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DEGREES: AB, University of Pennsylvania, 1966
AM, University of Pennsylvania, 1966
PhD, M.I.T., 1970
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Thesis: *Primitive Actions and Maximal Subgroups of Lie Groups*

POSITIONS: Permanent

Assistant Professor, Queens College, Sept. 1974 – Dec. 1976
Associate Professor, Queens College, Jan. 1977 – Aug. 1979
Professor, Arizona State University, Aug. 1979 – Aug. 1983
Professor, University of Houston, Sept. 1983 – Nov. 2008
Cullen Distinguished Professor of Mathematics, Nov. 1989 – Nov. 2008
Professor, Ohio State University, July 2008 –
Distinguished Professor, Natural and Mathematical Sciences, July 2008 –
Director, Mathematical Biosciences Institute, Sept. 2008 – Aug. 2016

Visiting

Lecturer, U.C.L.A. Sept. 1970 – July 1971
Instructor, M.I.T., July 1971 – Aug. 1973
Instructor, Queens College, Sept. 1973 – Aug. 1974
Courant Institute, Sept. 1977 – Jan. 1978
Institute for Advanced Study, Jan. 1978 – Aug. 1978
Professeur Associé, Université de Nice, Jan. 1980 – June 1980
Professor, Duke University, Sept. 1981 – Dec. 1981
Professor, University of California at Berkeley, Jan. 1982 – July 1982
Institute for Mathematics and Applications, Univ. of Minn. Jan. 1989 – June,1989
Fields Institute, University of Waterloo, Jan. 1993 – June 1993
Center for Biodynamics, Boston University, Sept. 1999 – May, 2000
Newton Institute and Trinity College, Cambridge, Aug. 2005 – Nov, 2005
Dean's Distinguished Visiting Professor, University of Toronto, Jan. 2006 – August, 2006
Adjunct Professor of Computational and Applied Mathematics, Rice University, 2005 – 2012.

PROFESSIONAL ORGANIZATIONS:

       American Association for the Advancement of Science
       American Mathematical Society
       Association for Women in Mathematics
       Society for Industrial and Applied Mathematics
       Society for Mathematical Biology

PUBLICATIONS:

Textbooks and Research Monographs

1. M. Golubitsky and V. Guillemin. *Stable Mappings and Their Singularities*, Graduate Texts in Math. 14, Springer-Verlag, New York, 1973. Second printing 1980, third printing 1986. Russian translation by A. Kushnirenko: Mir, Moscow, 1976.

2. M. Golubitsky and D.G. Schaeffer. *Singularities and Groups in Bifurcation Theory: Vol. I*, Applied Mathematical Sciences **51**, Springer-Verlag, New York, 1985.

3. M. Golubitsky, I.N. Stewart and D.G. Schaeffer. *Singularities and Groups in Bifurcation Theory: Vol. II.* Applied Mathematical Sciences **69**, Springer-Verlag, New York, 1988.

4. M. Golubitsky and M. Dellnitz. *Linear Algebra and Differential Equations Using* MATLAB. Brooks-Cole Publ., Pacific Grove, 1999. Spanish translation by Jorge Roma: *Álgebra lineal y ecuaciones diferenciales con uso de MATLAB*, Thompson Learning, 2001.

5. M. Golubitsky and I. Stewart. *The Symmetry Perspective: From Equilibrium to Chaos in Phase Space and Physical Space.* Progress in Mathematics **200**, Birkhäuser, Basel, 2002. Japanese translation by R. Tanaka, H. Yamada, A. Takamatsu, and T. Nakagaki; Maruzen Publishing, 2003. Revised edition, Birkhäuser, Basel, 2003.

6. M. Golubitsky and I. Stewart. *Dynamics and Bifurcation in Networks: Theory and Applications of Coupled Differential Equations.* SIAM, Philadelphia. 2022. In publication.

Books — Nontechnical

7. I. Stewart and M. Golubitsky. *Fearful Symmetry: Is God a Geometer?*, Blackwell Publishers, Oxford, 1992. German translation by Hanjo Schnug: *Denkt Gott symmetrisch? Das Ebenmaßin Mathematik und Natur*, Birkhäuser Verlag, Basel, 1993. Dutch translation by Hans van Cuijlenborg: *Turings tijger*, Epsilon Uitgaven, Utrecht, 1994. Italian translation by Libero Sosio: *Terribili simmetrie. Dio e un geometra?*, Saggi Scientifici, Bollati Borighieri, Torino 1995. Spanish translation by Mercedes Garciá Garmilla *¿Es Dios un geómetra? Las simetrías de la naturaleza*, Drakontos, Barcelona, 1995. Japanese translation, Tuttle-Mori Agency Inc., Tokyo, 1995. Greek translation $EINAI\ O\ \Theta EO\Sigma$ $\Gamma E\Omega MET PH\Sigma$? $H\ T\rho o\mu\epsilon\rho\acute{\eta}\ \Sigma\upsilon\mu\mu\epsilon\tau\rho\acute{\iota}\alpha$, 1995. Hebrew translation Zmora-Bitan, Ganei-Aviv, Lod, 2001.

8. M. Field and M. Golubitsky. *Symmetry in Chaos: A Search for Pattern in Mathematics, Art, and Nature*, Oxford University Press, Oxford, 1992. German translation by Micha Lotrovsky: *Chaotische Symmetrien*, Birkhäuser Verlag, Basel, 1993. French translation by Christian Jeanmougin: *La Symétrie du Chaos*, InterÉditions, Paris, 1993. Second Edition, SIAM, Philadelphia, 2009.

Books — Edited

9. M. Golubitsky and J. Guckenheimer. *Multiparameter Bifurcation Theory*, *Contemporary Mathematics* **56**, AMS, 1986.

10. Li Kaitai, J. Marsden, M. Golubitsky and G. Iooss. *Bifurcation Theory and Its Numerical Analysis,* Xi'an Jiaotong University Press, Xi'an China, 1989.

11. E. Allgower, K. Böhmer and M. Golubitsky. *Bifurcation and Symmetry*, ISNM **104**, Birkhäuser, Basal, 1992.

12. J. Chadam, M. Golubitsky, W. Langford and B. Wetton. *Pattern Formation: Symmetry Methods and Applications*, Fields Inst. Comm. **4**, AMS, Providence, 1996.

13. M. Golubitsky, D. Luss and S.H. Strogatz. *Pattern Formation in Continuous and Coupled Systems*, IMA Volumes in Mathematics and its Applications **115**, Springer, New York, 1999.

14. M. Golubitsky and E. Knobloch. *Bifurcations, Patterns and Symmetry*, Physica D **143**, North-Holland, Amsterdam, 2000.

Papers in Refereed Journals

1. M. Golubitsky and B. Rothschild. Primitive subalgebras of exceptional Lie algebras, *Pac. J. Math.* **39** No. 2 (1971) 371–393. See also: *Bull. AMS* **77** No. 6 (1971) 983–986.

2. M. Golubitsky. Primitive actions and maximal subgroups of Lie groups, *J. Diff. Geom.* **7** (1972) 175–191.

3. M. Golubitsky and D. Schaeffer. Stability of shock waves for a single conservation law, *Adv. Math.* **16** No. 1 (1975) 65–71.

4. M. Golubitsky, E. Keeler and M. Rothschild. Convergence of the age structure: applications of the projective metric, *Theor. Pop. Biol.* **7** No. 1 (1975) 84–93.

5. M. Golubitsky and V. Guillemin. Contact equivalence for Lagrangian submanifolds, *Adv. Math.* **15** No. 3 (1975) 375–387.

6. M. Golubitsky and D. Tischler. On the non-existence of globally stable forms, *Proc. AMS* **58** (1976) 296–300.

7. M. Golubitsky and D. Tischler. On the local stability of differential forms, *Trans. AMS* **223** (1976) 205–221.

8. M. Golubitsky and D. Tischler. An example of moduli for singular symplectic forms, *Inventiones Math.* **38** (1977) 219–225.

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10. M. Golubitsky and D. Tischler. A survey on the singularities and stability of differential forms, *Asterisque* **59-60** (1978) 43–82.

11. M. Golubitsky and D. Schaeffer. A theory for imperfect bifurcation via singularity theory, *Commun. Pure and Appl. Math.* **32** (1979) 1–77.

12. M. Golubitsky and D. Schaeffer. Imperfect bifurcation in the presence of symmetry, *Commun. Math. Phys.* **67** (1979) 205–232.

13. D. Schaeffer and M. Golubitsky. Boundary conditions and mode jumping in the buckling of a rectangular plate, *Commun. Math. Phys.* **69** (1979) 209–236.

14. M. Golubitsky and B.L. Keyfitz. A qualitative study of the steady-state solutions for a continuous flow stirred tank chemical reactor, *SIAM J. Math. Anal.* **11** (1980) 316–339.

15. D. Schaeffer and M. Golubitsky. Bifurcation analysis near a double eigenvalue of a model chemical reaction, *Arch. Rational Mech. & Anal.* **75** (1981) 315–347.

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20. M. Golubitsky and J. Marsden. The Morse lemma in infinite dimensions via singularity theory, *SIAM J. Math. Anal.* **14** (1983) 1037–1044.

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118. M. Golubitsky and YY. Wang. Infinitesimal homeostasis in three-node input-output networks. *J. Math. Biol.* (2020) 1163–1185 doi: 10.1007/s00285-019-01457-x

119. M. Golubitsky, I. Stewart, F. Antoneli, Z. Huang, YY. Wang. (2020) Input-Output Networks, Singularity Theory, and Homeostasis. In: O. Junge, O. Schütze, G. Froyland, S. Ober-Blöbaum, K. Padberg-Gehle, (eds) *Advances in Dynamics, Optimization and Computation.* SON 2020. Studies in Systems, Decision and Control, vol **304**. Springer, Cham. doi.org/10.1007/978-3-030-51264-4_2

120. YY. Wang, Z. Huang, F. Antoneli, and M. Golubitsky. The structure of infinitesimal homeostasis in input-output networks. *J. Math. Biol.* **82**, 62 (2021)

121. Z. Huang and M. Golubitsky. *J. Math. Biol.* **84**, 62 (2022). https://doi.org/10.1007/s00285-021-01614-1

122. M. Golubitsky and I. Stewart. *Dynamics and Bifurcation in Networks: Theory and Application of Coupled Differential Equations.* SIAM, Philadelphia. In press.

123. A. Franci, M. Golubitsky, I. Stewart, A. Bizyaeva, and N.E. Leonard. Breaking indecision in multi-agent, multi-option dynamics. Submitted.

Papers in Conference Proceedings (Refereed)

124. M. Golubitsky and D. Schaeffer. A discussion of symmetry and symmetry breaking, *Singularity Theory* (P. Orlik, ed.) *Proc. Symp. Pure Math.* **40** (1983) 499–516.

125. M. Golubitsky and I.N. Stewart. Hopf bifurcation with dihedral group symmetry: coupled nonlinear oscillators. In: *Multiparameter Bifurcation Theory* (M. Golubitsky and J. Guckenheimer, eds) Contemporary Mathematics **56**, AMS (1986) 131–173.

126. P. Chossat and M. Golubitsky. Hopf bifurcation in the presence of symmetry, center manifold and Liapunov-Schmidt reduction. In: *Oscillation, Bifurcation and Chaos* (F.V. Atkinson, W.F. Langford and A.B. Mingarelli, eds.) CMS-AMS Conf. Proc. Ser. **8** (1987) AMS, Providence, 343–352.

127. A. Vanderbauwhede, M. Krupa and M. Golubitsky. Secondary bifurcations in symmetric systems, *Differential Equations,* Lect. Notes Pure Appl. Math. **118** (C.M. Dafermos, G. Ladas and G. Papanicolaou, Eds.) Marcel Dekker, Inc., New York, 1989, 709–716.

128. J.D. Crawford, M.Golubitsky, M.G.M. Gomes, E. Knobloch and I.N. Stewart. Boundary conditions as symmetry constraints, *Singularity Theory and Its Applications, Warwick 1989, Part II.* (M. Roberts and I.N. Stewart, eds), Lecture Notes in Math. **1463**, Springer-Verlag, Heidelberg, 1991, 63–79.

129. M. Dellnitz, M. Golubitsky and I. Melbourne. Mechanisms of symmetry creation. In: *Bifurcation and Symmetry* (E. Allgower, K. Böhmer and M. Golubitsky, eds.), ISNM **104**, Birkhäusser, Basel, 1992, 99–109.

130. M. Golubitsky, I. Stewart and B. Dionne. Coupled cells: wreath products and direct products. In: *Dynamics, Bifurcation and Symmetry* (P. Chossat, ed.) NATO ARW Series, Kluwer, Amsterdam, 1994, 127–138.

131. M. Field, M. Golubitsky and M. Nicol. A note on symmetries of invariant sets with compact group actions. In: *Equadiff 8.* Tatra Mountains Math. Publ. **4** (1994) 93–104.

132. M. Golubitsky, J. Marsden, I. Stewart and M. Dellnitz. The constrained Liapunov-Schmidt procedure and periodic orbits. Fields Institute Proceedings **4** (1995) 81–127.

133. M. Golubitsky, K. Josić, and T.J. Kaper. An unfolding theory approach to bursting in fast-slow systems. In: *Global Analysis of Dynamical Systems: Festschrift dedicated to Floris Takens on the occasion of his 60th birthday* (H.W. Broer, B. Krauskopf and G. Vegter, eds.), Institute of Physics Publ., 2001, 277–308.

134. M. Golubitsky and I. Stewart. Patterns of oscillation in coupled cell systems. In: *Geometry, Dynamics, and Mechanics: 60th Birthday Volume for J.E. Marsden* (P. Holmes, P. Newton, and A. Weinstein, eds.) Springer-Verlag, 2002, 243–286.

135. M. Golubitsky and I. Stewart. Synchrony versus symmetry in coupled cells. In: *Equadiff 2003: Proceedings of the International Conference on Differential Equations* (F. Dumortier, H.W. Broer, J. Mawhin, A. Vanderbauwhede and S.M. Verduyn Lunel, eds.) World Scientific Publ. Co., Singapore, 2005, 13–24.

136. H.W. Broer, M. Golubitsky and G. Vegter. The geometry of resonance tongues. In: Singularity Theory. (D. Chéniot, N. Dutertre, C. Murolo, D. Trotman and A. Pichon, eds.) World Scientific Publ. Co. 2007, 327–356.

137. M.A.D. Aguiar, A.P.S. Dias, M. Golubitsky, and M.C.A. Leite. Homogeneous coupled cell networks with $\mathbf{S}_3$-symmetric quotient. *Discrete and Continuous Dynam. Sys.* Supplement (2007) 1–9.

138. M. Golubitsky, C. Postlethwaite, L-J. Shiau and Y. Zhang. The feed-forward chain as a filter amplifier motif. In: *Coherent Behavior in Neuronal Networks* (K. Josic, M. Matias, R. Romo, and J. Rubin, eds.) Springer, 2009, 95–120.

139. M. Golubitsky. Patterns in physical and biological systems. In: *Models, Simulations, and the Reduction of Complexity* (U. Gahde, S. Hartmann, J.H. Wolf, ed.) de Gruyter GmbH, Berlin, 2013, 29–42.

Papers in Conference Proceedings (Unrefereed)

140. M. Golubitsky. Contact equivalence for Lagrangian submanifolds. *Dynamical Systems-Warwick 1974*, Lecture Notes Math. **468.** Springer Verlag. New York, 1975, 71–73.

141. M. Golubitsky and D. Schaeffer. An analysis of imperfect bifurcation. *Annals of New York Acad. of Sci.* **316** (1979) 127–133.

142. M. Golubitsky and D. Schaeffer. A singularity theory approach to steady state bifurcation theory, *Nonlinear Partial Differential Equations and Applied Science*, Dekker (1980) 229–254.

143. M. Golubitsky and D. Schaeffer. A qualitative approach to steady state bifurcation theory. In: *New Approaches to Nonlinear Problems in Dynamics*, SIAM (1980) 43–52, 257–270, 433–436.

144. M. Golubitsky and H.L. Smith. A remark on periodically perturbed bifurcation. In: *Differential Equations and Applications to Ecology, Epidemics and Population Problems*. Academic Press (1981) 259–277.

145. E. Buzano and M. Golubitsky. Bifurcation involving the hexagonal lattice, *Proc. Symp. Pure Math.* **40** (1983) 203–210.

146. M. Golubitsky. The Bénard problem, symmetry and the lattice of isotropy subgroups. In: *Bifurcation Theory, Mechanics and Physics* (C.P. Bruter et al. eds.) D. Reidel Publishing Co. (1983) 225–256.

147. M. Golubitsky, J. Marsden and D. Schaeffer. Bifurcation problems with hidden symmetries. In: *Partial Differential Equations and Dynamical Systems* (W.E. Fitzgibbon III, ed.) Res. Notes in Math. **101** Pitman Press, Boston, 1984, 181–210.

148. B.L. Keyfitz, M. Golubitsky, M. Gorman and P. Chossat. The use of symmetry and bifurcation techniques in studying flame stability. In: *Reacting Flows: Combustion and Chemical Reactors* (G.S.S. Ludford, ed.). Lectures in Appl. Math. **24**, Part 2, AMS, Providence, 1986, 293–315.

149. M. Golubitsky. Genericity, bifurcation and symmetry. In: *Patterns and Dynamics in Reactive Media* (H.L. Swinney, R. Aris and D.G. Aronson, eds.). IMA Volumes in Mathematics and its Applications, Volume **37**. Springer-Verlag, New York, 1991, 71–88.

150. P.-L. Buono, M. Golubitsky and A. Palacios. Heteroclinic cycles in systems with $\mathbf{D}_n$ symmetry. In: *Bifurcation Theory and its Numerical Analysis* (Z. Chen, S-N Chow and K. Li, eds), Springer-Verlag Singapore Pte. Ltd., 1999, 13–27.

151. M. Golubitsky and I. Stewart. Symmetry and pattern formation in coupled cell networks. In: *Pattern Formation in Continuous and Coupled Systems*, (M. Golubitsky, D. Luss and S.H. Strogatz, eds.) IMA Volumes in Mathematics and its Applications **115**, Springer, New York, 1999, 65–82.

152. M. Golubitsky and D. Chillingworth. Bifurcation and planar pattern formation for a liquid crystal. In: *Bifurcation, Symmetry and Patterns* (J. Buescu, S.B.S.D. Castro, A.P.S. Dias, I.S. Labouriau, eds.) Birkhäuser, Basel, 2003, 55–66.

153. M. Golubitsky, L-J. Shiau and A. Török. Symmetry and pattern formation on the visual cortex. In: Dynamics and Bifurcation of Patterns in Dissipative Systems. (G. Danglmayer and J. Opera, eds.) Nonlinear Science Series **12**, World Scientific, Singapore, 2004, 3–19.

154. M. Golubitsky, K. Josić, and L-J. Shiau. Bursting in coupled cell systems. In: *Bursting: The Genesis of Rhythm in the Nervous System* (S. Coombes and P.C. Bressloff, eds), World Scientific Publ. Co., 2005, 205–225.

155. F. Antoneli, A.P.S. Dias, M. Golubitsky and YJ. Wang. Flow invariant subspaces for lattice dynamical systems. In: *Workshop on Bifurcation Theory and Spatio-Temporal Pattern Formation* (W. Nagata and N. Sri Namachchivaya, eds.) Fields Institute Communications, Amer. Math. Soc., Providence, 2006, 1–8.

156. F. Antoneli, A.P.S. Dias, M. Golubitsky and YJ. Wang. Synchrony in lattice differential equations. In: *Some Topics In Industrial and Applied Mathematics*, Contemporary Applied Mathematics Series **8**. (R. Jeltsch, T. Li, and I. Sloan, eds.) World Scientific, 2007.

Book Reviews and Popular Articles

1. M. Golubitsky. A review of *Catastrophe Theory and its Applications* by Tim Poston and Ian Stewart. *Bull. AMS* **1** No. 3 (1979) 524–532.

2. M. Field and M. Golubitsky. Symmetries on the edge of chaos. *New Scientist*, **1855**, January 9, 1993, 32–35.

3. M. Field and M. Golubitsky. Symmetric chaos: how and why, *Notices AMS* **42** No. 2 (1995) 240–244.

4. M. Golubitsky and P.H. Rabinowitz. A sketch of the Hopf bifurcation theorem. In: *Selected Works of Eberhard Hopf with Commentaries* (C.S. Morawetz, J.B. Serrin, and Y.G. Sinai, Eds), Amer. Math. Soc., Providence, 2002, 111–118.

5. M. Golubitsky. Symmetry and Neuroscience. In: Current Events, *Bulletin of the AMS*, Amer. Math. Soc., January 14, 2006.

6. M. Golubitsky. Partners in Crime: Math and Prime-Time TV. *SIAM News* **39**(3), April 2006.

7. H. Kaper and M. Golubitsky. Nearly Three Decades at Snowbird: The Iconic Venue and its Influence on Dynamical Systems at SIAM. *SIAM News*, November 2019, p. 9.

8. A. Franci, M. Golubitsky, and N.E. Leonard. A dynamical origin for consensus and polarization. *SIAM News*, November 2019.

Doctoral Students

- Maciej Krupa, *Bifurcations of Critical Group Orbits*, University of Houston, August, 1988.
- Benoit Dionne, *Spatially Periodic Patterns in Two and Three Dimensions*, University of Houston, August, 1990.
- Chuanze Hou, *Symmetry Breaking and Heteroclinic Cycles*, University of Houston, August, 1995.
- David B. Gillis, *Symmetric ODE's and Coupled Cell Systems*, University of Houston, August, 1996.
- Pietro-Luciano Buono, *A Model of Central Pattern Generators for Qudruped Locomotion*, University of Houston, August, 1998.
- Carla Alves Pinto, *Coupled Oscillators*, Departamento de Matemática Aplicada, Universidade do Porto, 2004.
- Maria da Conceição A. Leite, *Homogeneous Three-cell Networks*, University of Houston, 2005.
- Yunjiao Wang, *Patterns of Synchrony in Lattice Dynamical Systems*, University of Houston, 2006.
- Barbara J. Gucciardi, *Subgroupoids in Coupled Cell Systems*, University of Houston, 2007.
- Natasha T. Filipski, *Periodic Solutions in Systems with Finite Abelian Symmetries*, University of Houston, 2008.

- Yanyan Zhang, *Periodic Forcing of a System Near a Hopf Bifurcation Point*, Ohio State University, 2010.
- Justin Wiser, *Harmonic Resonance Dynamics of the Periodically Forced Hopf Oscillator*, Ohio State University, 2013.
- Amit Vutha, *Normal Forms and Unfoldings of Singular Strategy Functions.* Ohio State University, 2013.
- Xiaohui Wang, *Singularity Theory of Strategy Functions Under Dimorphism Equivalence.* Ohio State University, 2015.

Masters Students

- Natasha Filipski, *A Comparison of Fractal and Wavelet Methods for Image Compression*, University of Houston, 2002.
- Barbara Gucciardi, *Steady-State Bifurcation with Symmetry*, University of Houston, 2003.

Post-Doctoral Associates

- Ernesto Buzano, Tempe, Academic Year 1980-81
- Mark Roberts, Houston, Spring 1985
- Stephan van Gils, Houston, Fall 1986
- Jan-Cees van der Meer, Houston, Spring 1987
- William W. Farr, Houston, Academic Years 1987-89
- James W. Swift, Houston, Academic Year 1989-90
- Ernest Barany, Houston, Academic Years 1989-92
- Michael Dellnitz, Houston, Academic Years 1990-91, 1994-95
- Matthew Nicol, Houston, Academic Years 1992-94
- Andreas Hohmann, Houston, Academic Year 1994-95
- Victor LeBlanc, Houston, Academic Year 1995-96
- Jeroen Lamb, Houston, Calendar Year 1998
- Claudia Wulff, Houston, May-November 1998
- Antonio Palacios, Houston, Academic Year 1998-99
- Marcus Pivato, Houston, Academic Year, 2001-02
- Fernando Antoneli, Houston. Academic Year, 2003-04
- Toby Elmhirst, Houston, Academic Years, 2003-05
- Adela Comanici, Houston, Academic Year, 2004-06
- Claire Postlethwaite, Spring, 2008
- David Romano, MBI, Academic year 2009-10
- Yunjiao Wang, MBI, 2009-11
- Casey Diekman, MBI, 2011-13
- Lucy Spardy, MBI, 2014-15
- Leopold Matamba-Messi, MBI, 2014-15
- Wenrui Hao, MBI, 2015-16
- Punit Gandi, MBI, 2016-18
- Yangyang Wang, MBI, 2016-19.
- Jiaxin Jin, 2021-22.

Grants

NSF Research Grants 1974-2014   (Focused Research Grant, 2003-07)
NSF U.S.–Australia Grant 1992-1994
CUNY Research Grant 1974-77

NASA-Ames Research Grant 1984-1990
Energy Lab Grant, University of Houston, Spring 1985, 1987
DARPA, Applied and Computational Mathematics Program 1985-1990
Texas Advanced Research Program 1988-1990, 1992-1994, 1994-1996, 1996-1998, 1998-2000, 2002-2003, 2006-2007, 2008-2009.
ONR Research Grant 1994-1995

Editorial Boards

SIAM Journal on Mathematical Analysis, 1981-1992
Correspondent, Mathematics Intelligencer, 1983-84, 1986-91
Archives of Rational Mechanics and Analysis, 1984-1999
Texts in Applied Mathematics Series, Springer-Verlag, 1988-2002
Dynamics and Differential Equations 1988-2004
Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 1990-2002
Journal of Nonlinear Science, 1990-2011
Notices of the American Mathematical Society, 1998-2000
SIAM Journal on Applied Dynamical Systems, 2001-21, Editor-in-Chief, 2001-05

Honors

- Fellow of AAAS, February, 1987.
- Sigma Xi, 1988.
- Spitalsfield Lecture, University of Warwick, July 1989.
- Cullen Professor of Mathematics, University of Houston, 1989-
- SIAM Council 1990-1992, 1993-1995.
- Sigma Xi Faculty Research Award, University of Houston, April, 1991.
- AMS Regional Meeting, Dayton, Invited Lecture, October, 1992.
- AMS Editorial Boards Committee, 1994-1997, Elected.
- London Science Museum display of images from *Symmetry in Chaos*, April – October, 1994.
- AAAS Council Delegate, 1996-1998.
- Freed Center for the Performing Arts, Ohio Northern University display *Symmetric Chaos: Photos of Computer Generated Images Based on Mathematical Formula*, November-December, 1995.
- Arne Magnus Lecturer, Colorado State University, April, 1997.
- Farfel Award, University of Houston, May, 1997
- AMS Council, 2000-2003.
- Chair, Dynamical Systems Activity Group, SIAM, 1999-2001, elected.
- ΦBK Alan Going Lecture, University of Alabama, April, 2000.
- Conference on *Bifurcations, Symmetry, and Patterns* in honour of Martin Golubitsky and Ian Stewart, Porto, Portugal, June 30 - July 4, 2000.
- Principal Organizer, *SIAM 50th Anniversary Annual Meeting*, Philadelphia, July, 2002.
- Member-at-Large, Mathematics Section, Section A, AAAS, 2001-2005. Elected.
- 2001 Ferran Sunyer i Balaguer Prize for *The Symmetry Perspective* (with Ian Stewart), April 2001.
- Pasquale Porcelli Lecture Series, Louisiana State University, October, 2001.
- SIAM Vice President at Large, 2002-2003.
- ISI highly cited list, 2003.
- SIAM President-Elect, 2004; SIAM President, 2005-06; SIAM Past-President, 2007.
- SIAM Plenary Lecture, Joint Mathematics Meeting, Phoenix, January, 2004.
- Visiting Fellow Commoner, Trinity College, University of Cambridge, August, 2005
- Rothschild Professorship and Lecture (http://www.newton.cam.ac.uk/rothschild.html), University of Cambridge, October, 2005.

- Fellow, American Academy of Arts and Sciences, 2006.
- SIAM Fellow, April, 2009.
- Moser Lecture Prize, *SIAM Activity Group on Applied Dynamical Systems*, Snowbird, May, 2009.
- AMS Fellow, October, 2012.
- AAAS Section A, Chair-Elect, Chair, Past Chair, 2014-17.

Organizing Committees

- AMS Summer Institute: *Singularity Theory*, Arcata, July 1981
- AMS Summer Research Conference: *Multiparameter Bifurcation Theory*, Arcata, July 1985
- Minisymposium: *Qualitative methods in fluid mechanics* at SIAM Meeting, Tempe, AZ, October, 1985
- *Nonlinear Dynamics Workshop*, UT-Austin, October, 1986
- *Dynamics Days Texas*, Houston and Austin, January 1988, 1989, 1990, 1991, 1992, 1995
- *Bifurcation Theory and its Numerical Analysis*, Xi'an, China, June 1988.
- *Special Year in Dynamical Systems,* I.M.A., University of Minnesota, Academic year 1989-90.
- *Bifurcation and Symmetry: Cross Influences between Mathematics and Applications*, University of Marburg, June, 1991.
- *Exploiting Symmetry in Applied and Numerical Analysis*, AMS-SIAM Summer Seminar, Colorado State University, July, 1992.
- *Pattern Formation and Symmetry Breaking in PDE's* Fields Institute, Waterloo, February, 1993.
- Minisymposium: *Dynamics Systems with Symmetry*, SIAM Meeting, San Diego, July, 1994.
- Minisymposium: *Dynamics and Symmetry*, Snowbird, UT, May, 1995.
- *Bifurcation and Symmetry*, Oberwolfach, 1995.
- Minisymposium: *Pattern Formation* A.A.A.S., Baltimore, February, 1996.
- *Emerging Applications of Dynamical Systems,* I.M.A., University of Minnesota, Academic year 1997-98.
- Minisymposium: *Bifurcation Theory*, PDE Prague '98, Charles University, Prague, August, 1998.
- Minisymposium: *Bifurcation and Symmetry*, Equadiff99, Berlin, August, 1999.
- Minisymposium: *Symmetry and Biology*, SIAM Pacific Rim Dynamical Systems Conference, Maui, August, 2000.
- Organizing Committee, *Sixth SIAM Conference on Applied Dynamical Systems*, Snowbird, May, 2001
- Principal Organizer, *SIAM 50th Anniversary Annual Meeting*, Philadelphia, July, 2002.
- Co-organizer, *Symmetry and Bifurcation in Biology*, BIRS, June, 2003.
- Organizing Committee, *SIAM Annual Meeting*, Montreal, June, 2003
- Minisymposium: *Differential Equations with Structure*, ICIAM, Sydney, July, 2003.
- Co-organizer, *Pattern Formation in Large Domains*, Newton Institute, Cambridge, August-December 2005.
- Co-organizer, special session on *Networks*. AMS Regional Meeting, Chicago, October, 2007.

National and International Committees

- SIAM representative on AMS-SIAM-IMS committee on Summer Research Conferences, 1987-1992 (Chair: 1991-1992).
- Advisory Committee, Dynamical Systems Activity Group, SIAM, 1989-92.
- SIAM Council, 1990-95.
- Editorial Boards Committee, AMS, 1994-96 (Chair: 1995).
- Task Force on Electronic Journals, AMS, 1995.
- AAAS Council Delegate, 1996-1998.
- NSF Panel, December, 1997.
- AMS Short Course Subcommittee, 1999-2001 (Chair: 2000-2001).
- Chair, Dynamical Systems Activity Group, SIAM, 2000-2001.
- SIAM Conference Task Force, 2000.
- AMS Council Delegate, 2000-2003.
- AMS Committee on Publications, 2000-2003.
- SIAM Science Policy Committee, 2001-2016 (Chair: 2007-2008).
- Member-at-Large, Mathematics Section, Section A, AAAS, 2001-2005.
- Vice President at Large, SIAM, 2002-2003.
- SIAM Major Awards Committee, 2002-2003 (Chair), 2004-2007.
- SIAM Membership Committee (Chair), 2002-2003.
- Review Committee, Department of Mathematics, University of Saskatchewan, March, 2004.
- SIAM Taskforce on Activity Groups (Chair), 2003-2004.
- ICIAM Board, 2004-2009 (SIAM Representative).
- JPBM, 2005-2006 (SIAM Representative).
- SIAM Ad Hoc Committee on a Fellows Program (Chair) 2006-2007.
- NRC Study: NSF Vertically Integrated Grants for Research and Education (VIGRE) Program, 2007-09.
- ICIAM 2011 Steering Committee, 2007-11.
- Class I, Section 1 membership panel, American Academy, 2008, 2009.
- AMS Fellows Selection Committee, 2013.
- SIAM Major Awards Committee, 2012-15.

University Committees

- Director, Institute for Theoretical and Engineering Science, University of Houston, August 1988 - 2008.
- Mathematics Department Executive Committee, 1983 - 1999.
- Mathematics Department Computer Committee, 1991 - 1999.
- Honorary Degrees Committee, University of Houston, 1990-95.
- Committee on Named and Distinguished Professorships, 1993-95 (Chair: 1995).
- Research Council, University of Houston, 1993-96 (Vice-Chair: 1994-95; Chair: 1995-96).
- Selection Committee for RIG and PEER Grants, 1994-95 (Chair).
- Committee on Council Chairs, 1995-96.
- Faculty Senate Executive Committee, 1995-96.
- NS&M Policy Committee, 1995-96, 1997-98.
- Selection Committee Faculty Research Excellence Awards, 1996 (Chair).
- Selection Committee Farfel Award, 1996.
- Faculty Senate Tenure Issues Task Force, 1996.
- Athletics Advisory Committee, 1996-97.
- Engineering Dean Search Committee (Chair) 1997-98.
- Selection Committee Farfel Award (Chair), 1998-1999.
- Chemical Engineering Chair Search Committee (Chair), 1998-99.

- Selection Committee Farfel Award, 2001-02.
- Chair, Review Committee for Dean of College of Engineering, Spring, 2004.
- Chair, Math Biology TIE hiring committee, OSU, 2009-10.
- *Science Sundays* Organizing Committee, 2011-16, Chair.
- *MBI National Colloquium* Organizing Committee, 2015-17, Chair.

Industrial and Consulting Experience

Daniel H. Wagner Associates, Paoli, PA, Summers 1966-67

Fellowships

Mayor's Scholarship, 1962-1966
N.S.F. Graduate Fellowship, 1966-1970

Invited Talks

1. University of Reykjavik, Reykjavik, Iceland, September 1968.
2. Tufts University, Medford, MA, February 1973.
3. Queens College, Flushing, NY, March 1973.
4. University of Alberta, Edmonton, Alberta, Canada,June 1973 (three lectures)
5. *Dynamical Systems*, University of Warwick, Coventry, England, June 1974.
6. *Singularities and Their Applications*, Institut Scientifique de Corse, Corsica, France, September 1975.
7. University of Illinois at Chicago Circle, Chicago, IL, November 1975.
8. Rice University, Houston, TX, January 1976.
9. N.Y.U., New York, March 1976.
10. Adelphi University, Garden City, NY, March 1976.
11. Columbia University, Dept. of Mathematical-Statistics, New York, NY, March 1976.
12. Northwestern University, April 1976.
13. Princeton University, Statistics, May 1976.
14. Symposium on the Applications of Differential Geometry to Physics, Warsaw, Poland, June 1976.
15. University of Mannheim, Mannheim, West Germany, June 1976.
16. Fordham University, October 1976.
17. Columbia University, November 1976.
18. University of Wisconsin, January 1977.
19. University of Minnesota, January 1977.
20. Rutgers University, February 1977.
21. William and Mary College, February 1977.
22. Tufts University, March 1977.
23. *Bifurcation Theory and Applications*, N.Y. Academy of Sciences, New York, October 1977.
24. University of Connecticut, December 1977.
25. North Carolina State University, January 1978.
26. Institute for Advanced Study, Topology Seminar, January 1978.
27. *Applications of Catatrophe Theory to Problems in Solid and Fluid Mechanics*, Society Natural Philosophy, Williamsburg, Va, April 1978.
28. University of Minnesota, series of four lectures, April 1978.
29. Conference on *Catatrophe Theory and its Applications*, Williamstown, Mass., May 1978.
30. *Journees Singulieres*, Univ. de Dijon, France, June 1978 (three lectures)
31. Université de Paris-Sud, Orsay, France, June 1978.
32. Los Alamos Research Labs, July 1978.
33. University of Illinois, Champagne-Urbana, September 1978.
34. University of Pennsylvania, October 1978.
35. Indiana University, November 1978.
36. Case Western Reserve University, November 1978.
37. Princeton University, Dept. of Chem. Eng., December 1978.
38. M.I.T., January 1979.
39. University of Maryland, February 1979.
40. Arizona State University, March 1979.
41. *Catastrophe Theory*, National meeting of TIMS-ORSA, New Orleans, May 1979.
42. Rutgers University, May 1979.
43. *Non-linear Partial Differential Equations in Engineering & Applied Sciences*, Univ. Rhode Island, June 1979.
44. U.C.L.A., November 1979.
45. University of New Mexico, November 1979.
46. University of Arizona, November 1979.
47. Colorada State University, December 1979.

48. *New Approaches to Nonlinear problems in Dynamics*, Asilomar, CA, December 1979.
49. Universita de Torino, Italy, April 1980.
50. Université de Marseilles, France, May 1980.
51. Université de Strasbourg, France, May 1980.
52. Université de Paris VII, France, June 1980.
53. University of Liverpool, UK, July 1980.
54. University of Bristol, Department of Physics, UK, July 1980.
55. *Dynamical Systems, Stability, and Turbulence*, University of Warwick, UK (three lectures), June-July 1980.
56. McGill University (2 lectures), Canada, October 1980.
57. U.C. Berkeley, February 1981.
58. University of Wuppertal, Germany, March 1981.
59. University of Gent, Belgium, March 1981.
60. Limburg University, Belgium, March 1981.
61. University of Stuttgart, Germany, March 1981.
62. California Institute of Technology, April 1981.
63. Conference on Nonlinear Analysis, Oberwolfach, Germany, March 1981.
64. *AMS Summer Institute on Singularity Theory* (two lectures),G August 1981.
65. North Carolina State University, November 1981.
66. Stanford University, Appl. Math. Colloq., March 1982.
67. U.C. Santa Cruz, March 1982.
68. U.C.L.A., Appl. Math. Colloq., April 1982.
69. University of Warwick, England, May 1982.
70. University of Tübingen, Information Sci., Germany, May 1982.
71. University of Houston (two lectures), February 1982.
72. *Colloque International - Problemes Mathematiques Recontres dans L'Etude Des Phenomenes Naturels*, Marseilles, France, May 1982.
73. University of Houston, October 1982.
74. *AMS Special session on Nonlinear PDE*, Baton Rouge, LA., November 1982.
75. U.C. Berkeley, January 1983.
76. Berkeley-Ames Conference *Nonlinear Problems in Control and Fluid Dynamics*, June 1983.
77. Rice University, September 1983.
78. Tulane University, September 1983.
79. University of Toronto, Canada, October 1983.
80. *Ontario Mathematics Meeting*, Principal Lecture, Univ. of Guelph, Canada, October 1983.
81. Northwestern University, February 1984.
82. S.M.U., February 1984.
83. University of Alabama, March 1984.
84. *Theory, Numerics, and Application of Nonlinear Eigenvalue Problems*, Oberwolfach, Germany, May 1984.
85. University of Stuttgart, Germany, May 1984.
86. University of Tübingen, Information Sciences, Germany, May 1984.
87. University of Heidelberg, Topology Seminar, Germany, May 1984.
88. Durham (England) Symposium on *Bifurcation Theory and Applications*, July 1984.
89. AMS-SIAM Summer Seminar on *Nonlinear Partial Differential Equations*, Santa Fe, July 1984.
90. Arizona State University, Tempe, October 1984.
91. University of New Mexico, Albuquerque, October 1984.
92. American Institute of Chemical Engineers Session: *Advances in Mathematical Analysis and Applications*, San Francisco, November 1984.
93. Seminar on *Nonlinear Phenomena and Applications*, Berkeley, November 1984.

94. University of Texas, Dept. of Physics, Austin, December 1984.
95. University of Minnesota, Minneapolis, January 1985
96. *Multiparameter Bifurcation Theory*, Arcata, July 1985
97. Special session on *Bifurcation Theory and Mechanics*, A.M.S. Summer Meeting, Laramie, August 1985
98. National Intelligence Mathematics and Multiprocessing Program Meeting, New York, October 1985
99. Minisymposium on *Qualitative Approaches to Bifurcation in Fluid Mechanics*, SIAM Meeting, Tempe, October 1985
100. Seminar on *Nonlinear Phenomena and Applications*, Berkeley, November 1985.
101. Department of Energy: Scoping Workshop, Woodlands, December 1985.
102. Special Session on *Bifurcation Theory*, Canadian Mathematical Society Winter Meeting, Calgary, Canada, December 1985.
103. Northeastern University, Boston, February 1986.
104. Brown University, Division of Applied Math., Providence February 1986.
105. University of North Carolina, Chapel Hill, February 1986.
106. University of Guelph, Guelph, Ontario. Visiting Distinguished Professor (series of four lectures), Canada, March 1986.
107. McMaster University, Hamilton, Ontario, Canada, March 1986.
108. American Physical Society National Meeting, Symposium of the Div. of Fluid Dyn.: *Instabilities and Multicritical Points in Nonequilibrium Systems*. Invited Lecture, March 1986.
109. Institute for Nonlinear Science, UCSD, La Jolla, CA, three lectures, May 1986
110. *Topological Methods in Analysis*, Heidelberg, Germany, May 1986.
111. *Oscillation, Bifurcation and Chaos*, Toronto, Canada, July 1986.
112. *Bifurcation, Analysis, Algorithms and Applications*, Dortmund, Germany, August 1986.
113. DARPA Conference, Boston October 1986.
114. University of Edmonton, Canada, October 1986.
115. Purdue University, West Layfayette, IN November 1986.
116. Purdue University, Chemical Engineering, November 1986.
117. University of Michigan, Ann Arbor, MI, November 1986.
118. DARPA-ACMP Meeting at UCSD, La Jolla, CA, January 1987.
119. Summer Research Institute, Australian Mathematics Society, University of New England, Armidale, NSW, Australia. Principal Lecturer (five lectures), January 1987.
120. Massey University, Palmerston North, New Zealand, January 1987.
121. *Symmetry methods in differential equations*, Logan, UT, June 1987.
122. *Mathematical problems in fluid dynamics and plasma physics*, Oberwolfach, Germany, July 1987.
123. Institut fur Mechanik, Technische Universitat Wien, Austria, July, 1987.
124. DARPA-ACMP Annual Meeting, Washington, DC, Octoberx, 1987.
125. Center for Nonlinear Dynamics, UT-Austin, November 1987.
126. Cornell University, Mathematics and Theoretical and Appl. Mech. (two lectures), February 1988.
127. Caltech, Theoretical Mechanics, March 1988.
128. University of Southwestern Louisiana, March 1988.
129. Northwestern University, May 1988.
130. *Group theoretic and analytic methods in continuum mechanics*, M.S.I., Cornell, June 1988.
131. Applied Mathematics, Academica Sinica, Beijing, China, June 1988.
132. Mathematics, Academica Sinica, Beijing, China, June 1988.
133. Applied Mathematics, Beijing University of Aeronautics and Astronautics, China, June 1988.
134. Applied Mathematics, Beijing University, Beijing, China, June 1988.
135. *Bifurcation Theory and its Numerical Analysis*, Xi'an, China, July 1988.
136. Applied Mathematics, Fudan University, Shanghai, China, July 1988.
137. *Control Theory and Multibody Systems*, Bowdoin College, Brunswick, Maine, July 1988.
138. *New Directions in Dynamical Systems*, Brown University, August 1988.

139. Colloque *Bifurcations et Attracteurs*, Sophia-Antipolis, France, September 1988.
140. O.D.E. Seminar, University of Minnesota, February 1989
141. Dynamical Systems Seminar, University of Minnesota, February 1989
142. University of Warwick, Coventry, England, February 1989
143. Texas Section, Physics Society, Houston, March 1989
144. College of St. Thomas, St. Paul, April 1989
145. Universiteit Twente, Enschede, The Netherlands, April 1989
146. University of Amsterdam, The Netherlands, April 1989
147. Symposium Mathematische Fysica, Lanteren, The Netherlands, April 1989
148. University of Wuppertal (three lectures), Germany, May 1989
149. University of Hamburg, Germany, May 1989
150. I.M.A., University of Minnesota, May 1989
151. *Singularity Theory and Its Applications*, University of Warwick, UK, June 1989
152. Spitalsfield Lecture at Symposium, Warwick, UK, July 1989
153. Heriot-Watt University, UK, August 1989
154. An Introduction to Dynamical Systems, IMA Workshop, U Minnesota (three lectures), September 1989
155. M.S.I, Cornell University, October 1989
156. Center for Nonlinear Studies, UT- Austin, October 1989
157. Rice University, April 1990
158. *Applications of Dynamical Systems in Combustion theory*, SIAM Conference on Dynamical Systems, May 1990
159. *The Computation of Dynamical Systems*, SIAM Conference on Dynamical Systems, May 1990.
160. *Mathematical Problems in Nonlinear Elasticity*, Oberwolfach, Germany, June 1990
161. University of Tübingen, Germany, July 1990.
162. ETH-Zentrum, Zurich, Switzerland, July 1990.
163. Texas A & M, November 1990.
164. Plasma Laboratory, Uf Maryland, February 1991.
165. Baylor University, April 1991.
166. Canadian Applied Mathematics Society, Plenary Lecture, Ottawa, Canada, May 1991
167. *Bifurcation and Symmetry: Cross Influences between Mathematics and Applications*, University of Marburg, Germany, June 1991.
168. Univerity of Augsburg (two lectures), Germany, June 1991.
169. *Conference for the Advancement of Mathematics Teaching*, Houston, August 1991.
170. *Equadiff*, Barcelona, Spain, August 1991
171. Université de Bordeaux, Chemistry, France, September 1991
172. U Houston, Biology, October 1991
173. Sigma Xi Research Award Lecture, U Houston, October 1991
174. *Applied Dynamics and Bifurcation Theory*, Oberwolfach, Germany, January 1992.
175. T.C.U., February 1992.
176. Princeton University, Applied Mathematics, April 1992.
177. *O(3) Workshop*, Institut Non-Linéaire de Nice, Nice, France, May, 1992.
178. Texas A&M University, May 1992.
179. *Bifurcations in Differentiable Dynamics*, Limburgs Universitair Centrum, Diepenbeek, Belgium, June 1992.
180. Universität Hamburg, Germany, June 1992.
181. AMS-SIAM Summer Seminar *Exploiting Symmetry in Differential Equations* (two lectures), Ft. Collins, July 1992.
182. *International Conference on Nonlinear Analysis*, Xalapa, Mexico, September 1992.
183. *Applications of Dynamical Systems*, Dynamical Systems Activity Group, SIAM, Plenary lecture, Snowbird, October 1992.

184. American Mathematical Society Regional Meeting, Invited one-hour Lecture, Dayton, October 1992.
185. Tuesday Club, Austin, November 1992.
186. U.T. San Antonio, November 1992.
187. Duke University, February 1993.
188. *Animal Locomotion Workshop*, Fields Institute, Canada, March 1993.
189. *Applications of Pattern Formation*, Fields Institute, Canada, March 1993.
190. Cornell University, Center for Applied Mathematics, April 1993.
191. S.U.N.Y. at Buffalo, April 1993.
192. Penn State University, April 1993.
193. St. Olaf University, May 1993.
194. Free University, Berlin, Germany, June 1993.
195. Fritz-Haber Institute, Berlin, Germany, June 1993.
196. *Dynamics Days Workshop*, Rydzyna, Poland, June 1993.
197. Stephan Banach Institute, Warsaw, Poland, June 1993.
198. *Brazilian Mathematics Colloquium*, Rio de Janeiro, Brazil, July 1993.
199. Unicamp, Campinas, Brazil, August 1993.
200. University of São Carlos (two lectures), São Carlos, Brazil, August 1993.
201. *Equadiff 8*, Plenary Lecture, Bratislava, Slovakia, August 1993.
202. University of Amsterdam, Department of Physics, The Netherlands, August 1993.
203. *Dynamical Systems, Bifurcations and Symmetry*, Cargèse, France, September 1993
204. Center for Nonlinear Dynamics, UT–Austin, September 1993.
205. Loyola University, New Orleans, October 1993.
206. *Scientia*, Rice University, October 1993.
207. Institute for Systems Research, University of Maryland, October 1993.
208. Chapman Conference on *Double-Diffusive Convection*, A.G.U., Scottsdale, November 1993.
209. *Spatial and Temporal Dynamics*, Centre de Recherches Mathématiques, Montréal, Canada, November 1993.
210. Dynamics Days Workshop, Durham, January 1994.
211. Trinity University, San Antonio, January 1994.
212. Boston University, March 1994.
213. *Dynamical Systems and Fluid Dynamics*, A.M.S. Regional Meeting, Manhattan, Kansas, March 1994.
214. *Bifurcation Theory and Applications*, European Bifurcation Theory Group, Hamburg, Germany, April 1994.
215. Australian National University, Canberra, Australia, July 1994.
216. University of Melbourne, Australia, July 1994.
217. LaTrobe University, Australia, July 1994.
218. Minisymposium: *Dynamics Systems with Symmetry*, SIAM, San Diego, July 1994.
219. *Symmetry in Dynamical Systems*, Utah State U, September 1994.
220. UT-Austin, Applied Mathematics, October 1994.
221. Texas Physics Society, Austin, October 1994.
222. UT-Austin, December 1994.
223. Bellaire High School, February 1995.
224. UH Physics, February 1995.
225. *Noninvertible Maps*, Geometry Supercomputer Center, Minneapolis, March 1995.
226. Texas PDE Workshop, Rice U, April 1995.
227. University of Dallas, April 1995.
228. SIAM SIAG Dynamical Systems, Minisymposium. Snowbird, May 1995.
229. Population Dynamics, Rice U, May 1995.
230. *Bifurcation and Symmetry*, Oberwolfach, Germany, June 1995.
231. ICIAM (three Minisymposia), Hamburg, Germany, July 1995.

232. 9th Couette-Taylor Workshop, Boulder, August 1995.
233. Newton Institute, Cambridge University, UK, October 1995.
234. Keynote Address, I.C.T.C.M., Houston, November 1995.
235. *Dynamical Systems Conference*, Groningen, The Netherlands, December 1995.
236. *Advances in Dynamical Chaos: Self-Similarity, Renormalization, & Multifractality*, Courant, January 1996.
237. Mechanical Engineering Colloquium, U Houston, February 1996.
238. Stephen F. Austin, March 1996.
239. Keynote Lecture, *MAA Rocky Mountain Section Meeting*, Grand Junction, April 1996.
240. UC Irvine, April 1996.
241. *Summer Faculty Research Program*, NASA, JSC, June 1996.
242. *Dynamical Systems Methods in Fluid Mechanics*, Oberwolfach, Germany, July 1996.
243. Universität Bayreuth, Germany, July 1996.
244. Seminar on *The Biology of Beauty*, Mindship, Copenhagen, Denmark, July 1996.
245. *Sociedad Matematica Mexicana*, Congreso Nacional XXIX, Invited AMS Lecturer, San Luis Potosi, Mexico, October 1996.
246. University of Houston, February 1997.
247. HCASC Seminar, Rice University, February 1997.
248. SIDIM '97, plenary lecture, Mayagüez, Puerto Rico, February 1997.
249. UPR – Humacao, Puerto Rico (two lectures) February 1997.
250. UT-Austin, Physics, March 1997.
251. University of Minnesota, Minneapolis, March 1997.
252. Arne Magnus Lecturer (three lectures), Colorado State University, April 1997.
253. *Future Directions in Mathematical Sciences*, IMA, University of Minnesota, April 1997.
254. University of Houston at Clear Lake, April 1997.
255. *Computational Science for the 21st Century*, Tours, France, May 1997.
256. Georgia Tech, May 1997.
257. Conference in Honour of *Vladimir Arnol'd*, Fields Institute, Toronto, Canada, June 1997.
258. *Large Time Behavior in Dynamical Systems: Analysis and Numerics*, Oberwolfach, Germany, July 1997.
259. *Midwest Dynamical Systems Conference*, Minneapolis, September 1997.
260. Computational and Applied Mathematics, Rice University, Houston, September 1997.
261. Neurobiology and Anatomy, UT Health Science Center, Houston, October 1997.
262. University of Alberta, Edmonton, Canada, April 1998.
263. Post-Doc Seminar, IMA, Minneapolis, May 1998.
264. Peking University, Beijing, China, June 1998.
265. Tsinghua University, Beijing, China, June 1998.
266. *Bifurcation Theory and its Numerical Analysis*, Xi'an, China, July 1998.
267. *Bridges Conference: Mathematical Connections in Art, Music, and Science*, Southwestern College, Winfield, Kansas, July 1998.
268. Minisymposium on *Bifurcations with Symmetry*, SIAM Annual Meeting, Toronto, Canada, July 1998.
269. *PDE Prague '98*, Charles University, Prague, Czech Republic, August 1998.
270. Rice University, Houston, September 1998.
271. VPI&SU, Blacksburg, October 1998.
272. Keck Seminar, Rice University, October 1998.
273. $O\Delta K$ National Leadership Honor Society, University of Houston, October 1998.
274. 13*th Annual Mathematical Sciences Department Chairs Colloquium*, Washington, November 1998.
275. Northern Michigan University, *SIAM VLP*, Marquette, November 1998.
276. *Nonlinear Science Festival*, Niels Bohr Institute, Copenhagen, Denmark, December 1998.
277. Worcester Polytechnic Institute, Worcester, January 1999.

278. Oberlin College, *SIAM VLP*, Oberlin, April 1999.
279. Plenary Lecture, MAA Texas Section Annual Meeting, San Marcos, April 1999.
280. Plenary Lecture, CAIMS, Québec, Canada, June 1999.
281. University of Ottawa, Ottawa, Canada, June 1999.
282. *ICIAM '99*, Edinburgh, UK, July 1999.
283. Applied Mathematics, Brown University, September 1999
284. Center for Biodynamics, Boston University, September 1999
285. Dynamics Seminar, Boston University, September 1999
286. *Differential Equations and their Applications*, J-L Lions 70th Birthday, U Houston, October 1999.
287. Computational Neuroscience Seminar, University of Chicago, October 1999.
288. Rensselaer Polytechnic Institute, Troy, November 1999.
289. University of Groningen, Germany, December 1999.
290. Physical Therapy, Boston University, January 2000
291. UNM-Los Alamos Distinguished Lecture Series in Nonlinear Science, Los Alamos (two lectures), U New Mexico (two lectures), February 2000.
292. University of Surrey, UK, February 2000.
293. University of Warwick, UK, March 2000.
294. Southeastern Bifurcation Meeting, Cambridge, UK, March 2000.
295. University of Southampton, UK (two lectures), March 2000.
296. Spring Topology and Dynamics Conference, San Antonio, March 2000.
297. Second Annual ΦBK Alan Going Lecture, U Alabama, April 2000.
298. University of Alabama, Tuscaloosa, April 2000.
299. Cornell University, April 2000.
300. Rhode Island College, Providence, April 2000.
301. Theoretical and Computational Biology Seminar, Mt. Sinai Medical Center, New York, April 2000.
302. Center for Adaptive Systems, Boston University, May 2000.
303. *Nonlinear Dynamics and Pattern Formation*: H.L. Swinney 60th Birthday, Austin, June 2000.
304. *Bifurcations, Symmetry and Patterns*, Porto, Portugal, July 2000.
305. Lecturer, *Summer School on Bifurcations, Symmetry and Patterns*, Coimbra, Portugal, July 2000.
306. Minisymposium on *Symmetry and Biology* at *SIAM Pacific Rim Dynamical Systems Conference*, Maui, August 2000.
307. University of Colorado at Denver, August 2000.
308. George Mason University, Fairfax, September 2000.
309. *Mathematics, Art and Culture*, University of Bologna, Italy, October 2000.
310. Duke University, Durham, November 2000.
311. North Carolina State University, Raleigh, November 2000.
312. Center for Nonlinear Dynamics, University of Texas, Austin, December 2000.
313. University of Texas, Austin, January 2001.
314. Saturday Morning Program, UT-Austin, January 2001.
315. Plenary Lecture, *Conference on Applied Mathematics*, University of Central Oklahoma, Edmonds, February 2001.
316. Northwestern University, Evanston, February 2001.
317. Institute of Mathematical Sciences, Chinese University, Hong Kong, March 2001.
318. Center for Nonlinear Studies, Hong Kong Baptist University, March 2001.
319. Hong Kong University of Science and Technology, March 2001.
320. University of Barcelona, Spain, April 2001.
321. *Nonlinear Phenomena in Science*, Don Aronson 70th Birthday, Free University Amsterdam, The Netherlands, June 2001.
322. *Global Analysis of Dynamical Systems*, Floris Takens 60th Birthday, Lorentz Center, Leiden, The Netherlands, June 2001.

323. Stieltjes Colloquium, University of Amsterdam, June 2001.
324. Plenary Lecture, *Computational Neuroscience Meeting*, Asylomar Conference Center, Pacific Grove, CA, July 2001.
325. Minisymposium on *Spontaneous and Driven Pattern Formation in the Visual Cortex*, SIAM Annual Meeting, San Diego, July 2001.
326. Trinity University, San Antonio, October 2001.
327. Georgia Institute of Technology, two lectures, Math and Physics, October 2001.
328. Pasquale Porcelli Lecture Series (three lectures), LSU, October 2001.
329. Computational and Applied Mathematics, Rice University, October 2001.
330. Applied Mathematics, University of Chicago, October 2001.
331. New Mexico State University, Las Crucas, November 2001.
332. Georgia Institute of Technology, November 2001.
333. *Workshop on Computational Challenges in Dynamical Systems*, Fields Institute, Canada, December 2001.
334. Plenary Lecture, *Canadian Mathematics Society Winter Meeting*, Toronto, Canada, December 2001.
335. *Conference on Nonlinear Analysis*, Kloster Irsee, Germany, January 2002.
336. University of Houston – Downtown, February 2002.
337. Minisymposium at *Life Sciences Activity Group*, SIAM, Boston, March, 2002.
338. University of Warwick, UK, March 2002.
339. Oklahoma State University, March 2002.
340. Ohio State University, April 2002.
341. University of Pittsburgh, April 2002.
342. *Center for Neuroscience*, University of Pittsburgh, April 2002.
343. University of Wisconsin, May 2002.
344. *International Conference IMPA 50 YEARS*, Rio de Janeiro, Brazil, June 2002.
345. University of São Carlos, Brazil, June 2002.
346. University of São Paulo, Brazil, June 2002.
347. Plenary Lecture, *Fields Institute 10th Anniversary Celebration*, June 2002.
348. *Geometry, Dynamics, and Mechanics*, Jerry Marsden 60th Birthday, Fields Institute, Canada, July 2002.
349. *Prospects in Mathematics Lectures*, Utah State, Logan, October 2002.
350. AMS special session on *Mathematical Neuroscience*, Orlando, November 2002.
351. Applied Mathematics, UT - San Antonio, November 2002.
352. Cajal Neuroscience Seminar, UT - San Antonio, November 2002.
353. Plenary Lecture, *Dynamics Days Arizona*, Scottsdale, January 2003.
354. Annual Department Lecture; Colloquium, UT - Arlington, April 2003.
355. *Dynamics and Bifurcations of Patterns in Dissipative Systems*, Colorado State University, May 2003.
356. *Mathematics Awareness Month Lecture*, Colorado State University, May 2003.
357. *Synchrony in Neuroscience*, SIAM Applied Dynamical Systems, Snowbird, May 2003.
358. *Symmetry and Bifurcation in Biology*, BIRS, Banff, Canada, June 2003.
359. *Dynamical Systems with Symmetry and Applications*, SIAM Annual Meeting, Montreal, Canada, June 2003.
360. *Differential Equations with Structure*, ICIAM, Sydney, Australia, July 2003.
361. Plenary Lecture, *Equadiff 2003*, Hasselt, Belgium, July 2003.
362. *Neural Pattern Formation Workshop*, KITP, Santa Barbara, October 2003.
363. Neuroscience Seminar, Courant Institute, November 2003.
364. *Bifurcation Theory and Spatio-Temporal Pattern Formation*, Fields Institute, Canada, December 2003.
365. *Differential Equations with Special Structure*, Oberwolfach, Germany, December 2003.
366. SIAM Plenary Lecture, Joint Mathematics Meeting, Phoenix, January 2004.
367. Universidade do Porto, Portugal, January 2004.

368. Applied Mathematics, Brown University, March 2004.
369. *Mathematical Neuroscience*, MSRI, Berkeley, March 2004.
370. Tomball College, March 2004.
371. *Analysis of Synchronous States in Networks*, AMS-SMM, Houston, May 2004.
372. Fourth World Congress on Nonlinear Analysis, Orlando, July 2004.
373. Computational Neuroscientists of Upper Canada, Toronto, Canada, July 2004.
374. Univerity of Ontario Institute of Technology, Canada, September 2004.
375. Prairie View A&M, October 2004.
376. York University, Toronto, Canada, October 2004.
377. University of Houston, October 2004.
378. University of Toronto, I-AIM seminar, Canada, November 2004.
379. *Quantitative Mathematical Modeling of Gene Regulatory Networks*, MBI, Ohio State, December 2004.
380. *From Genes to Patterns*, SIAM Conference on PDE, Houston, December 2004.
381. Pan-American Advanced Studies Institute 2005, Santiago, Chile, January 2005.
382. *Coupled 60 Workshop*, University of Houston, February 2005.
383. Penn State University, February 2005.
384. Plenary talk, SIAM-SEAS, Charleston, March 2005.
385. McMaster University, Hamilton, Canada, April 2005.
386. Texas Dynamics Workshop, San Antonio, April 2005.
387. Plenary Lecture, *Frontiers in Applied and Computational Mathematics*, NJIT, May 2005.
388. Journées de Dynamique NonLinéaire, Marseille-Luminy, France, May 2005.
389. *Coupled Cell Systems*, SIAM Conference on Applied Dynamical Systems, Snowbird, May 2005.
390. *Dynamical Systems*, Canadian Mathematical Society, Waterloo, June 2005.
391. Plenary Lecture, *Asian Mathematics Conference 2005*, Singapore, July 2005.
392. Training Workshop, *Pattern Formation in Large Domains*, Newton Institute, Cambridge, UK, August 2005.
393. *Theory and Applications of Coupled Cells*, Newton Institute, UK September 2005.
394. University of Nottingham, UK, October 2005
395. Analysis and Mechanics Seminar, Oxford University, UK, October 2005
396. *International Conference on Differential Equations* (on the occasion of Rolf Jeltsch's 60th birthday), Zurich, Switzerland, October 2005
397. Rothschild Lecture, University of Cambridge, UK, October 2005
398. University of Manchester, UK, October 2005
399. University of Surrey, UK, November 2005
400. Cambridge University Maths Society (Archimedians), UK, November 2005
401. *Life of Mathematics Programme*, St. Stephens College, University of Delhi, India, (three lectures), November 2005
402. University of Exeter, UK, November 2005
403. UKIE SIAM Section Meeting, Cardiff, UK, January 2006
404. *Contemporary Dynamical Systems*, Joint Mathematics Meeting, San Antonio, January 2006
405. *Symmetry and Neuroscience*, Current Events Invited Lecture, Joint Mathematics Meeting, San Antonio, January 2006
406. CNCS Seminar, Duke University, March 2006
407. Southern Ontario Dynamics Day, April 2006
408. Legacy Research Center, Portland, April 2006
409. CRM Distinguished Lecture, University of Ottawa, Canada, April 2006
410. *Sixth Crimean School-Workshop on Nonlinear Dynamics, Chaos and Applications*, Mellac, Crimea, Ukraine, May 2006
411. Shanghai Forum on Industrial and Applied Mathematics, China, May, 2006.

412. RIMS Workshop: *Dynamical Systems and Applications: Recent Progress* (three lectures), Kyoto University, Japan, July 2006
413. International Conf on Difference Equations and Appl (ICDEA 2006), Kyoto, Japan, July 2006
414. Banquet talk, SMB/SIAM Life Sciences Meeting, Raleigh, August 2006
415. CRIB Seminar, MIT, October 2006
416. Center for Nonlinear Dynamics, University of Texas, Austin, October 2006
417. *Workshop on Dynamical Systems with Emphasis on Extended Systems*, MSRI, Berkeley, January 2007
418. Royal Canadian Institute, Toronto, Canada, February 2007
419. Tulane University, New Orleans, February 2007
420. *Math Matters* "Patterns Patterns Everywhere", IMA, Minneapolis, March 2007
421. *Applications in Biology, Dynamics, and Statistics*, IMA, Minneapolis, March 2007
422. NCTM Annual Meeting, Atlanta, March 2007
423. USC, Los Angeles, March 2007
424. UH - Clear Lake, April 2007
425. SIAM SIAG Applied Dynamical Systems, *Interesting Dynamics in Some Coupled Cell Networks*, Snowbird, May 2007
426. *Bifurcation and Symmetry in Genetics and Neuroscience*, CIRM, Luminy, France, June 2007
427. Université de Nice, France, June 2007
428. *Pattern Formation in Coupled-Cell Systems*, ICIAM, Zürich, Switzerland, July 2007
429. *Geometry, Dynamics, and Control*, ICIAM, Zürich, Switzerland, July 2007
430. *Second Chinese National Summer School on Dynamical Systems* (five lectures), Changchun, China, August 2007
431. Purdue University, West Lafayette, October 2007
432. Plenary lecture, AMS Section Meeting, Chicago, October 2007
433. Ohio State, Columbus, October 2007
434. *Coherent Behavior of Neuronal Networks*, Mallorca, October 2007
435. University of Georgia, Athens, March 2008
436. Plenary lecture, *Interdisciplinary Mathematical & Statistical Techniques*, Memphis, May 2008
437. *Oscillations and Synchronization in Neuronal Networks*, AIMS Differential Equations Conference, Arlington, May 2008
438. Portland State University, May 2008
439. Mathématiques et Neurosciences, École des Neurosciences, Paris Île-se France, June 2008.
440. UNINet meeting, Laboratory of Neurophysics and Physiology, Paris, France, June 2008
441. *Past President's Address*, SIAM Annual Meeting, San Diego, July 2008
442. Plenary lecture, *Mathematical Theory of Networks & Systems 2008*, Blacksburg, July 2008
443. Plenary lecture, *Society for Mathematical Biology*, Annual Meeting, Toronto, Canada, August 2008
444. Public Lecture, Mathematical Association of America, August, 2008
445. *Infinite Dimensional Dynamical Systems*, 70th Birthday of George Sell, York, Toronto, Canada, September 2008
446. Plenary lecture, *Emergence in Complex Systems*, September 2008
447. Michigan State University, East Lansing, November 2008
448. Distinguished Lecturer (three lectures), University of Iowa, Iowa City, March 2009
449. University of Michigan, April 2009
450. Applied Math Seminar, Ohio State, April 2009
451. *Moser Prize Lecture*, Snowbird, May 2009
452. *Synchronization in Biological Systems*, Snowbird, May 2009
453. Plenary Lecture, CAIMS Annual Meeting, University of Western Ontario, Canada, June 2009
454. *Writing and Speaking about Mathematics*, SIAM Annual Meeting, Denver, July 2009
455. *Workshop Celebrating Diversity*, SIAM Annual Meeting, Denver, July 2009
456. Rutgers University, October 2009

457. *Dynamics of signal transduction and of gene-protein regulatory networks*, MBI, Columbus, November 2009
458. Mechanical Science and Engineering, University of Illinois, Champaign, November 2009
459. Neuroscience Seminar, Medical Center, Ohio State University, November 2009
460. Principal Lecturer, *Singularities arising in nonlinear problems (SNP2009)* (three lectures), Kyoto, Japan, December 2009
461. Kyoto University, Japan, December 2009
462. *Karen Ames Memorial Lecture*, Alabama - Huntsville, February 12, 2010
463. Universitat Hamburg, Germany, March, 2010 (via internet)
464. *Modeling, Simulation and the Reduction of Complexity*, Hamburg, Germany, March 2010 (via internet)
465. *Loeb Lecture*, Washington University, St. Louis, April 2010
466. *CAM Colloqium*, USC, Los Angeles, April 2010
467. Ohio University, Athens, May 2010
468. *Spatially Structured Oscillations and Waves in Neural Media*, 8th AIMS Conference, Dresden, Germany,May 2010
469. *Structure and Dynamics of Biochemical Reaction Networks*, 8th AIMS Conference, Dresden, Germany, May 2010
470. *Opportunities and Research at NESCent, MBI and NIMBioS*, SIAM Annual Meeting, Pittsburgh, July 2010
471. Plenary Lecture, Mathfest 2010, MAA, Pittsburgh, August 2010
472. University of Colorado, Applied Math, Boulder, September 2010
473. Duke University, Mathematical Biology Seminar, November 2010
474. *Math is Key*, Purdue University, November 2010
475. NAMIAM, Huatulco, Mexico, December 2010
476. 104th Statistical Mechanics Conference, Rutgers, December 2010
477. 2011 NZIMA/NZMRI Dynamical Systems Conference, Raglan, New Zealand, January 2011
478. *New Developments in Dynamical Systems Arising from the Biosciences*, MBI, March 2011
479. Case Western Reserve University, Cleveland, April 2011
480. *Synchrony in Biological Systems*, NIMBioS, Knoxville, April 2011
481. *Network Dynamics, Information, and Biology*, ICIAM 2011, Vancouver, July 2011
482. *Geometry, Mechanics, and Dynamics*, ICIAM 2011, Vancouver, July 2011
483. Plenary Lecture, ENOC 2011, Rome, July 2011
484. University of Toledo, October 2011
485. Physics, George Washington University, November 2011
486. Keynote speaker, *Network Frontier Workshop*, Northwestern, December, 2011
487. *Applications of Dynamical Systems*, Joint Math Meetings, Boston, January 2012
488. *DANSE* Winter School (five lectures), Pamplona, Spain, January 2012
489. University of Pittsburgh, February 2012
490. *Science Sundays*, Ohio State, March 2012
491. *Shoemaker Lectures* (three lectures) University of Toledo, March 2012
492. Keynote speaker, APS - Ohio Section Meeting, Columbus, April 2012
493. Keynote speaker, *Workshop on Dynamical Systems* (three lectures), National Center of Theoretical Sciences, Hsinchu, Taiwan, May 2012
494. *Recent Advances in Dynamical System Theory and Applications*, INRIA - Sophia Antipolis, June 2012
495. Séminaire de Mathématiques Appliquées, College de France, Paris, June 2012
496. *Perceptual Rivalry and Mathematical Modeling*, SIAM Life Sciences Activity Group meeting, San Diego, August 2012
497. *Resonance and Synchronization*, Lorentz Center, Leiden, The Netherlands, August 2012
498. *Complex Systems & Networks*, IMA, Minneapolis, September 2012
499. *Mathematical Challenges in Neural Network Dynamics*, MBI, October 2012

500. Tulane University, New Orleans, November 2012
501. UNAM, Mexico City, November 2012
502. New Jersey Institute of Technology, February 2013
503. Conference on Dynamics of Differential Equations, Georgia Tech, March 2013
504. *Kwangil Koh Lecture*, NC State, April 2013
505. Colloquium, NC State, April 2013
506. *Bifurcations in Coupled Cell Networks*, Snowbird, May 2013
507. Warwick University, Coventry, June 2013
508. Ross Summer Program Lecture, Ohio State, July 2013
509. Plenary Lecture, *Applied Mathematics, Modeling and Computational Science (AMMCS 2013) Conference*, Wilfred Laurier University, August 2013
510. *Gateways to Emergent Behavior in Science and Society*, Santa Fe Institute, September 2013
511. Public Lecture and seminar, University of St. Thomas, St. Paul, October 2013
512. Plenary Lecture, *Kennesaw Mountain Undergraduate Math Conference*, Kennesaw, November 2013
513. Mathematical Biology Seminar, Duke University, Durham, January 2014
514. Institute of Mathematical Behavioral Sciences, UC Irvine, February 2014
515. Applied and Computational Mathematics Seminar, UC Irvine, February 2014
516. Center for Computational and Integrative Biology, Rutgers-Camden, March 2015
517. Applied Math and Computational Science, GRASP, University of Pennsylvania, March 2014
518. *ICIAM Workshop on Applied Mathematics*, MBI, May 2014
519. *International Conference on Mathematical Biology*, Guangzhou University, May 2014
520. *Rhythms and Oscilations*, MBI-CAMBAM-NIMBioS Summer Graduate Program, MBI, July 2014
521. *Stochastic Network Models of Neocortex*, BIRS, Banff, July 2014
522. *Dynamics of Multistable Perception and Decision Making*, SIAM Life Sciences, Charlotte, August 2014
523. ESAM, Northwesten, October 2014
524. UNAM, Mexico City, November 2014
525. Virginia Commonwealth University, February 2015
526. Public Lecture *Ostrom Lecture* and Colloquium, Washington State University, March 2015
527. *Symmetry and Dynamics in Biology*, Escola Paulista de Medicina, São Paulo, Brazil, April 2015
528. *Structure-Dynamics Relation in Networks of Coupled Dynamical Systems*, Snowbird, May 2015
529. *Coupled Cell Dynamics*, AMS-EMS-SPM Meeting, Porto, June 2015
530. Instituto Superior de Engenharia do Porto, June 2015
531. *Geometry and Dynamics*, Lorentz Center, Leiden, June 2015
532. *Mathematics of Evolutionary Game Theory*, ICIAM 2015, Beijing, August 2015
533. Beijing Normal Unversity, Beijing, August 2015
534. Remnin University, Beijing, August 2015
535. *Young Mathematicians Conference*, Ohio State, August 2015
536. Texas Southern University, Houston, October 2015
537. Physics Department, University of Houston, October 2015
538. Mathematical Biology Seminar, Duke University, October 2015
539. University of Illinois at Urbana-Champaign, October 2015
540. *Science Sundays*, Ohio State University, December 2015
541. MBI Colloquium, January 2016
542. *Generalized Network Structures & Dynamics*, MBI, March 2016
543. Plenary Lecture, Michigan Section MAA, Hillsdale College, April 2016
544. Claremont Center for the Mathematical Sciences, April 2016
545. Plenary Lecture, *International Conference on Applied Mathematics 2016*, Hong Kong, May 2016
546. Plenary Lectures (three), *Dynamics of Biological Systems Summer School*, Edmonton, June 2016
547. Plenary Lecture, *Biological Control Across Scales*, Sidney Sussex College, University of Cambridge, June 2016

548. *Mathematics and the Life Sciences at MBI*, MAA Mathfest, Columbus, August 2016
549. Keynote Presentation, *BEERS 2016*, Charleston, October 2016
550. Applied Math Seminar, University of Auckland, March 2017
551. Public Lecture, University of Auckland, April 2017
552. Monash University, Melbourne, April 2017
553. KAIST, Daejeon, Korea, May 2017
554. *A3-NIMS Joint Workshop: Connecting Mathematics and Biology*, Daejeon, Korea, May 2017
555. *Neuronal Modulation, Robustness and Homeostasis*, Snowbird, May 2017
556. *Emerging Topics in Network Dynamical Systems*, Lorentz Center, Leiden, June 2017
557. Minicourse on *Network Dynamics and Applications* (two lectures) U São Paulo, June 2017
558. University of São Paulo at São Carlos, June 2017
559. MBI Visitor Seminar, Columbus, October, 2017
560. *Sensori-Motor Control of Animals and Robots*, MBI, Columbus, November, 2017
561. *Network Frontier 2017 Workshop*, online, December 2017
562. *Second Joint Meeting of Mathematicians*, U São Paulo, March 2018
563. Applied Math Colloquium, U. Chicago, May 2018
564. Mejii University, Tokyo, June 2018
565. Keynote Lecture, East Asia SIAM Section Meeting, University of Tokyo, June 2018
566. *Network Dynamics* SIAM Annual Meeting, Portland, July 2018
567. *Applid Math Colloquium*, Princeton University, September 2018
568. *Invitations to Mathematics*, Ohio State University, October 2018
569. University of Michigan, January 2019
570. *Network Admissible Systems: Symmetries and Bifurcations*, Snowbird, May 2019
571. *MBI Summit on the Rules of Life*, Ohio State, June, 2019
572. *Representation Theory Seminar*, Ohio State, November, 2019
573. *Math Biology Seminar*, UBC, (virtual) May, 2020
574. *The Mathematics of Homeostasis and Health*, AAAS Annual (virtual), February 2021
575. Penn State University (virtual), March 2021
576. Plenary Lecture, *Nonlinear Dynamics and Complexity 2021* (virtual), October 2021
577. *Analysis Seminar*, Wakeforest (virtual), October, 2021
578. *Applied Mathematics Seminar* U Michigan (virtual), November 2021
579. Guangzhao Center for Applied Mathematics, (virtual), January 2022
580. Plenary Lecture, ICMASC'2022, Porto (virtual), June, 2022