search Committee in Complexity, 2005-2006 (Chair), 2006-2007, 2013-2014.

Applied Mathematics Faculty Search Committee, 2008-2009.

Undergraduate curriculum committee, 2006.

Applied Mathematics Department Vision Committee, Summer 2004.

Organizer and Chair of Departmental Diversity Meeting, June 1998.

New Course Development:

ESAM 322, Applied Dynamical Systems, taught for the first time in 1995.

Special Topics Graduate Courses on:

Global Bifurcations and Chaos (1996 and 2000);

Group Theoretic Methods in Bifurcation Theory (1994 and 1998);

Modeling with Delay Equations (2002 and 2009);

Mathematical Modeling in the Earth Sciences (2012).

Plenary Lectures:

1. “Spatio-Temporal Feedback Control of Unstable Wave Patterns”, Equadiff 2011, Loughborough University, England, August 2011.
2. “Feedback Control and Pattern Formation”, DSPDEs 2010 Conference on Emerging Topics in Dynamical Systems and Partial Differential Equations, Barcelona, Spain, June 2010.
3. “Quasipatterns by Design”, Dynamics Days 2010, Evanston, IL, Jan. 2010.
4. “Feedback Control of Pattern Formation”, Invited Speaker, Workshop on Nonlocal Effects in Pattern Forming Systems, Center for Mathematical Sciences Conference, Technion, Haifa, Israel, June 2009.
5. “Controlling Pattern Formation”, Connections for Women: Dynamical Systems, Mathematical Sciences Research Institute, Berkeley California, Jan. 2007.
6. “Pattern Selection, Pattern Control”, Patterns, Nonlinear Dynamics and Applications conference, University of Surrey, UK, March 2003.
7. “Faraday Wave Pattern Formation”, Nonlinear Differential Equations, Mechanics and Bifurcation Conference, Duke University, May 2002.
8. “Faraday Wave Patterns”, Dynamics Days 2001, Chapel Hill, NC, January 2001.
9. “Symmetry-Breaking Parametric Instabilities”, Conference on Bifurcations, Symmetry and Patterns, Porto, Portugal, July 2000.
10. “Weakly Damped Modes and Exotic Faraday Wave Patterns”, 20th European Dynamics Days, University of Surrey, England, June 2000.
11. “Parametrically Excited Surface Wave Patterns”, Fourth Southeastern Bifurcation Theory Workshop, Cambridge University, March 2000.
12. “Dynamics, Symmetry and Pattern-Forming Instabilities in Physical Systems”, Invited AMS Address, Joint Meeting of the American Mathematical Society and the Mathematical Association of America, San Diego, January 1997.
13. “Bifurcation in the Presence of Symmetry”, Spring Lecture Series in the Mathematical Sciences, University of Arkansas, Fayetteville, April 1995.
14. “Heteroclinic Cycles and Networks in Symmetric Systems”, Dynamics Days, Houston, Texas, January 1995.

15. “Competing Heteroclinic Cycles in a Heteroclinic Network”, Symmetry in Dynamical Systems Conference, Logan, Utah, September 1994.
16. “Applications of the Equivariant Hopf Bifurcation Theorem to Pattern Formation”, Midwest Dynamical Systems Seminar, Boulder, Colorado, March 1993.
17. “Structurally Stable Heteroclinic Cycles in Models of Hydrodynamic Instabilities”, Third Annual Southeast Dynamical Systems Conference, Atlanta, Georgia, March 1991.

Other Invited Conference and Workshop Lectures:

18. “Tipping Points: Overview and Challenges”, invited minisymposium speaker, SIAM Annual Meeting, San Diego, CA, July 2013.
19. “Tipping Points: Overview and Challenges”, featured invited minisymposium speaker, SIAM Applied Dynamical Systems Conference, Snowbird, UT, May 2013.
20. “Mathematics of Tipping Points: Framework, Applications, and Prediction”, speaker and co-organizer, AAAS symposium, Boston, MA, February 2013.
21. “Climate Tipping Points: Overview and Outlook”, invited minisymposium speaker, SIAM Annual Meeting, Minneapolis, MN, July 2012.
22. “Spatio-Temporal Feedback Control of Unstable Wave Patterns”, invited minisymposium speaker, AWM 40th Anniversary Conference, Brown University, Providence, RI, September 2011.
23. “Bifurcation Analysis of a Low-Order Model of Arctic Sea Ice”, invited minisymposium speaker, SIAM Applied Dynamical Systems Conference, Snowbird, UT, May 2011.
24. “Bifurcations, and their implications in a simple model of Arctic sea ice”, invited minisymposium speaker, SIAM Annual Meeting, Pittsburgh, Pennsylvania, July 2010.
25. “Tipping points in a simple model of Arctic sea ice”, invited lecture to the IMAGE Theme of the Year Summer Graduate School on Mathematics and Climate Change, NCAR, Boulder, Colorado, July 2010.
26. “Delay Differential Equation Model of Cellular Protein Translation from First Principles”, Special session on ‘Networks’ at the Central Section meeting of the American Mathematical Society, Chicago, October 2007.
27. “Faraday Wave Pattern Formation”, Banff International Research Station (BIRS) Workshop on Diversity in the Mathematics and Scientific Community, Banff, Canada, July 2007.
28. “Controlling Faraday Waves with Multi-Frequency Forcing”, Invited speaker, Isaac Newton Institute Satellite Meeting on Theoretical Aspects of Pattern Formation, University of Surrey, UK, Sept. 2005.
29. “Controlling Faraday Wave Interactions via Multi-Frequency Forcing”, Invited minisymposium speaker, SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 2005.
30. “Faraday Wave Pattern Selection via Multi-frequency Forcing”, Invited Participant, Special Session on Stability Issues in Fluid Dynamics”, AMS Sectional Meeting, Evanston, IL, October 2004.

31. “Controlling Faraday Wave Pattern Formation using Multi-frequency forcing”, X International Workshop on Instabilities and Nonequilibrium Structures, Viña Del Mar, Chile, December 2003.
32. “Bifurcations with Symmetry and Superlattices”, Dynamics and Bifurcation of Patterns in Dissipative Systems Workshop, Fort Collins, Colorado, May 2003.
33. “Faraday Wave Pattern Selection via Multi-Frequency Forcing”, Invited minisymposium speaker, SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 2003.
34. “Spatial and Temporal Feedback Control of Benjamin-Feir Unstable Traveling Waves”, Invited minisymposium organizer and speaker, SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 2003.
35. “Quasipatterns and Superlattices”, Invited minisymposium organizer and speaker, SIAM Applied Dynamical Systems Meeting, Snowbird, UT, May 2001.
36. “Parametrically Excited Surface Wave Patterns”, Invited participant, Special session on nonlinear waves and integrable systems, AMS meeting, Notre Dame, April 2000.
37. “Spontaneous Symmetry-Breaking and Superlattice Wave Patterns”, Invited minisymposium speaker, SIAM Annual Meeting, Toronto, July 1998.
38. “Superlattice Turing Patterns: Why Not?”, Invited speaker, Workshop on “Pattern Formation in Continuous and Coupled Systems”, Institute for Mathematics and Its Applications, University of Minnesota, May 1998.
39. “Superlattice Wave Patterns”, Plenary speaker, University of Chicago/Northwestern University Joint Workshop on Nonlinear and Complex Systems, October 1997.
40. “Equivariant Bifurcation Theory and Two-Dimensional Spatial Pattern Formation”, Invited participant, University of Notre Dame Symposium on Current and Future Directions of Applied Mathematics, April 1996.
41. “Hopf Bifurcation to Three-Tori in a Problem with Symmetry”, Invited participant, Workshop on Dynamics and Symmetry, Isaac Newton Institute, Cambridge, England, October 1995.
42. “Some Stability Results for Spatially-Periodic Planforms”, Invited participant, Mathematisches Forschungsinstitut, Oberwolfach, Germany, June 1995.
43. “Competing Heteroclinic Cycles in a Heteroclinic Network”, Invited minisymposium speaker, SIAM Annual Meeting, San Diego, July 1994.
44. “Small-Amplitude Oscillatory Convection in a Periodic-Box: A Bifurcation Theoretic Approach”, Invited minisymposium speaker, 14th IMACS World Congress on Computational and Applied Mathematics”, Atlanta, July 1994.
45. “Small Amplitude Traveling and Standing Wave Patterns in Oscillatory Convection”, Invited participant, AGU Chapman Conference on Double-Diffusive Convection, Scottsdale, Arizona, November 1993.
46. “Hopf Bifurcation to Heteroclinic Cycles in a Spatially Anisotropic Hydrodynamic System”, Invited participant, Workshop on Normal Forms and Homoclinic Chaos, Fields Institute for Research in Mathematical Sciences, Waterloo, Ontario, November 1992.

Colloquia and Selected Departmental Seminars:

- 2012-13: IAM-PIMS Distinguished Colloquium, University of British Columbia, Vancouver, Canada.
- 2011-12: Seminar, Mathematics of Climate Change Annual Meeting, National Center for Atmospheric Research, Boulder, CO
- 2010-11: Colloquium, Engineering Sciences and Applied Mathematics, Northwestern University.
- 2010-11: Seminar, Environmental Sciences and Engineering, Northwestern University.
- 2010-11: Mathematics of Climate Change Seminar, University of Minnesota.
- 2009-10: Colloquium, Department of Applied Mathematics, Illinois Institute of Technology.
- 2007-08: Colloquium, Department of Mathematical Sciences, New Jersey Institute of Technology.
- 2006-07: Applied Mathematics Seminar, University of Notre Dame.
- 2004-05: Colloquium, Department of Theoretical and Applied Mechanics, Cornell University.
- 2004-05: Seminar, Center for Dynamical Systems and Nonlinear Studies, Georgia Tech.
- 2004-05: Computations in Science Seminar, University of Chicago.
- 2004-05: Colloquium, Engineering Sciences and Applied Mathematics, Northwestern University.
- 2004-05: Colloquium, Physics Department, Illinois State University.
- 2002-03: Special Seminar, Department of Physics, New York University.
- 2001-02: Computations in Science Seminar, University of Chicago.
- 2001-02: Applied Mathematics Seminar, University of Auckland, New Zealand.
- 2001-02: Nonlinear Science Seminar, Georgia Tech.
- 2001-02: Condensed Matter Seminar, Northwestern University.
- 2000-01: Colloquium, Mathematics Department, University of California, Davis.
- 2000-01: Colloquium, Physics Department, Southern Illinois University.
- 1999-2000: Colloquium, Applied Mechanics, Harvard University.
- 1999-2000: Applied and Interdisciplinary Mathematics Seminar, University of Michigan, Ann Arbor.
- 1999-2000: Colloquium, Applied Mathematics, Caltech.
- 1999-2000: Seminar, Applied Mathematics, University of California, Santa Cruz.
- 1998-99: Applied and Interdisciplinary Mathematics Seminar, University of Michigan, Ann Arbor.
- 1998-99: Applied Math-PDE Seminar, University of Wisconsin, Madison.
- 1998-99: Colloquium, Mathematics Department, University of California, Santa Cruz.
- 1998-99: Colloquium, Engineering Sciences & Applied Mathematics, Northwestern University.
- 1997-98: Seminar, Department of Mathematical and Computing Sciences, University of Surrey, England.
- 1997-98: Colloquium, Department of Mathematics, University of Pittsburgh.
- 1997-98: Colloquium, Department of Applied Mathematics, University of Colorado, Boulder.

- 1997-98: Applied Mathematics Seminar, Montana State University.
- 1997-98: Colloquium, Department of Chemical Engineering, Princeton University.
- 1997-98: Dynamical Systems and Control Theory Seminar, Engineering School, University of California, Santa Barbara.
- 1995-96: Nonlinear Dynamics Seminar, University of California, Berkeley.
- 1995-96: Department of Theoretical Mechanics Seminar, University of Nottingham, England.
- 1995-96: Dynamics Seminar, Department of Applied Mathematics & Theoretical Physics, University of Cambridge, England.
- 1994-95: Applied Mathematics Seminar, University of California, Los Angeles.
- 1994-95: Applied Mathematics Seminar, University of Michigan, Ann Arbor.
- 1994-95: Computational and Applied Mathematics Seminar, University of Chicago.
- 1994-95: Colloquium, Physics Department, Utah State University, Logan, Utah.
- 1994-95: Center for Nonlinear Studies Seminar, Los Alamos National Laboratory.
- 1993-94: Colloquium, Mathematics, The Claremont Colleges, Claremont, California.
- 1993-94: Dynamics Seminar, University of California, Berkeley.
- 1993-94: Colloquium, Department of Mathematics and Statistics, Utah State University, Logan.
- 1993-94: Dynamics and Mechanics Seminar, Mathematics Department, University of Minnesota, Minneapolis.
- 1993-94: Dynamics Seminar, Mathematics Department, Northwestern University.
- 1993-94: Applied Mathematics Seminar, University of Illinois, Chicago Circle.
- 1993-94: Dynamics Seminar, Department of Applied Mathematics & Theoretical Physics, University of Cambridge, England.
- 1992-93: Dynamics Seminar, University of California, Berkeley.
- 1992-93: Colloquium in Dynamical Systems, Fields Institute for Research in Mathematical Sciences, Waterloo, Ontario.
- 1992-93: Colloquium, Department of Physics, California State University, Northridge.
- 1992-93: Applied Mathematics Seminar, Univ. of Massachusetts, Amherst.
- 1992-93: Dynamical Systems Seminar, Division of Applied Mathematics, Brown University.
- 1992-93: Applied Mathematics Seminar, University of Iowa, Iowa City.
- 1992-93: Colloquium, Department of Applied Mathematics, Caltech.
- 1992-93: Colloquium, Department of Engineering Sciences & Applied Mathematics, Northwestern University.
- 1992-93: Dynamics Seminar, Institute for Physical Sciences and Technology, University of Maryland, College Park.
- 1992-93: Applied Mathematics Seminar, Department of Mathematics, University of Maryland, College Park.
- 1992-93: Colloquium, Department of Physics, University of Arizona, Tucson.
- 1992-93: Dynamics Seminar, Dept. of Mathematics, Arizona State University, Tempe.
- 1992-93: Applied Mathematics Seminar, University of Auckland, New Zealand.
- 1991-92: Colloquium, Department of Mathematics, University of Groningen, The Netherlands.

- 1991-92: Pattern Formation Seminar, Department of Physics, University of Bayreuth, Germany.
- 1991-92: Fluid Mechanics Seminar, Department of Mathematics, Univ. of California, Irvine.
- 1991-92: Nonlinear Sciences Seminar, University of California, Santa Barbara.
- 1991-92: Applied Mathematics Seminar, University of California, Los Angeles.
- 1990-91: Dynamical Systems Seminar, Program in Applied Mathematics, University of Colorado at Boulder.
- 1990-91: Nonlinear Dynamics Seminar, University of Houston.
- 1989-90: Colloquium, Department of Engineering Sciences and Applied Mathematics, Northwestern University.
- 1989-90: Nonlinear Dynamics Seminar, Department of Physics, University of Illinois, Urbana-Champaign.
- 1989-90: Complex Systems Seminar, Beckman Institute, University of Illinois, Urbana-Champaign.

PUBLICATIONS

Refereed Journal Publications:

1. “Transitions between patterned states in vegetation models for semiarid ecosystems”, K. Gowda, H. Riecke, and M. Silber, *Physical Review E*, **89** (2014).
2. “Feedback control of unstable periodic orbits in equivariant Hopf bifurcation problems”, C.M. Postlethwaite, G. Brown, and M. Silber, *Philosophical Transactions of the Royal Society A*, **371** (2013).
3. “Mechanistically Consistent Reduced Models of Synthetic Gene Networks”, L. Mier-y-Teran-Romero, M. Silber and V. Hatzimanikatis, *Biophysical Journal*, **104** (2013).
4. “Three-wave interactions and spatio-temporal chaos”, A.M. Rucklidge, M. Silber and A.C. Skeldon, *Physical Review Letters*, **108** (2012).
5. “Bifurcations leading to summer Arctic Sea ice loss”, D.S. Abbot, M. Silber and R.T. Pierrehumbert, *Journal of Geophysical Research* **116** (2011).
6. “Time-delayed feedback control of unstable periodic orbits near a subcritical Hopf bifurcation”, G. Brown, C.M. Postlethwaite and M. Silber, *Physica D* **240** 859-871 (2011).
7. “A mechanism for switching near a heteroclinic network”, V. Kirk, E. Lane, C.M. Postlethwaite, A.M. Rucklidge, and M. Silber, *Dynamical Systems: An International Journal* **25**, 323-349 (2010).
8. “The origins of time-delay in template biopolymerization processes”, L. Mier-y-Teran-Romero, M. Silber and V. Hatzimanikatis, *PLoS Computational Biology* **6** e1000726 (2010).
9. “Optimal movement in the prey strikes of weakly electric fish: A case study of the interplay of body plan and movement capability”, C.M. Postlethwaite, T.M. Psemeneke, J. Selimkhanov, M. Silber, and M.A. MacIver, *Journal of the Royal Society Interface* **6**, 417-433 (2009).

10. “Design of parametrically forced patterns and quasipatterns”, A.M. Rucklidge and M. Silber, *SIAM Journal on Applied Dynamical Systems* **8**, 298-347 (2009).
11. “Stabilizing unstable periodic orbits in the Lorenz equations using time-delayed feedback control”, C.M. Postlethwaite and M. Silber, *Physical Review E* **76**, 56214 (2007).
12. “Spatial and temporal feedback control of traveling wave solutions of the two-dimensional complex Ginzburg-Landau equation”, C. Postlethwaite and M. Silber, *Physica D* **236**, 65–74 (2007).
13. “Amplification in the auditory periphery: the effect of coupling tuning mechanisms”, K.A. Montgomery, M. Silber, and S.A. Solla, *Physical Review E* **75**, 51924 (2007).
14. “Quasipatterns in parametrically forced systems”, A.M. Rucklidge and M. Silber, *Physical Review E* **75**, 55203(R) (2007).
15. “Forcing function control of Faraday wave instabilities in viscous shallow fluids”, C. Huepe, Y. Ding, P. Umbanhowar, and M. Silber, *Physical Review E* **73**, 016310 (2006).
16. “A Weakly Nonlinear Analysis of Impulsively-Forced Faraday Waves”, A. Catllá, J. Porter and M. Silber, *Physical Review E* **72**, 056212 (2005).
17. “Multi-frequency Control of Faraday Wave Patterns”, C.M. Topaz, J. Porter and M. Silber, *Physical Review E* **70**, 066206 (2004).
18. “Near-Resonant, Steady Mode Interaction: Periodic, Quasi-Periodic and Localized Patterns”, M. Higuera, H. Riecke and M. Silber, *SIAM J. on Applied Dynamical Systems*, **3** 463–502 (2004).
19. “Feedback Control of Traveling Wave Solutions of the Complex Ginzburg Landau Equation”, K.A. Montgomery and M. Silber, *Nonlinearity* **17** 2225–2248 (2004).
20. “Pattern Control via Multifrequency Parametric Forcing”, J. Porter, C.M. Topaz and M. Silber, *Physical Review Letters* **93**, 34502 (2004).
21. “Resonant Triad Dynamics in Weakly Damped Faraday Waves with Two-Frequency Forcing”, J. Porter and M. Silber, *Physica D* **190** 93–114 (2004).
22. “Resonances and Superlattice Pattern Stabilization in Two-Frequency Forced Faraday Waves”, C.M. Topaz and M. Silber, *Physica D* **172** 1–29 (2002).
23. “Broken Symmetries and Pattern Formation in Two-Frequency Forced Faraday Waves”, J. Porter and M. Silber, *Physical Review Letters*, **89** 84501 (2002).
24. “Spatial Period-Multiplying Instabilities of Hexagonal Faraday Waves”, D.P. Tse, A.M. Rucklidge, R.B. Hoyle and M. Silber, *Physica D* **146** 367–387 (2000).
25. “Two-Frequency Forced Faraday Waves: Weakly Damped Modes and Pattern Selection”, M. Silber, C.M. Topaz and A.C. Skeldon, *Physica D* **143** 205–225 (2000).
26. “Simple and Superlattice Turing Patterns in Reaction-Diffusion Systems: Bifurcation, Bistability, and Parameter Collapse”, S.L. Judd and M. Silber, *Physica D* **136** 45–65 (2000).
27. “Parametrically Excited Surface Waves: Two-Frequency Forcing, Normal Form Symmetries, and Pattern Selection”, M. Silber and A.C. Skeldon, *Physical Review E* **59** 5446–5456 (1999).
28. “Nonlinear Competition Between Small and Large Hexagonal Patterns”, M. Silber and M.R.E. Proctor, *Physical Review Letters* **81** 2450–2453 (1998).

29. “New Stability Results for Patterns in a Model of Long–Wavelength Convection”, A.C. Skeldon and M. Silber, *Physica D* **122** 117–133 (1998).
30. “Bifurcations of Periodic Orbits with Spatio-Temporal Symmetries”, A.M. Rucklidge and M. Silber, *Nonlinearity* **11** 1435-1455 (1998).
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