

Leon Glass

Department of Physiology, McGill University
3655 Drummond Street
Montreal, Quebec, Canada H3G 1Y6
Phone: (514) 398-4338
Fax: (514) 398-7452
e-mail: glass@cnd.mcgill.ca

Dated May 1, 2006
Date of Birth March 29, 1943
Place of Birth Brooklyn, New York
Citizenship American, Canadian
Marital Status Married, 2 children
Education Erasmus Hall High School, Brooklyn, New York (1959)
Brooklyn College, New York, B.S. (Chemistry, Cum Laude, 1963)
University of Chicago, Illinois, Ph.D. (Chemistry, 1968)
Theory of Atomic Motions in Simple Liquids

Honors & Awards

1959-1963 NY State Regents College Fellowship, Brooklyn College
1963 American Institute of Chemists Award for Undergraduate Studies
1965-1967 US Public Health Service Predoctoral Fellowship, University of Chicago
1968-1971 US Public Health Service Postdoctoral Fellowship, University of Edinburgh and University of Chicago
1994-1995 John Simon Guggenheim Memorial Foundation Fellowship.
Nonlinear dynamics and sudden cardiac death.
1998 Québec Science selects research from my group as one of the 10 “discoveries of the year” (February 1998 issue)
1998- Fellow, Royal Society of Canada
1999- Fellow, American Physical Society
2000-2003 The Maclean’s Guides to Canadian Universities has identified as a “Popular Professor” at McGill
2003 Jacques-Rousseau Prize for Interdisciplinary Research, ACFAS

Employment

- 2001- Isadore Rosenfeld Chair in Cardiology, McGill University
- 2001-2002 Visiting Professor, Department of Biomedical Engineering, Boston University
- 1984- Full Professor, Department of Physiology, McGill University
- 1994-1995 Visiting Professor, Harvard University Medical School and Beth Israel Hospital
- 1993-1994 Acting Director, Centre for Nonlinear Dynamics in Physiology and Medicine, McGill University
- 1984-1985 Visiting Professor, Department of Biology, University of California at San Diego
- 1990- Associate Member, Department of Mathematics, McGill University
- 1976-1984 Associate Professor, Department of Physiology, McGill University
- 1975-1976 Assistant Professor, Department of Physiology, McGill University
- 1971-1975 Research Associate, Assistant Professor, Department of Physics and Astronomy, University of Rochester, Rochester, NY, USA
- 1969-1971 Postdoctoral Fellow, Department of Theoretical Biology, University of Chicago, Chicago, Illinois, USA
- 1968-1969 Postdoctoral Fellow, Department of Machine Intelligence and Perception, University of Edinburgh, Edinburgh, Scotland

Professional Activities

- 1977 Chairman, Gordon Research Conference on Theoretical Biology and Biomathematics
- 1985-2001 Editorial Board, *Journal of Theoretical Biology*
- 1986 Organizer of Session of Cardiac Physiology, International Union of Physiology, Vancouver, BC
- 1987-1996 Scientific Advisory Panel, Fields Institute for Research in Mathematics, Toronto
- 1989 Co-Organizer, Theory of Heart Conference, San Diego, California
- 1989 NSF Special Study Section for Science and Technology Center on Chaotic Dynamics, College Park, Maryland
- 1989 Special Study Section, NIH
- 1991- Editorial Board, *International Journal of Bifurcation and Chaos*
- 1991- Editorial Board, *Chaos: An Interdisciplinary Journal of Nonlinear Science*
- 1991-1992 Scientific Advisory Committee, Santa Fe Institute Comparative Time Series Competition
- 1993-1996 Board of Governors, Society for Mathematical Biology
- 1994 Study Section, Canadian Heart and Stroke Foundation

- 1994 Co-Organizer, Dynamical Disease Conference, Mont Tremblant, Québec
- 1995-1996 Executive Committee, Scientific Advisory Board, Helmholtz Institute for the Study of Complex Systems in Biology and Medicine, Würzburg, Germany
- 1996-1997 President-Elect, Society for Mathematical Biology
- 1997-1999 President, Society for Mathematical Biology
- 1996- Advisory Board, Ben Gurion University Cardiac Research Center, Beer-Sheva, Israel
- 1996- Editorial Board, Journal of Theoretical Medicine
- 1998 Organizing Committee, SIAM Annual Meeting
- 1998- Editorial Board, Interdisciplinary Applied Mathematics Series, Springer Verlag
- 1998-2003 Fellow, Biosgroup, Santa Fe, NM
- 1999-2000 Past President, Society for Mathematical Biology
- 2000 International Advisory Board and Organizer of a Mini-Symposium, 5th International Dead Sea Symposium of Cardiac Arrhythmias and Device Therapy, Dead Sea, Israel
- 2000-2001 Organizing Committee, Theme Year on Mathematical Methods in Biology and Medicine, Centre de Recherche Mathématiques, Université de Montréal
- 2000 Organizer, Workshop on Mapping and Control of Complex Arrhythmias, Centre de Recherche Mathématiques, Université de Montréal
- 2000-2003 Advisory Group on Interdisciplinary Research, NSERC
- 2000-2001 International Advisory Committee, VII Latinamerican Workshop on Nonlinear Phenomena (LAWNP'01), Mexico
- 2002 Assessment Committee for a Professorship in Biological Physics and Complex Systems at the Department of Physics of the Technical University of Denmark
- 2002-2005 Executive Committee, Division of Biological Physics, American Physical Society
- 2002 Scientific Committee, 2002 Annual Meeting of the Society for Mathematical Biology and International Conference on Mathematics and Biology
- 2004 Co-Organizer, Dynamics, control and computation in biochemical networks, August 2004, Banff International Research Station
- 2004 Co-Editor, Special Issue of the Journal of Theoretical Biology in Memory of Arthur T. Winfree, October 21, 2004
- 2005 Organizing Committee, Society for Mathematical Biology Annual Meeting
- Societies** Society for Mathematical Biology
American Physical Society
Canadian Physiological Society
North American Society of Pacing and Electrophysiology
Royal Society of Canada

Publications

Books

1. L. Glass, M.C. Mackey. *From Clocks to Chaos: The Rhythms of Life*. (Princeton University Press, Princeton, 1988). Translated into Russian (1991), Chinese (1995), Portuguese (1997).
2. L. Glass, P. Hunter, A. McCulloch, Eds. *Theory of Heart: Biophysics, Biomechanics and Nonlinear Dynamics of Cardiac Function* (Springer-Verlag, New York, 1991).
3. J. Bélair, L. Glass, U. an der Heiden, J. Milton, Eds. *Dynamical Disease: Mathematical Analysis of Human Illness* (American Institute of Physics, New York, 1995).
4. D.T. Kaplan, L. Glass. *Understanding Nonlinear Dynamics* (Springer-Verlag, New York, 1995).
5. A. Beuter, L. Glass, M. C. Mackey, M. S. Titcombe, Eds. *Nonlinear Dynamics in Physiology and Medicine* (Springer-Verlag, New York, 2003).

Peer-reviewed Articles and Book Chapters

1. I.H. Hillier, L. Glass, S.A. Rice. Theoretical studies of transannular interactions. II. The triplet states of the paracyclophanes. *Journal of Chemical Physics* **45**, 3015-3021 (1966).
2. I.H. Hillier, L. Glass, S.A. Rice. Theoretical studies of transannular interactions. III. The absorption and emission of a multi-layered paracyclophane. *Journal of the American Chemical Society* **88**, 5063-5067 (1966).
3. L. Glass, I.H. Hillier, S.A. Rice. On the intensity distribution of excimer emission. *Journal of Chemical Physics* **45**, 3886-3887 (1966).
4. L. Glass, S.A. Rice. New approximation for the calculation of neutron scattering from a simple liquid. *Physical Review* **165**, 186-194 (1968).
5. L. Glass, S.A. Rice. Unified approximation for the velocity autocorrelation function and the structure function of a simple liquid. *Physical Review* **176**, 239-249 (1968).
6. L. Glass. Moiré effect from random dots. *Nature* **223**, 578-580 (1969).
7. L. Glass. Effect of blurring on the perception of a simple geometric pattern. *Nature* **228**, 1341-1342 (1970).
8. L. Glass, W. Tobler. Uniform distribution of objects in a homogeneous field: Cities on a plain. *Nature* **233**, 67-68 (1971).
9. L. Glass, S.A. Kauffman. Cooperative components, spatial localization and oscillatory cellular dynamics. *Journal of Theoretical Biology* **34**, 219-237 (1972).
10. L. Glass, S.A. Kauffman. The logical analysis of continuous, nonlinear biochemical control networks. *Journal of Theoretical Biology* **39**, 103-129 (1973).
11. L. Glass. Stochastic generation of regular distributions. *Science* **180**, 1061-1063 (1973). A technical comment on this article is L. Glass. *Science* **183**, 446 (1974).
12. L. Glass. Instability and mitotic patterns of tissue growth. *Transactions of the ASME Journal of Dynamic Systems, Measurement, and Control* **95** (Series G), 324-327 (1973).

13. L. Glass. A combinatorial analogue of the Poincaré index theorem. *Journal of Combinatorial Theory* **B15**, 264-268 (1973).
14. L. Glass, R. Perez. Perception of random dot interference patterns. *Nature* **246**, 360-362 (1973).
15. R.M. Shymko, L. Glass. Spatial switching in chemical reactions with heterogeneous catalysis. *Journal of Chemical Physics* **60**, 835-841 (1974).
16. J. Markovics, L. Glass, G. Maul. Pore patterns on nuclear membranes. *Experimental Cell Research* **85**, 443-451 (1974).
17. L. Glass, R. Perez. Limit cycle oscillations in compartmental chemical systems. *Journal of Chemical Physics* **61**, 5242-5249 (1974).
18. R. Perez, L. Glass, R. Shlaer. Development of specificity in the cat visual cortex. *Journal of Mathematical Biology* **1**, 275-288 (1975).
19. L. Glass. Classification of biological networks by their qualitative dynamics. *Journal of Theoretical Biology* **54**, 85-107 (1975).
20. R.M. Shymko, L. Glass. Negative images in stroboscopy. *Optical Engineering* **14**, 506-507 (1975).
21. L. Glass. Combinatorial and topological methods in nonlinear chemical kinetics. *Journal of Chemical Physics* **63**, 1325-1335 (1975).
22. L. Glass. A topological theorem for nonlinear dynamics in chemical and ecological networks. *Proceedings of the National Academy of Sciences (U.S.)* **72**, 2856-2857 (1975).
23. R.M. Shymko, L. Glass. Cellular and geometric control of tissue growth and mitotic instability. *Journal of Theoretical Biology* **63**, 355-374 (1976).
24. L. Glass, E. Switkes. Pattern recognition in humans: Correlations which cannot be perceived. *Perception* **5**, 67-72 (1976).
25. M.C. Mackey, L. Glass. Oscillation and chaos in physiological control systems. *Science* **197**, 287-289 (1977).
26. L. Glass. Global analysis of nonlinear chemical kinetics. In: *Statistical Mechanics*, Pt. B, B. Berne, Ed. (Plenum, New York, 1977), 311-349.
27. L. Glass. Combinatorial aspects of dynamics in biological systems. In *Statistical Mechanics and Statistical Methods in Theory and Applications*, U. Landman, Ed. (Plenum, New York, 1977) 585-611.
28. L. Glass, J.S. Pasternack. Prediction of limit cycles in mathematical models of biological oscillations. *Bulletin of Mathematical Biology* **40**, 27-44 (1978).
29. L. Glass, J.S. Pasternack. Stable oscillations in mathematical models of biological control systems. *Journal of Mathematical Biology* **6**, 207-223 (1978).
30. L. Glass. Patterns of supernumerary limb regeneration. *Science* **198**, 321-322 (1977) (technical comment).
31. L. Glass, M.C. Mackey. A simple model for phase locking of biological oscillators. *Journal of Mathematical Biology* **7**, 339-352 (1979).
32. L. Glass, R. Young. Structure and dynamics of neural network oscillators. *Brain Research* **179**, 207-218 (1979).

33. L. Glass, M.C. Mackey. Pathological conditions resulting from instabilities in physiological control systems. *Annals of the New York Academy of Sciences* **316**, 214-235 (1979).
34. L. Glass. Physiological mechanisms for the perception of random dot Moiré patterns. In: *Pattern Formation by Dynamic Systems and Pattern Recognition*, H. Haken, Ed. (Springer-Verlag, Berlin, 1979) 127-134.
35. L. Glass, C. Graves, G.A. Petrillo, M.C. Mackey. Unstable dynamics of a periodically driven oscillator in the presence of noise. *Journal of Theoretical Biology* **86**, 455-475 (1980).
36. S.D. Chawla, L. Glass, J. Proctor. Three-dimensional reconstruction of disseminated cancer nodules. *Cancer Biochemistry Biophysics* **5**, 153-161 (1981).
37. M.R. Guevara, L. Glass, A. Shrier. Phase-locking, period-doubling bifurcations and irregular dynamics in periodically stimulated cardiac cells. *Science* **214**, 1350-1353 (1981). Reprinted in *Universality in Chaos*, 1st and 2nd editions. P Cvitanovic, Ed. (Adam Hilger, Bristol, 1984 & 1989), 178-183; *Chaos*, Hao Bai-Lin, Ed. (World Scientific, Singapore, 1984).
38. M.R. Guevara, L. Glass. Phase-locking, period-doubling bifurcations and chaos in a mathematical model of a periodically driven biological oscillator: A theory for the entrainment of biological oscillators and the generation of cardiac dysrhythmias. *Journal of Mathematical Biology* **14**, 1-23 (1982).
39. L. Glass, R. Perez. Fine structure of phase-locking. *Physical Review Letters* **48**, 1772-1775 (1982).
40. R. Perez, L. Glass. Bistability, period doubling bifurcations and chaos in a periodically forced oscillator. *Physics Letters* **90A**, 441-443 (1982).
41. S.D. Chawla, L. Glass, S. Freiwald, J.W. Proctor. An interactive computer graphic system for 3D stereoscopic reconstruction from serial sections: Analysis of metastatic growth. *Computers in Biology and Medicine* **12**, 223-232 (1982).
42. L. Glass, M.R. Guevara, A. Shrier, R. Perez. Bifurcation and chaos in a periodically stimulated cardiac oscillator. *Physica* **7D**, 89-101 (1983).
43. M.R. Guevara, L. Glass, M.C. Mackey, A. Shrier. Chaos in neurobiology. *Transactions of the IEEE, Systems, Man and Cybernetics*, **SMC13**, 790-798 (1983).
44. G.A. Petrillo, L. Glass, T. Trippenbach. Phase-locking of the respiratory rhythm in cats to a mechanical ventilator. *Canadian Journal of Physiology and Pharmacology* **61**, 599-607 (1983).
45. J. Bélair, L. Glass. Self-similarity in periodically forced oscillators. *Physics Letters* **96A**, 113-116 (1983).
46. L. Glass, A.T. Winfree. Discontinuities in phase resetting experiments. *American Journal of Physiology* **246** (*Regulatory, Integrative Comprehensive Physiology* **15**), R251-R258 (1984).
47. M.R. Guevara, G. Ward, A. Shrier, L. Glass. Electrical alternans and period-doubling bifurcations. *IEEE Computers in Cardiology*, 167-170 (1984).
48. G.A. Petrillo, L. Glass. A theory for phase-locking of respiration in cats to a mechanical ventilator. *American Journal of Physiology* **246**, (*Regulatory, Integrative Comprehensive Physiology* **15**), R311-R320 (1984).
49. L. Glass, M.R. Guevara, J. Bélair, A. Shrier. Global bifurcations of a periodically forced biological oscillator. *Physical Review A* **29**, 1348-1357 (1984).
50. J. Keener, L. Glass. Global bifurcations of a periodically forced nonlinear oscillator. *Journal of Mathematical Biology* **21**, 175-190 (1984).

51. J. Bélair, L. Glass. Universality and selfsimilarity in the bifurcations of circle maps. *Physica* **16D**, 143-154 (1985).
52. J. Bélair, L. Glass. Bifurcations universelle dans les endomorphisme du cercle. In: *IVe Séminaire de l'Ecole de Biologie Théorique* (Editions du CNRS, Paris, 1985) 217-224.
53. L. Glass. Boolean and continuous models for the generation of biological rhythms. In: *Dynamical Systems and Cellular Automata*. J. Demongeot, E. Goles, M. Tchuente, Eds. (Academic Press, London, 1985) 197-206.
54. C. Graves, L. Glass, D. Laporta, R. Meloche, A. Grassino. Respiratory phase-locking during mechanical ventilation in anesthetized human subjects. *American Journal of Physiology* **250** (*Regulatory, Integrative Comprehensive Physiology* **19**), R902-R909 (1986).
55. L. Glass, A. Goldberger, J. Bélair. Dynamics of pure parasystole. *American Journal of Physiology* **251** (*Heart Circ. Physiol.* **20**), H841-H847 (1986).
56. M.R. Guevara, A. Shrier, L. Glass. Phase resetting of spontaneously beating embryonic ventricular heart cell aggregates. *American Journal of Physiology* **251** (*Heart Circ. Physiol.* **20**), H1298-H1305 (1986).
57. L. Glass, A. Shrier, J. Bélair. Chaotic cardiac rhythms. In: *Chaos*, A. Holden Ed. (Manchester University Press, Manchester, 1986) 237-256.
58. L. Glass, J. Bélair. Continuation of Arnold tongues in mathematical models of periodically forced biological oscillators. In: *Nonlinear Oscillations in Biology and Chemistry, Lecture Notes in Biomathematics No. 66*, H. Othmer, Ed. (Springer-Verlag, Berlin, 1986) 232-243.
59. L. Glass, A. Goldberger, M. Courtemanche, A. Shrier. Nonlinear dynamics, chaos and complex cardiac arrhythmias. *Proceedings of the Royal Society (London)* **A413**, 9-26 (1987).
60. J. Lewis, M. Bachoo, L. Glass, C. Polosa. Complex dynamics resulting from repeated stimulation of nonlinear oscillators at a fixed phase. *Physics Letters* **125A**, 119-122 (1987).
61. A. Shrier, H. Dubarsky, M. Rosengarten, M.R. Guevara, S. Nattel, L. Glass. Prediction of complex atrioventricular conduction rhythms in humans using the atrioventricular nodal recovery curve. *Circulation* **76**, 1196-1205 (1987).
62. L. Glass, M.R. Guevara, A. Shrier. Universal bifurcations and the classification of cardiac arrhythmias. *Annals of the New York Academy of Sciences* **504**, 168-178 (1987).
63. L. Glass. Is the respiratory rhythm generated by a limit cycle oscillator? In *Concepts and Formalizations in the Control of Breathing*, G. Benchetrit, P. Baconnier, J. Demongeot, Eds. (Manchester University Press, Manchester, 1987) 247-263.
64. L. Glass. Coupled oscillators in health and disease. In: *Temporal Disorders in Human Oscillatory Systems*. L. Rensing, U. an der Heiden, M.C. Mackey, Eds. (Springer-Verlag, Berlin, 1987) 8-14.
65. M.R. Guevara, A. Shrier, L. Glass. Phase-locked rhythms in periodically stimulated heart cell aggregates. *American Journal of Physiology* **254** (*Heart Circ. Physiol.* **23**), H1-H10 (1988).
66. L. Glass, A. Beuter, D. Larocque. Time delays, oscillations and chaos in physiological control systems. *Mathematical Biosciences* **90**, 111-125 (1988).
67. L. Glass. Simple mathematical models for complex dynamics in physiological systems. In: *Directions in Chaos, vol. 2*, B.L. Hao, Ed. (World Scientific, Singapore, 1988) 90-108.

68. J.G. Milton, A. Longtin, A. Beuter, M.C. Mackey, L. Glass. Complex dynamics and bifurcations in neurology. *Journal of Theoretical Biology* **138**, 129-147 (1989).
69. M. Courtemanche, L. Glass, M.D. Rosengarten, A.L. Goldberger. Beyond parasystole: Promises and problems in modelling complex arrhythmias. *American Journal of Physiology* **257** (*Heart Circ. Physiol.* **26**), H693-H706 (1989).
70. D. Gordon, D. Scagliotti, M. Courtemanche, L. Glass. A clinical study of the dynamics of parasystole. *PACE* **12**, 1412-1418 (1989).
71. M. Delmar, L. Glass, D.C. Michaels, J. Jalife. Ionic basis and analytical solution of the Wenckebach phenomenon in guinea pig ventricular myocytes. *Circulation Research* **65**, 775-788 (1989).
72. A. Beuter, D. Larocque, L. Glass. Complex oscillations in a human motor system. *Journal of Motor Behavior* **21**, 277-289 (1989).
73. W.Z. Zeng, L. Glass. Symbolic dynamics and skeletons of circle maps. *Physica* **40D**, 218-234 (1989).
74. M. Courtemanche, L. Glass, J. Bélair, D. Scagliotti, D. Gordon. A circle map in a human heart. *Physica* **40D**, 299-310 (1989).
75. L. Glass, C.P. Malta. Chaos in multi-looped negative feedback systems. *Journal of Theoretical Biology* **145**, 217-223 (1990).
76. Zeng, W.Z., M. Courtemanche, L. Sehn, A. Shrier, L. Glass. Theoretical computation of phase-locking in embryonic atrial heart cell aggregates. *Journal of Theoretical Biology* **145**, 225-244 (1990).
77. J. Lewis, M. Bachoo, C. Polosa, L. Glass. The effects of superior laryngeal nerve stimulation on the respiratory rhythm: phase resetting and aftereffects. *Brain Research* **517**, 44-50 (1990).
78. L. Glass, P. Hunter. There is a theory of heart. *Physica* **43D**, 1-16 (1990).
79. A. Beuter, J.G. Milton, C. Labrie, L. Glass, S. Gauthier. Delayed visual feedback and movement control in Parkinson's disease. *Experimental Neurology* **110**, 228-235 (1990).
80. W.Z. Zeng, J. Morissette, R. Brochu, L. Glass, A. Shrier. Complex rhythms resulting from overdrive suppression in electrically stimulated cardiac pacemakers. *PACE* **13**, 1678-1685 (1990).
81. M.R. Guevara, A. Shrier, L. Glass. Chaotic and complex cardiac rhythms. In: *Cardiac Electrophysiology: From Cell to Bedside*, D.P. Zipes, J. Jalife, Eds. (Saunders, Philadelphia, 1990) 192-201.
82. L. Glass, W.Z. Zeng. Complex bifurcations and chaos in simple theoretical models of cardiac oscillations. *Annals of the New York Academy of Sciences* **591**, 316-327 (1990).
83. M. Courtemanche, L. Glass, M. Rosengarten. Modeling ventricular parasystole. *Annals of the New York Academy of Sciences* **591**, 178-189 (1990).
84. H. Ito, L. Glass. Spiral breakup in a new model of excitable media. *Physical Review Letters* **66**, 671-674 (1991).
85. M. Talajic, D. Papadatos, C. Villemaire, L. Glass, S. Nattel. A unified model of AV node conduction predicts dynamic changes in Wenckebach periodicity. *Circulation Research* **68**, 1280-1293 (1991).
86. L. Glass. Cardiac arrhythmias and circle maps - A classical problem. *Chaos: An Interdisciplinary Journal of Nonlinear Science* **1**, 13-19 (1991).
87. J. Lewis, L. Glass. Steady states, limit cycles, and chaos in models of complex biological networks. *International Journal of Bifurcation and Chaos* **1**, 477-483 (1991).

88. W.Z. Zeng, L. Glass, A. Shrier. Evolution of rhythms during periodic stimulation of embryonic chick heart cell aggregates. *Circulation Research* **69**, 1022-1033 (1991).
89. L. Glass, Nonlinear dynamics of physiological function and control. *Chaos: An Interdisciplinary Journal of Nonlinear Science* **1**, 247-250 (1991). Reprinted in: R. C. Hilborn and N. B. Tufillaro, Eds. *Chaos and Nonlinear Dynamics* (American Association of Physics Teachers, College Park, MD, 1999).
90. L. Glass, A. Shrier. Low dimensional dynamics in heart. In: *Theory of Heart: Biophysics, Biomechanics and Nonlinear Dynamics of Cardiac Function*, L. Glass, P. Hunter, A. McCulloch, Eds. (Springer-Verlag, New York, 1991) 289-312.
91. J. Bélair, M. Courtemanche, L. Glass. Parasytostole and the pacemaker problem. In: *Theory of Heart: Biophysics, Biomechanics and Nonlinear Dynamics of Cardiac Function*, L. Glass, P. Hunter, A. McCulloch, Eds. (Springer-Verlag, New York, 1991) 377-390.
92. D.T. Kaplan, L. Glass. A direct test for determinism in a time series. *Physical Review Letters* **68**, 427-430 (1992). Reprinted in *Coping With Chaos. Analysis of Chaotic Data and the Exploitation of Chaotic Systems*, E. Ott, T. Sauer, J.A. Yorke, Eds. (John Wiley & Sons, Inc., New York, 1994).
93. W.Z. Zeng, L. Glass, A. Shrier. The topology of phase response curves induced by single and paired stimuli. *Journal of Biological Rhythms* **7**, 89-104 (1992).
94. J. Lewis, L. Glass. Nonlinear dynamics and symbolic dynamics of neural networks. *Neural Computation* **4**, 621-642 (1992).
95. H. Ito, L. Glass. Theory of reentrant excitation in a ring of cardiac tissue. *Physica* **56D**, 841-06 (1992).
96. J. Lewis E., L. Glass, M. Bachoo, C. Polosa. Phase resetting and fixed delay stimulation of a simple model of respiratory rhythm generation. *Journal of Theoretical Biology* **159**, 491-506 (1992).
97. R. de Paola, W.I. Norwood, L. Glass. Dynamical signatures in electrocardiographic data. In: *Applied Chaos*, J.H. Kim, J. Stringer, Eds. (John Wiley, New York, 1992) 299-319.
98. L. Glass, D.T. Kaplan, J.E. Lewis. Tests for deterministic dynamics in real and model neural networks. In: *Nonlinear Dynamical Analysis of the EEG*, B.H. Jansen, M.E. Brandt, Eds. (World Scientific, Singapore, 1993) 233-249.
99. D.T. Kaplan, L. Glass. Coarse-grained embeddings of time series: Random walks, Gaussian random processes, and deterministic chaos. *Physica* **64D**, 431- 454 (1993).
100. M. Courtemanche, L. Glass, J.P. Keener. Instabilities of a propagating pulse in a ring of excitable media. *Physical Review Letters* **70**, 2182-2185 (1993).
101. L. Glass, D.T. Kaplan. Time series analysis of complex dynamics in physiology and medicine. *Medical Progress Through Technology* **19**, 115-128 (1993).
102. V.C. Kowtha, A. Kunysz, J.R. Clay, L., Glass, A. Shrier. Ionic mechanisms and nonlinear dynamics of embryonic chick heart cell aggregates. *Progress in Biophysics and Molecular Biology* **61**, 255-281 (1994).
103. L. Glass, W. Zeng. Bifurcations in flat-topped maps and the control of cardiac chaos. *International Journal of Bifurcation and Chaos* **4**, 1061-1067 (1994).
104. L. Glass, J. Sun. Periodic forcing of a limit cycle oscillator: Fixed points, Arnold tongues, and the global organization of bifurcations. *Physical Review E* **50**, 5077-5084 (1994).

105. A. Kunysz, L. Glass, A. Shrier. Overdrive suppression of spontaneously beating chick heart cell aggregates: Experiment and theory. *American Journal of Physiology* **269** (*Heart, Circulatory Physiology* **38**), H1153-H1164 (1995).
106. G. Bub, L. Glass. Bifurcations in a discontinuous circle map: A theory for a chaotic cardiac arrhythmia. *International Journal of Bifurcation and Chaos* **5**, 359-371 (1995).
107. J. Sun, F. Amellal, L. Glass, J. Billette. Alternans and period-doubling bifurcations in atrioventricular nodal conduction. *Journal of Theoretical Biology* **173**, 79-91 (1995).
108. J. Bélair, L. Glass, U. an der Heiden, J. Milton. Dynamical disease: Identification, temporal aspects and treatment strategies of human illness. *Chaos* **5**, 1-7 (1995).
109. A. Beuter, H. Haverkamp, L. Glass. Carrière. Effect of manipulating visual feedback parameters on eye and finger movements. *International Journal of Neuroscience* **83**, 281-294 (1995)
110. L. Glass, M.E. Josephson. Resetting and annihilation of reentrant abnormally rapid heartbeat. *Physical Review Letters* **75**, 2059-2063 (1995).
111. L. Glass. Nonlinear dynamics and chaos in cardiac oscillatory systems. In *Cardiac Electrophysiology from Cell to Bedside*, Vol.2, D.P. Zipes, J. Jalife, Eds. (Saunders, Philadelphia, 1995) 363-370.
112. L. Glass. Chaos in neural systems. In: *The Handbook of Brain Theory and Neural Networks*, M.A. Arbib, Ed. (MIT Press, Cambridge, MA, 1995) 186-189.
113. L. Glass. Dynamical disease: The impact of nonlinear dynamics and chaos on cardiology and medicine. In: *Chaos and Complexity*, J. Trần Thanh Vân, P. Bergé, R. Conte. M. Dubois, Eds. (Editions Frontières, Gif-sur-Yvette, 1995) 79-95. Reprinted in: *The Impact of Chaos on Science and Society*, C. Grebogi, J. A. Yorke, Eds. (United Nations University Press, Tokyo, 1997) 219-231.
114. A. Beuter, L. Glass. Les maladies dynamiques. Une nouvelle approche de la médecine. *Interface* **16**(2), 28-39 (1995).
115. M. Courtemanche, J.P. Keener, L. Glass. A delay equation representation of pulse circulation on a ring in excitable media. *SIAM Journal on Applied Mathematics* **56**, 119-142 (1996).
116. T. Mestl, C. Lemay, L. Glass. Chaos in high dimensional neural and gene networks. *Physica D* **98**, 33-52 (1996).
117. T. Nomura, L. Glass. Entrainment and termination of reentrant wave propagation in a periodically stimulated ring of excitable media. *Physical Review E* **53**, 6353-6360 (1996).
118. D.T. Kaplan, J.R. Clay, T. Manning, L. Glass, M.R. Guevara, A. Shrier. Subthreshold dynamics in periodically stimulated squid giant axons. *Physical Review Letters* **76**, 4074-4077 (1996).
119. Zeng, W., L. Glass. Statistical properties of heartbeat intervals during atrial fibrillation. *Physical Review E* **54**, 1779-1784 (1996)
120. L. Glass. Dynamics of cardiac arrhythmias. *Physics Today* **49** (Number 8, Part 1) 40-45 (1996).
121. F. Amellal, K. Hall, L. Glass, J. Billette. Alternation of atrioventricular nodal conduction time during atrioventricular reentrant tachycardia: Are dual pathways necessary? *Journal of Cardiovascular Electrophysiology* **7**, 943-951 (1996)
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