PHILIP JOHN HOLMES: Curriculum Vitae and Publications (updated June 2017.)

Program in Applied and Computational Mathematics and
Department of Mechanical and Aerospace Engineering,
Princeton University,
Princeton, NJ 08544-1000, USA.
Tel: (609) 258-2958/5128, Fax: (609) 258-1735/6109
pholmes@math.princeton.edu, http://www.princeton.edu/mae/people/faculty/holmes/

Education

Oxford University; B.A. (Hons). Engineering Science: 1967.
Southampton University; Ph.D. Engineering: 1974.

Experience and Academic Posts

Industrial apprenticeship with Rolls-Royce Ltd. (Aero Engine Division): 1963-1964, 1967-1968.
Self-employed man of letters, travels in Europe and the Near East, first volume of poems: 1968-1970.
Research Assistant, Institute of Sound and Vibration Research, Southampton University: 1970-1974.
Research Fellow, Institution of Sound and Vibration Research: 1974-1977.
Assistant Professor of Theoretical and Applied Mechanics, Cornell University: 1977-1980.
Visiting Scholar, Department of Mathematics, University of California at Berkeley: Jan-June 1981.
Associate Professor of Theoretical and Applied Mechanics, Cornell University: 1980-1984.
Director, Center for Applied Mathematics and Graduate Field Representative, Cornell University: 1981–86.
Member, Graduate Field of Mathematics, Cornell University: 1983–94.
Professor of Theoretical and Applied Mechanics and Mathematics, Cornell University: 1984–94.
Applied Analysis Program Coordinator, Mathematical Sciences Institute, Cornell University: 1985–88, 90–91.
Sherman Fairchild Distinguished Scholar, California Institute of Technology: 1988-1989.
Professeur Associé, Université de Nice: July 1989.
Charles N. Mellowes Professor of Engineering and Professor of Mathematics, Cornell University: 1992–94.
Professeur Associé, Université de Paris-Sud: June-July 1993.
Professor of Mechanics and Applied Mathematics, Princeton University: 1994–2008.
Director, Program in Applied and Computational Mathematics, Princeton University: 1994–97, 2010–11.
Associated Faculty Member, Department of Mathematics, Princeton University: 2002–.
Visiting Member, School of Mathematics, Institute for Advanced Study, Princeton: Spring 2003.
Interim Chair, Department of Mechanical and Aerospace Engineering, Princeton University: 2006–07.
Eugene Higgins Professor of Mechanical and Aerospace Engineering, Princeton University: 2008–15.
Associated Faculty Member, Princeton Neuroscience Institute: 2012–.
Eugene Higgins Professor of Mechanical and Aerospace Engineering Emeritus, and Senior Scholar,
Princeton University: 2015– .

Honours and Awards

Eric Gregory Award for part of second collection of poems, "A Place to Stand", 1975.
Chaire Aisenstadt, Centre de Recherches Mathématiques, Université de Montréal, 1985-6.
Poetry Society (UK) Recommendation for third collection of poems, "The Green Road", 1986.
John Simon Guggenheim Memorial Fellow, 1993-4.
Elected Member of the American Academy of Arts and Sciences, 1994.
Erdős Visiting Professor, Paul Erdős Mathematical Center, Budapest, Hungary, January 2000.
Phillips Distinguished Visitor, Haverford College, Haverford, PA, January 2001.
Elected Honorary Member of the Hungarian Academy of Sciences, 2001.

Schmidt Distinguished Visiting Professor, Florida Atlantic University, Boca Raton, FL, September 2002.
Listed among Highly Cited Researchers by the American Society for Information Science & Technology, 2003.
Elected Fellow of the American Physical Society, 2006.
Safra Distinguished Visiting Professor, Faculty of Mechanical Engineering, Technion, Israel: Spring 2009.
Lyapunov Award, American Society of Mechanical Engineers' Technical Committee on Multibody Systems and Nonlinear Dynamics, 2009.
Elected Fellow of the Society for Industrial and Applied Mathematics, 2011.
T.K. Caughey Award, American Society of Mechanical Engineers' Applied Mechanics Division, 2011.
Elected Fellow of the American Mathematical Society (AMS), inaugural class of 2012.
AMS Leroy P. Steele Prize for Mathematical Exposition, awarded for *Nonlinear Oscillations, Dynamical Systems, and Bifurcations of Vector Fields*, joint with John Guckenheimer, 2013.
Awarded *Doctor Honoris Causa* by Budapest University of Technology and Economics, May 30, 2015.

Major Invited Lectures and Short Courses

Vollmer-Fries Lectureship, Renssalaer Polytechnic Institute, February 1983.
Invited Lecturer, DD4, Beijing, PRC, August 1983.
Watson Distinguished Speaker, S.U.N.Y. Binghamton, NY, March 1986.
Midwest Mechanics Seminar Speaker, 1986-7.
North British Differential Equations Seminar Speaker, May 1988.
Mark Kac Memorial Lecturer, Los Alamos National Lab, April 1989.
Plenary Speaker, XI USNC TAM, Tucson, AZ, May 1990.
Sectional Lecturer, International Congress of Mathematicians, Kyoto, Japan, August 1990.
Graduiertenkolleg Lecturer, Universität Stuttgart, June 1991.
Rufus Bowen Lecturer, Department of Mathematics, University of California at Berkeley, October 1991.
Southwest Mechanics Lecture Series Speaker, 1994.
SERC Applied Nonlinear Mathematics Spring School lecturer, University of Leeds, UK, 1994.
Short course lecturer, IV Latin American Workshop on Nonlinear Phenomena, San Carlos de Bariloche, Argentina, September 1995.
Plenary Speaker, AMS Winter Annual Meeting, Orlando, FL, January 1996.
Lansdowne Visiting Professor, University of Victoria, BC, Canada, March 1996.
Short course lecturer, ICCMP Workshop on Nonlinear Dynamics, Universidade de Brazília, Brazil, July 1997.
Distinguished Lecturer, Oberlin College, OH, April 1998.
Blumberg Lecturer, University of Texas, Austin, TX, March 2002.
Plenary Speaker, SIAM 50th Anniversary Meeting, Philadelphia, PA, July 2002.
Plenary Speaker, International Symposium on Nonlinear Theory and its Applications (NOLTA2004), Fukuoka, Japan, December 2004.
Opening Plenary Speaker, Fifth EUROMECH Nonlinear Dynamics Conference (ENOC-2005), Eindhoven University of Technology, the Netherlands, August 2005.
Math Matters Public Lecture, Institute for Mathematics and its Applications, Minneapolis, MN, December 2005.
Short course lecturer in 19th Canberra International Physics Summer School on Turbulence, Australian National University, Canberra, January, 2006.
IAM, PIMS and MITACS Distinguished Colloquium, University of British Columbia, Canada, March, 2006.
Appointed to SIAM Visiting Lecturer Program, 2006.
Rainich Lecturer, Department of Mathematics, University of Michigan, October-November 2006.
Plenary Speaker, 16th International Congress on Mathematical Physics, Prague, Czech Republic, August 3-8, 2009.
Boeing Distinguished Lecture, Applied Mathematics, University of Washington, Seattle, Nov 5, 2009.
Marvin I. Freedman Memorial Colloquium, Department of Mathematics, Boston University, March 2010.
Opening Plenary Speaker, SIAM Conference on Life Sciences, Pittsburgh, PA, July 12-15, 2010.

Arthur Newell Talbot Distinguished Lecturer, University of Illinois, March, 2011.
Invited speaker, International Congress on Industrial and Applied Mathematics, Vancouver, BC, July 18-22, 2011.
Karl Menger Lecturer, Applied Mathematics Dept., Illinois Institute of Technology, Chicago, IL, April 23-24, 2012.
Short course on Mathematical Neuroscience, DANCE Network Winter School on Dynamical Systems, University of Murcia, Spain, Jan 28-Feb 1, 2013.
Commemorative Joseph Ford Lecture, Physics Dept., Georgia Tech, Atlanta, GA, March 11, 2013.
Hugh C. Morris Distinguished Lecture, Pacific Institute for the Mathematical Sciences, Vancouver, BC, Nov 1, 2013.

Theses Directed (37 Ph.D., 3 M.Sc.; *denotes co-advised with N.E. Leonard).

B.D. Greenspan (1981); J. Belair (1983); S.W. Shaw (1983); S.R. Wiggins (1985); N. MacGiolla Mhuiris (1986); K.G. Hockett (1986); J.J.P. Veerman (1986); A. Szeri (1988); E. Stone (1989); T. Kiemel (1990); V. Brunsden (M.Sc., 1990); O. O'Reilly (1990); C. Moore (1991); S.A. Campbell (1991); G. Berkooz (1991); P.J. Swart (1991); B. Zombro (1993); J. Duan (1993); W. Kalies (1994); H. Dankowicz (1995); B.D. Coller (1995); R.W. Ghrist (1995); D.A. Taylor (M.Sc., 1996); R.W. Wittenberg (1998); J.J. Jenkins (M.Sc., 1999); J.M. Schmitt (2001); J. Cisternas (2003); T.R. Smith (2003); E.T. Brown (2004); R.M. Ghigliazza (2004); J. Seipel (2006); J. Gao (2007); Y. Liu (2007); P. Eckhoff (2009); R. Kukillaya (2010); J. Proctor (2011); A. Nedic (2011); S. Feng (2012); S. Goldfarb* (2013); P. Reverdy* (2014).

Current Graduate Student

R. Pagliara Vasquez*.

Postdoctoral Scholars (26); *denotes co-mentored with N.E. Leonard.

D.C. Whitley (1982-83); I.M. Moroz (1983-84); D. Armbruster (1986-88); A. Mielke (1986-87); J. Elezgaray (1989-91); G. Domokos (1991-92); A. Doelman (1992-93); D. Begie (1993-95); J.N. Kutz (1995-97); R. Goodman (1999-2001); H. Hanßmann (2000-01); J. Moehlis (2000-03); R. Bogacz (2001-04); T. McMillen (2003-06); P. Simen (2004-11); A.J. Yu (2005-08); M. Srinivasan (2006-09); P. Varkonyi (2006-07); KF. Wong-Lin (2006-10); E. Fuchs (2008-15); F. Balci (2008-10); D. Tomlin (2008-12); M. Schwemmer (2010-12); S. Feng (2012-14); Z. Aminzare* (2015–); V. Srivastava* (2015-16).

Editorial Board Memberships

Addison-Wesley, monographs on Global Analysis and Its Applications: 1981-1985. SIAM Journal on Applied Mathematics: 1984-1990. Archive for Rational Mechanics and Analysis: 1986–2003. Complex Systems: 1986-1988. Journal of Nonlinear Science: 1990–16; Managing Editor 2001–2005. Nonlinear Science Today: 1990–96. Proceedings of the Edinburgh Mathematical Society: 1991–96. Regular & Chaotic Dynamics: 1996–. Springer Verlag, Applied Mathematics Series and Texts in Applied Mathematics, 1997–; Co-Editor in Chief of 4 book series (AMS, TAM, IAM and STAMS), 2010–. Annual Reviews of Fluid Mechanics, guest editor, 1998. SIAM Journal on Applied Dynamical Systems, 2001–15. Applied Mathematics Research eXpress, 2001–11.

Advisory Board Memberships

Centre de Recherches Mathématiques, Université de Montréal: 1986-1991. S.E.R.C. Nonlinear Systems Panel (U.K.): 1986-1990. Theory Center, Cornell University: 1987-1989. L'Institut des Sciences Mathématiques, Montréal: 1991-96. US National Committee on Theoretical and Applied Mechanics: 1996–2000. AMS NSF Postdoctoral Fellowship Selection Committee: 1998–2000 (Chair, 1999). AMS/SIAM Wiener Prize Committee:

2003. SIAM Jürgen Moser Prize Selection Committee: 2006. Membership Panel, American Academy of Arts and Sciences: 1997-98 and 2004-7 (Chair, 2005-7). Centrum voor Wiskunde en Informatica, Amsterdam: Advisory Council, 2008-10. Pacific Institute for the Mathematical Sciences (PIMS) Scientific Review Panel: 2013-16. SIAM Fellows Selection Committee: 2013-15. AMS Joseph L. Doob Prize Committee: 2013-19. SIAM George Pólya Prize Committee: 2014-16.

Conference and Workshop Organization

IUTAM Symposium on Stochastic Problems In Dynamics, Southampton, U.K., July 19-23, 1976: co-organizer. Engineering Foundation Conference on New Approaches to Nonlinear Problems in Dynamics, Pacific Grove, California, Dec. 9-14, 1979: chairman. SIAM Symposium on Nonlinear Dynamics, Alexandria, Virginia, July 6-8, 1980: chairman. Society for Natural Philosophy 25th Annual Meeting, Ithaca, Sept. 23-36, 1982: chairman. Engineering Foundation Conference on New Approaches to Nonlinear Problems II, Henniker, N.H., June 8-13, 1986: co-chairman. US National Congress on Applied Mechanics, Austin, TX, June 16-20, 1986: symposium organizer. MSI Workshop on Infinite Dimensional Dynamical Systems, Ithaca, NY, May 20-22, 1987: organizer. CRM Special Year in Dynamical Sytems, Montréal, Quebec, 1993-94: co-organizer. MSRI Special Semester in Dynamical Systems and Probabilistic Methods for PDE, Spring, 1994: organizing committee member. Fourth International Congress on Industrial and Applied Mathematics, Edinburgh, Scotland, July 4-9, 1999: minisymposium co-organiser. Fifth International Congress on Industrial and Applied Mathematics, Sydney, Australia, 2003: international Program Committee member. Mathematical Biology Institute (Ohio State University) special year on Bioengineering, 2007-8: workshop organiser. Equadiff 2011, Loughborough University, UK, Aug 1-5, 2011: Scientific Advisory Board member. IUTAM Symposium on 50 Years of Chaos: Applied and Theoretical, Kyoto University, Japan, Nov 28-Dec 2, 2011: scientific committee member. ARO/NSF Locomotion Systems Science Workshop: Why are Animals Better? Alexandria, VA, May 29-31, 2012: program committee member. NSF Research Coordination Network Workshop on Locomotion, Princeton, NJ, Jan 30-31, 2014: local organizer. CDS20 Control and Dynamical Systems Directions Workshop, Caltech, Pasadena, CA, Aug 5-7, 2014: session organizer.

Professional Society Memberships

American Mathematical Society (AMS representative to US National Committee on Theoretical and Applied Mechanics, 1996-2000); American Physical Society; International Society for the Interaction of Mechanics and Mathematics; Society for Industrial and Applied Mathematics (Council member, 1987-89, Chair of Dynamical Systems Activity Group, 2006-7, Major Awards Committee, 2008-10, Fellows Selection Committee 2013-16); Society for Natural Philosophy; Society for Neuroscience.

Reviewing activities

AMS Notices; American Scientist; Applied Mechanics Reviews; Bulletin of the AMS; IMA Journal; Journal of Applied Mechanics; Journal of Sound and Vibration; Physics Today; Physics World; Shock and Vibration Digest; SIAM Review.

Refereeing Activities

AMS Journals; AIP Chaos; Applied Math. Modelling; Automatica; Communications in Math. Physics; Ergodic Theory and Dynamical Systems; Frontiers journals; Handbook of Acoustics; Icarus; IEEE Journals; J. Applied Mechanics; J. Atmospheric Sciences; J. Comput. Neurosci.; J. Differential Equations; J. Dynamic Systems and Control; J. Fluid Mechanics; J. Knot Theory and its Ramifications; J. Math. Biology; J. Math. Physics; J. Math. Psychology; J. Theoretical Biology; J. Sound and Vibration; Lecture notes on Biomathematics; Mechanics Research Communications; Memory and Cognition; Neural Computation; Nonlinearity; Physica D (Nonlinear Phenomena); Physical Review (PRL and PRE); Physics of Fluids; Physics Letters; PLoS ONE;

PLoS Computational Biology; Proc. National Acad. Sci.; Psychological Review; Reviews of Modern Physics; Rocky Mountain J. Math.; The Royal Society Journals; SIAM Journals; Theoretical and Computational Fluid Dynamics; Transport Theory and Statistical Physics.

Current Research Funding

The National Science Foundation and the US-Israel Binational Science Foundation support my work.

Publications

(1) Archival Journal Articles

[1.1] P.J. Holmes and R.G. White (1972) *J. Sound Vib. 25 (2), 217-243.* Data analysis criteria and instrumentation requirements for the transient measurement of mechanical impedance.

[1.2] P.J. Holmes (1974) *J. Sound Vib. 32 (4), 525-529.* On the practical estimation of spectra and correlation functions of transient signals.

[1.3] P.J. Holmes (1974) *J. Sound Vib. 35 (2), 253-275* and *277-297.* The experimental characterization of wave propagation systems: I - non-dispersive waves in lumped systems; II - continuous systems and the effects of dispersion.

[1.4] P.J. Holmes and D.A. Rand (1976) *J. Sound Vib. 44 (2), 237-253.* The bifurcations of Duffing's equation: an application of catastrophe theory.

[1.5] P.J. Holmes and D.A. Rand (1978) *Quart. Appl. Math. 35, 495-509.* Bifurcations of the forced van der Pol oscillator.

[1.6] P.J. Holmes and C.A. Mercer (1976) *J.A.S.A. 60 (4), 951-2.* Comments on "Measurement of frequency responses and the multiple coherence function of the noised generation system of a diesel engine" by J.Y. Chung, M.J. Crocker and J.F. Hamilton, (J.A.S.A. 58 (3), 635-642, 1975).

[1.7] P.J. Holmes (1977) *J. Sound Vib. 53 (4), 471-503.* Bifurcations to divergence and flutter in flow-induced oscillations: a finite dimensional analysis.

[1.8] P.J. Holmes (1977) *Int. J. Nonlinear Mech. 12, 323-326.* Behavior of an oscillator with even nonlinear damping.

[1.9] P.J. Holmes and Y.K. Lin (1978) *Trans. A.S.M.E. J. Appl. Mech. 45, 165-169.* Deterministic stability analysis of a wind-loaded structure.

[1.10] Y.K. Lin and P.J. Holmes (1978) *Proc. A.S.C.E. J. Eng. Mech. 104 (EM2), 421-440.* Stochastic stability analyses of a wind-loaded structure.

[1.11] P. Holmes (1977) *Applied Mathematical Modelling 1, 362-366.* 'Strange' phenomena in dynamical systems and their physical implications.

[1.12] P. Holmes and D. Rand (1980) *Int. J. Nonlinear Mech. 15, 449-458.* Phase portraits and bifurcations of the nonlinear oscillator $\ddot{x} + (\alpha + \gamma x^2)\dot{x} + \beta x + \delta x^3 = 0$.

[1.13] P. Holmes and J. Marsden (1978) *Automatica 14 (4), 367-384.* Bifurcations to divergence and flutter in flow-induced oscillations: an infinite dimensional analysis.

[1.14] P. Holmes (1979) *Phil. Trans. Roy. Soc. Lond. A292 (1394), 419-448.* A nonlinear oscillator with a strange attractor.

[1.15] P.J. Holmes (1979) *Trans. A.S.M.E. J. Appl. Mech. 45 (3), 619-622.* Pipes supported at both ends cannot flutter.

[1.16] D.R.J. Chillingworth and P.J. Holmes (1980) *J. Math. Geol. 12 (1), 41-59.* Dynamical systems and models for reversals of the earth's magnetic field.

[1.17] P. Holmes (1980) *Rocky Mountain J. Math 10 (4), 679-693.* Periodic, non-periodic and irregular motions in a Hamiltonian system.

[1.18] P.J. Holmes (1979) *Trans. A.S.M.E. J. Appl. Mech. 46 (3), 672-676.* Domains of stability in a wind induced oscillation problem.

[1.19] P. Holmes and D. Lewis (1981) *Int. J. Nonlinear Mech. 16 (3,4), 233-246.* A periodically forced scalar ordinary differential equation.

[1.20] F.C. Moon and P.J. Holmes (1979) *J. Sound Vib. 65 (2), 275-296.* A magneto-elastic strange attractor (also (1980) *J. Sound Vib., 69 (2), 339.* Addendum).

[1.21] P.J. Holmes (1980) *SIAM J. Appl. Math. 38 (1), 65-80.* Averaging and chaotic motion in forced oscillations (also (1981) *SIAM J. Appl. Math. 40 (1), 167-168.* Erratum and addendum).

[1.22] P.J. Holmes (1981) *Physica D 2, 449-481.* Center manifolds, normal forms and bifurcations of vector fields with applications to coupling between periodic and steady motions.

[1.23] P.J. Holmes (1980) *J. Diff. Eqns. 37, 382-403.* A strange family of three dimensional vector fields near a degenerate singularity.

[1.24] P. Holmes and J. Marsden (1981) *Arch. Rat. Mech. Anal. 76, 135-165.* A partial differential equation with infinitely many periodic orbits: Chaotic oscillations of a forced beam.

[1.25] P. Holmes and D.S. Stewart (1982) *Stud. Appl. Math. 66, 121-143.* The existence of one-dimensional steady detonation waves in a simple model problem.

[1.26] R.H. Rand and P.J. Holmes (1980) *Int. J. Nonlinear Mech. 15, 387-399.* Bifurcation of periodic motions in two weakly coupled van der Pol oscillators.

[1.27] P.J. Holmes (1981) Space- and time-periodic perturbations of the Sine-Gordon equation. In "Proc. Warwick Symposium on Dynamical Systems", 164-191, ed. D.A. Rand and L.S. Young. Springer Lecture Notes in Mathematics, 898, Springer-Verlag, New York.

[1.28] S. Leibovich and P. Holmes (1981) *Physics of Fluids 24 (3), 548-549.* Global stability of the Burgers vortex.

[1.29] C. Holmes and P. Holmes (1981) *J. Sound Vib. 78 (2), 161-174.* Second order averaging and bifurcations to period two in Duffing's equation.

[1.30] P. Holmes (1982) *Quart. Appl. Math. 50 (1), 53-62.* On a second order boundary value problem arising in combustion theory.

[1.31] P. Holmes and D. Spence (1984) *Quart J. Mech. Appl. Math. 37 (4), 525-538.* On a Painlevé type boundary value problem.

[1.32] P.J. Holmes and B.D. Greenspan (1983) Homoclinic orbits, subharmonics and global bifurcations in forced oscillations. In "Nonlinear Dynamics and Turbulence", 172-214, ed. D.D. Joseph, G. Iooss and G. Barenblatt, Pitman, London.

[1.33] A. Cohen, P.J. Holmes and R.H. Rand (1982) *J. Math Biol. 13, 345-369.* The nature of coupling between segmental oscillators of the lamprey spinal generator for locomotion: a model.

[1.34] P.J. Holmes and J.E. Marsden (1982) *Comm. Math. Phys. 82, 523-544.* Horseshoes in perturbations of Hamiltonian systems with two degrees of freedom.

[1.35] P.J. Holmes and J.E. Marsden (1982) *J. Math. Phys. 23, 669-675.* Melnikov's method and Arnold diffusion for perturbations of integrable Hamiltonian systems.

[1.36] P.J. Holmes and J.E. Marsden (1983) *Indiana U. Math. J. 32, 273-309.* Horseshoes and Arnold diffusion for Hamiltonian systems on Lie groups.

[1.37] P.J. Holmes (1982) *J. Sound Vib. 84 (2), 173-189.* The dynamics of repeated impacts with a sinusoidally vibrating table.

[1.38] P.J. Holmes (1982) *Physica D 5, 335-347.* Proof of non-integrability for the Henon-Heiles Hamiltonian near an exceptional integrable case.

[1.39] B.D. Greenspan and P.J. Holmes (1984) *SIAM J. Math Anal. 15, 69-97.* Repeated resonance and homoclinic bifurcation in a periodically forced family of oscillators.

[1.40] P. Holmes and D. Whitley (1983) *Physica D 7, 111-123.* On the attracting set for Duffing's equation II: A geometrical model for moderate force and damping.

[1.41] P. Holmes and D. Whitley (1984) On the attracting set for Duffing's Equation I: Analytical methods for small force and damping. In "Partial Differential equations and Dynamical Systems", 211-240, ed. W. E. Fitzgibbon III. Pitman (1984).

[1.42] S.W. Shaw and P.J. Holmes (1983) *J. Sound Vib. 90, 129-155.* A periodically forced piecewise linear oscillator.

[1.43] J. Belair and P. Holmes (1983) *Quart. Appl. Math. 42, 193-219.* On linearly coupled relaxation oscillations.

[1.44] P.J. Holmes and F.C. Moon (1983) *Trans. ASME J. Appl. Mech. 50 (4b), 1021-1032.* Strange attractors and chaos in nonlinear mechanics.

[1.45] S.W. Shaw and P.J. Holmes (1983) *Trans. ASME J. Appl. Mech. 50 (4A), 849-857.* A periodically forced impact oscillator with large dissipation.

[1.46] P. Holmes and D. Whitley (1984) *Phil. Trans. Roy. Soc. Lond. A311 (1515), 43-102.* Bifurcations of one and two dimensional maps (also (1984) *Phil. Trans. Roy. Soc. Lond. A312 (1523), 601.* Erratum).

[1.47] S.W. Shaw and P. Holmes (1983) *Phys. Rev. Lett. 51 (8), 623-626.* A periodically forced linear oscillator with impacts: chaos and long period motions.

[1.48] P. Holmes (1984) *Phys. Lett. A 104, 299-302.* Bifurcation sequences in horseshoe maps: infinitely many routes to chaos.

[1.49] P. Veerman and P. Holmes (1985) *Physica D 14, 177-192.* The existence of arbitrarily many distinct periodic orbits in a two degree of freedom Hamiltonian system.

[1.50] P. Holmes (1985) *Trans. ASME J. Dyn. Sys. Control 107, 159-165.* Dynamics of a nonlinear oscillator with feedback control I. Local analysis.

[1.51] P. Holmes and R.F. Williams (1985) *Arch. Rat. Mech. Anal. 90, 115-194.* Knotted periodic orbits in suspensions of Smale's horseshoe: torus knots and bifurcation sequences.

[1.52] I.M. Moroz and P. Holmes (1984) *J. Atmospheric Sciences 41 (21), 3147-3160.* Double Hopf bifurcation and quasiperiodic flow in a model for baroclinic instability.

[1.53] S. Wiggins and P. Holmes (1987) *SIAM J. Math. Anal. 18 (3), 592-611.* Periodic orbits in slowly varying oscillators.

[1.54] A.H. Cohen, R.H. Rand and P.J. Holmes (1988) Systems of coupled oscillators as models of central pattern generators. In "Neural Control of Rhythmic Movements in Vertebrates", 333-367, eds A. H. Cohen, S. Rossignol, S. Grillner, Wiley, New York.

[1.55] K. Hockett and P. Holmes (1986) *Ergodic Theory and Dynamical Systems 6, 205-239.* Josephson's junction, annulus maps, horseshoes and rotation sets.

[1.56] P. Holmes (1986) *J. Fluid Mech. 162, 365-388.* Chaotic motions in a weakly nonlinear model for surface waves.

[1.57] S. Wiggins and P. Holmes (1987) *SIAM J. Math. Anal. 18, 612-629.* Homoclinic orbits in slowly varying oscillators (also (1988) *SIAM J. Math. Anal. 19 (5), 1254-1255.* Erratum).

[1.58] P. Veerman and P.J. Holmes (1985) *Physica D 20, 413-422.* Resonance bands in a two degree of freedom Hamiltonian system.

[1.59] P.J. Holmes (1985) *Physica D 21, 7-41.* Knotted periodic orbits in suspensions of Smale's horseshoe: period multiplying and cabled knots.

[1.60] F.C. Moon, J. Cusumano and P.J. Holmes (1987) *Physica D 24, 383-390.* Evidence for homoclinic orbits as a precursor to chaos in a magnetic pendulum.

[1.61] K. Hockett and P. Holmes (1988) *Nonlinearity 1 (4), 603-616.* Bifurcation to rotating Cantor sets in maps of the circle.

[1.62] P. Holmes (1986) *Physica D 23, 84-90.* Spatial structure of time-periodic solutions of the Ginzburg-Landau equation.

[1.63] K. Hockett and P. Holmes (1987) *Proc. I.E.E.E., 75 (8), 1071-1080.* Nonlinear oscillations, iterated maps, symbolic dynamics and knotted orbits.

[1.64] P.J. Holmes (1987) *Proc. Roy. Soc. Lond. A411 (1841), 351-378.* Knotted periodic orbits in suspensions of annulus maps.

[1.65] T. Kiemel and P. Holmes (1987) *IMA J. of Math. Appl. to Biology and Medicine 4, 145-169.* A model for the periodic synaptic inhibition of a neuronal oscillator.

[1.66] P. Holmes (1988) Knots and orbit genealogies in nonlinear oscillators. In "New Directions in Dynamical Systems", 150-191, ed. T. Bedford and J. Swift. Cambridge University Press, Cambridge, U.K.

[1.67] N. Aubry, P. Holmes, J.L. Lumley and E. Stone (1988) *J. Fluid Mech. 192, 115-173.* The dynamics of coherent structures in the wall region of a turbulent boundary layer (also (1996) *J. Fluid Mech. 324, 407-408.* Corrigendum).

[1.68] V. Brunsden and P. Holmes (1987) *Phys. Rev. Lett. 58 (17), 1699-1702.* Power spectra of strange attractors near homoclinic orbits.

[1.69] A. Szeri and P. Holmes (1988) *Phil. Trans. Roy. Soc. Lond. A326 (1590), 327-354.* Nonlinear stability of axisymmetric swirling flows (also (1988) *Phil. Trans. Roy. Soc. Lond. A326 (1593), 697. Erratum.*

[1.70] K. Hockett and P. Holmes (1988) *Proc. A.M.S. 102 (4), 1031-1051.* Bifurcation to badly ordered orbits in one parameter families of circle maps, or Angels fallen from the Devil's staircase.

[1.71] J. Guckenheimer and P. Holmes (1988) *Math. Proc. Camb. Phil. Soc. 103, 189-192.* Structurally stable heteroclinic cycles.

[1.72] D. Armbruster, J. Guckenheimer and P. Holmes (1988) *Physica D 29, 257-282.* Heteroclinic cycles and modulated travelling waves in systems with $O(2)$ symmetry.

[1.73] A. Mielke and P. Holmes (1988) *Arch. Rat. Mech. Anal. 101, 319-348.* Spatially complex equilibria of buckled rods.

[1.74] D. Armbruster, J. Guckenheimer and P.J. Holmes (1989) *SIAM J. on Appl. Math. 49, 676-691.* Kuramoto-Sivashinsky dynamics on the center-unstable manifold.

[1.75] P. Holmes, J.E. Marsden and J. Scheurle (1988) *Contemporary Mathematics 81, 213-244.* Exponentially small splitting of separatrices in KAM theory and degenerate bifurcations.

[1.76] E. Stone and P.J. Holmes (1990) *SIAM J. on Appl. Math 50, 726-743.* Random perturbations of heteroclinic attractors.

[1.77] V. Brunsden, J. Cortell and P.J. Holmes (1989) *J. Sound Vib. 130, 1-25.* Power spectra of chaotic oscillations of a buckled beam.

[1.78] N. Aubry, J.L. Lumley and P. Holmes (1990) *Theor. and Comput. Fluid Dyn. 1 (4), 229-248.* The effect of modeled drag reduction on the wall region (also (1996) *Theor. and Comput. Fluid Dyn. 8 (6), 449-450.* Errata).

[1.79] P. Holmes (1989) *Physica D 40, 42-64.* Knotted periodic orbits in suspensions of Smale's horseshoe: extended families and bifurcation sequences.

[1.80] P. Holmes (1989) Can dynamical systems approach turbulence? In "Whither Turbulence? Turbulence at the Crossroads", 195-249 and 306-309, ed. J.L. Lumley, Springer Lecture Notes in Applied Physics 357, Springer-Verlag, New York.

[1.81] P. Holmes (1990) *Physics Reports 193 (3), 137-163.* Poincaré, celestial mechanics, dynamical systems theory and "chaos."

[1.82] D.M. Kammen, P.J. Holmes and C. Koch (1989) Cortical architecture and oscillations in neuronal networks: feedback versus local coupling. In "Models of Brain Function", 273-284, ed. R.M.J. Cotterill, Cambridge University Press, Cambridge, U.K.

[1.83] J.M. Ball, P.J. Holmes, R.D. James, R.L. Pego and P.J. Swart (1991) *J. Nonlinear Sci. 1 (1), 17-70.* On the dynamics of fine structure.

[1.84] E. Stone and P.J. Holmes (1991) *Phys. Lett. A 155, 29-42.* Unstable fixed points, homoclinic orbits and exponential tails in turbulence production.

[1.85] G. Berkooz, P. Holmes and J.L. Lumley (1991) *J. Fluid Mech. 230, 75-95.* Intermittent dynamics in simple models of the turbulent wall layer.

[1.86] P.J. Holmes (1990) *Applied Mechanics Reviews 43, 5(2), S23-S39.* Nonlinear dynamics, chaos and mechanics.

[1.87] S. Campbell and P. Holmes (1991) *Nonlinearity 4, 697-726.* Bifurcation from O(2)-symmetric heteroclinic cycles with three interacting modes.

[1.88] P. Holmes and C.A. Stuart (1992) *Z. angew. Math. Phys. 43, 598-625.* Homoclinic orbits for eventually autonomous planar flows.

[1.89] A. Mielke, P. Holmes and O. O'Reilly (1992) *J. Dyn. and Diffl. Eqns. 4 (1), 95-126.* Cascades of homoclinic orbits to, and chaos near, a Hamiltonian saddle-center.

[1.90] O. O'Reilly and P. Holmes (1992) *J. Sound Vib. 153 (3), 413-435.* Nonlinear, nonplanar and nonperiodic vibrations of a string (also (1992) *J. Sound Vib. 159 (3), 571-572.* Errata).

[1.91] B. Zombro and P. Holmes (1993) *Dynamics and Stability of Systems 8 (1), 41-71.* Reduction, stability, instability and bifurcation in rotationally symmetric Hamiltonian systems.

[1.92] J. Duan, P. Holmes and E.S. Titi (1992) *Nonlinearity 5 (6), 1303-1314.* Global existence theory for a generalized Ginzburg-Landau equation.

[1.93] G. Berkooz, P. Holmes and J.L. Lumley (1993) *Theor. and Comput. Fluid Dyn. 4, 255-269.* On the relation between low dimensional models and the dynamics of coherent structures in the turbulent wall layer.

[1.94] S.A. Campbell and P. Holmes (1992) *Physica D 59, 52-78.* Heteroclinic cycles and modulated travelling waves in a system with D_4 symmetry.

[1.95] G. Berkooz, P. Holmes and J.L. Lumley (1993) *Ann. Rev. of Fluid Mech. 25, 539-575.* The proper orthogonal decomposition in the analysis of turbulent flows.

[1.96] P.J. Swart and P. Holmes (1992) *Arch. Rat. Mech. Anal. 121, 37-85.* Energy minimization and the formation of microstructure in dynamic anti-plane shear.

[1.97] G. Domokos and P. Holmes (1993) *J. Nonlinear Sci. 3 (1), 109-151.* Euler's problem and Euler's method, or the discrete charm of buckling (also (1993) *J. Nonlinear Sci. 3 (2), 267.* Erratum).

[1.98] J. Duan and P. Holmes (1994) *Nonlinear Analysis: Theory, Methods and Applications 22 (8), 1033-1040.* On the Cauchy problem of a generalized Ginzburg-Landau equation.

[1.99] J. Duan, E.S. Titi and P. Holmes (1993) *Nonlinearity 6 (6), 915-933.* Regularity, approximation and asymptotic dynamics for a generalized Ginsburg-Landau equation.

[1.100] B.D. Coller, P. Holmes and J.L. Lumley (1994) *Physica D 72 (1-2), 135-160.* Control of noisy heteroclinic cycles.

[1.101] G. Domokos and P. Holmes (1993) *Int. J. of Nonlinear Mechanics 28 (6), 677-685.* On non-inflectional solutions of non-uniform elasticae (also (1994) *Int. J. of Non-linear Mechanics 29 (5), 819* and (1996) 31 (3), 413. Erratum).

[1.102] G. Berkooz, P. Holmes, J.L. Lumley, N. Aubry and E. Stone (1994) *Phys. Fluids 6 (4), 1574-1578.* Observations regarding "Coherence and chaos in a model of a turbulent boundary layer" by X. Zhou and L. Sirovich.

[1.103] H. Dankowicz and P. Holmes (1995) *J. Diff. Eqns 116 (2), 468-483.* The existence of transverse homoclinic points in the Sitnikov problem.

[1.104] J. Duan and P. Holmes (1995) *Proc. Edinburgh Math. Soc. 38, 77-97.* Fronts, domain walls and pulses in a generalized Ginzburg-Landau equation.

[1.105] B.D. Coller, P. Holmes and J.L. Lumley (1994) *Phys. Fluids 6 (2), 954-961.* Interaction of adjacent bursts in the wall region.

[1.106] R. Pratap and P. Holmes (1995) *Nonlinear Dynamics 8, 111-139.* Chaos in a mapping describing elasto-plastic oscillations.

[1.107] A. Doelman and P. Holmes (1996) *Phil. Trans. Roy. Soc. Lond. A354 (1709), 845-893.* Homoclinic explosions and implosions (also (1996) *Phil. Trans. Roy. Soc. Lond. A354 (1713), 1837-1839.* Errata).

[1.108] M. Myers, P. Holmes, J. Elezgaray and G. Berkooz (1995) *Physica D 86 (3), 396-427.* Wavelet projections of the Kuramoto-Sivashinsky equation I: heteroclinic cycles and modulated travelling waves for short systems.

[1.109] H. Dankowicz, P. Holmes, J. Elezgaray and G. Berkooz (1996) *Physica D 90 (4), 387-407.* Local models of spatio-temporally complex fields.

[1.110] J. Elezgaray, G. Berkooz and P. Holmes, (1996) *Phys. Rev. E 54 (1), 224-230.* Large scale statistics of the Kuramoto-Sivashinsky equation: a wavelet based approach.

[1.111] B.D. Coller and P. Holmes, (1997) *Automatica 33 (1), 1-11.* Suppression of bursting.

[1.112] G. Domokos, P. Holmes and B. Royce, (1997) *J. Nonlinear Sci. 7 (3), 281-314.* Constrained Euler buckling.

[1.113] R. Wittenberg and P. Holmes, (1997) *Physica D 100 (1-2), 1-40.* The limited effectiveness of normal forms: a critical review and extension of local bifurcation studies of the Brusselator PDE.

[1.114] P. Holmes, J.L Lumley, G. Berkooz, J.C. Mattingly and R.W. Wittenberg, (1997) *Physics Reports 287 (4), 337-384.* Low-dimensional models of coherent structures in turbulence.

[1.115] J.N. Kutz, B.C. Collings, K. Bergman, S. Tsuda, S.T. Cundiff, W. Knox, P. Holmes and M. Weinstein, (1997) *J. Opt. Soc. America B 14 (10), 2681-2690.* Modelocking pulse dynamics in a fiber laser with saturable Bragg reflector.

[1.116] D.A. Taylor and P. Holmes, (1998) *J. Math Biol. 37 (5), 419-446.* Simple models for excitable and bursting neural networks.

[1.117] P. Holmes, J.T. Jenkins and N.E. Leonard, (1998) *Physica D 118 (3-4), 311-342.* Dynamics of the Kirchhoff equations I: Coincident centers of gravity and buoyancy.

[1.118] J.N. Kutz, P. Holmes, S.G. Evangelides and J.P. Gordon, (1998) *J. Opt. Soc. America B 15 (1), 87-96.* Hamiltonian dynamics of dispersion managed breathers.

[1.119] A. Mielke, P. Holmes and J.N. Kutz, (1998) *Nonlinearity 11 (6), 1489-1504.* Global existence and uniqueness for an optical fiber laser model.

[1.120] P. Holmes and J.N. Kutz, (1999) *SIAM J. on Appl. Math 59 (4), 1288-1302.* Dynamics and bifurcations of a planar map modelling dispersion-managed breathers.

[1.121] P. Holmes, G. Domokos, J. Schmitt and I. Szeberényi, (1999) *Comp. Meth. in Appl. Mech. and Eng. 170 (3-4), 175-207.* Constrained Euler buckling: an interplay of computation and analysis.

[1.122] G. Hek, A. Doelman and P. Holmes, (1998) *Arch. Rat. Mech. Anal. 145, 291-329.* Homoclinic saddle-node bifurcations and subshifts in a three dimensional flow.

[1.123] R.W. Wittenberg and P. Holmes, (1999) *Chaos 9 (2), 452-465.* Scale and space localisation in the Kuramoto-Sivashinsky equation.

[1.124] J. Schmitt and P. Holmes, (2000) *Biol. Cybern. 83 (6), 501-515* and *517-527.* Mechanical models for insect locomotion: Dynamics and stability in the horizontal plane I: Theory; II: Application.

[1.125] R.W. Wittenberg and P. Holmes, (2001) *Nonlinear Dynamics 25: 111-132.* Spatially localized models of extended systems.

[1.126] P. Holmes, (2001) *Encyclopedia of Vibration, Eds: S.G. Braun, D.J. Ewins, and S.S. Rao; pp 227-236.* Non-Linear vibrations: Chaos. Academic Press, London, UK and San Diego, CA.

[1.127] M.J. Coleman and P. Holmes, (1999) *Regular & Chaotic Dynamics 4 (2), 1-23.* Motions and stability of a piecewise holonomic system: the discrete Chaplygin sleigh.

[1.128] P. Holmes, G. Domokos and G. Hek, (2000) *J. Nonlinear Sci. 10, 477-505.* Euler buckling in a potential field.

[1.129] J. Schmitt, M. Garcia, R. Razo, P. Holmes and R.J. Full (2002) *Biol. Cybern. 86 (5), 343-353.* Dynamics and stability of legged locomotion in the horizontal plane: A test case using insects.

[1.130] J. Cisternas and P. Holmes (2002) *Math. and Computer Modelling 36 (3), 233-243.* Buckling of extensible thermoelastic rods.

[1.131] J. Schmitt and P. Holmes (2001) *Physica D 156 (1-2), 139-168.* Mechanical models for insect locomotion: Stability and parameter studies.

[1.132] R. Goodman, M.I. Weinstein and P. Holmes (2001) *J. Nonlinear Sci. 11 (2), 123-168.* Nonlinear propagation of light in one dimensional periodic structures. doi:10.1007/s00332-001-0002-y

[1.133] G. Medvedev, K. Ono and P. Holmes (2003) *European J. of Appl. Math. 14 (3), 343-367.* Traveling wave solutions of the degenerate Kolmogorov-Petrovski-Piskunov equation. doi:10.1017/S0956792503005102

[1.134] E. Brown and P. Holmes (2001) *Stochastics and Dynamics 1 (2), 159-191.* Modelling a simple choice task: Stochastic dynamics of mutually inhibitory neural groups.

[1.135] R. Ghigliazza and P. Holmes (2002) *Int. J. of Nonlinear Mech. 37 (7), 1211-1221.* On the dynamics of cranes, or Spherical pendula with moving supports (also (2003) *Int. J. of Nonlinear Mech. 38 (2), 285.* Erratum).

[1.136] R.Y. Cho, L.E. Nystrom, E. Brown, A.D. Jones, T.S. Braver, P. Holmes and J.D. Cohen (2002) *Cognitive, Affective and Behavioral Neuroscience 2 (4), 283-299.* Mechanisms underlying performance dependencies on stimulus histories in a two-alternative forced choice task.

[1.137] R. Goodman, P. Holmes and M.I. Weinstein (2002) *Physica D 161 (1-2), 21-44.* Interaction of sine-Gordon kinks with defects: Phase space transport in a two-dimensional model.

[1.138] J. Schmitt and P. Holmes (2003) *Biol. Cybern. 89 (1), 43-55.* Mechanical models for insect locomotion: Active muscles and energy losses. doi:10.1007/s00422-003-0404-z

[1.139] R.J. Full, T. Kubow, J. Schmitt, P. Holmes and D. Koditschek (2002) *Integrative and Comparative Biology 42 (1), 149-157.* Quantifying dynamic stability and maneuverability in legged locomotion.

[1.140] G. Domokos and P. Holmes (2003) *Proc. Roy. Soc. Lond. A 459 (2034), 1535-1561.* On nonlinear boundary value problems: Ghosts, parasites and discretizations.

[1.141] J. Moehlis, T. Smith, P. Holmes and H. Faisst (2002) *Physics of Fluids 14 (7), 2493-2507.* Models for turbulent plane Couette flow using the proper orthogonal decomposition. doi:10.1063/1.1483300

[1.142] J. Cisternas, P. Holmes and I.G. Kevrekidis (2003) *Physica D 177 (1-4), 71-100.* Buckling in response to applied heat sources.

[1.143] E. Brown, P. Holmes and J. Moehlis (2003) Globally coupled oscillator networks. In "Perspectives and Problems in Nonlinear Science: A celebratory volume in honor of Lawrence Sirovich", pp 183-215, Ed. E. Kaplan, J.E. Marsden, and K.R. Sreenivasan, Springer Verlag, New York.

[1.144] J. Cisternas, P. Holmes, I.G. Kevrekidis and X. Li (2003) *J. Chem. Phys. 118 (7), 3312-3328.* CO oxidation on thin Pt crystals: Temperature slaving and the derivation of lumped models. doi:10.1063/1.1531070

[1.145] R.M. Ghigliazza, R. Altendorfer, P. Holmes and D. Koditschek (2003) *SIAM J. on Appl. Dyn. Systems 2 (2), 187-218.* A simply stabilized running model.

[1.146] E. Brown, J. Moehlis, P. Holmes, E. Clayton, J. Rajkowski and G. Aston-Jones (2004) *J. Comput. Neurosci. 17 (1), 13-29.* The influence of spike rate and stimulus duration on noradrenergic neurons.

[1.147] F. Cirak, J. Cisternas, A.M. Cuitiño, G. Ertl, P. Holmes, I.G. Kevrekidis, M. Ortiz, H.H. Rotermund, M. Schunack and J. Wolff (2003) *Science 300, 1932-1936.* Oscillatory thermo-mechanical instability of an ultrathin catalyst. doi:10.1126/science.1083909

[1.148] E. Brown, J. Moehlis and P. Holmes (2004) *Neural Computation 16 (4), 673-715.* On the phase reduction and response dynamics of neural oscillator populations.

[1.149] J.E. Seipel, P. Holmes and R.J. Full (2004) *Biol. Cybern. 91 (2), 76-90.* Dynamics and stability of insect locomotion: A hexapedal model for horizontal plane motions. doi:10.1007/s00422-004-0498-y

[1.150] R. Goodman, P. Holmes, and M.I. Weinstein (2004) *Physica D 192 (3-4), 215-248.* Strong NLS soliton-defect interactions. doi:10.1016/j.physd.2004.01.021

[1.151] P. Holmes, R.J. Full, D. Koditschek and J. Guckenheimer (2006) *SIAM Review 48 (2), 207-304.* The dynamics of legged locomotion: Models, analyses, and challenges. doi:10.1137/S0036144504445133

[1.152] R. Altendorfer, D. Koditschek and P. Holmes (2004) *Int. J. Robotics Research 23 (10-11), 979-999.* Stability analysis of legged locomotion models by symmetry-factored return maps. doi:10.1177/0278364904047389

[1.153] R. Altendorfer, D. Koditschek and P. Holmes (2004) *Int. J. Robotics Research 23 (10-11), 1001-1012.* Stability analysis of a clock-driven rigid-body SLIP model of RHex. doi:10.1177/0278364904047390

[1.154] R.M. Ghigliazza and P. Holmes (2004) *SIAM J. on Appl. Dyn. Systems 3 (4), 636-670.* Minimal models of bursting neurons: How multiple currents, conductances and timescales affect bifurcation diagrams. doi:10.1137/030602307

[1.155] R.M. Ghigliazza and P. Holmes (2004) *SIAM J. on Appl. Dyn. Systems 3 (4), 671-700.* A minimal model of a central pattern generator and motoneurons for insect locomotion. doi:10.1137/040607563

[1.156] T.R. Smith, J. Moehlis and P. Holmes (2005) *J. Fluid Mech. 538, 71-110.* Low-dimensional models for turbulent plane Couette flow in a minimal flow unit. doi:10.1017/S0022112005005288

[1.157] T.R. Smith, J. Moehlis and P. Holmes (2005) *Nonlinear Dynamics 41 (1-3), 275-307.* Low-dimensional modelling of turbulence using the proper orthogonal decomposition: A tutorial.

[1.158] T.R. Smith, J. Moehlis and P. Holmes (2005) *Physica D 211, 347-376.* Dynamics of an 0:1:2 O(2)-equivarant system: Heteroclinic cycles and periodic orbits. doi:10.1016/j.physd.2005.09.002

[1.159] E. Brown, J. Gao, P. Holmes, R. Bogacz, M. Gilzenrat and J.D. Cohen (2005) *Int. J. Bifurcation and Chaos 15 (3), 803-826.* Simple neural networks that optimize decisions.

[1.160] R. Bogacz, E. Shea-Brown, J. Moehlis, P. Holmes and J.D. Cohen (2006) *Psychol. Rev. 113 (4), 700-765.* The physics of optimal decision making: A formal analysis of models of performance in two-alternative forced choice tasks. doi:10.1037/0033-295X.113.4.700

[1.161] J.E. Seipel and P. Holmes (2005) *Int. J. Robotics Research 24 (8), 657-674.* Running in three dimensions: Analysis of a point-mass sprung-leg model. doi:10.1177/0278364905056194

[1.162] T. McMillen and P. Holmes (2006) *J. Math. Psychol. 50 (1), 30-57.* The dynamics of choice among multiple alternatives. doi:10.1016/j.jmp.2005.10.003

[1.163] R.M. Ghigliazza and P. Holmes (2005) *Regular & Chaotic Dynamics 10 (2), 193-225.* Towards a neuromechanical model for insect locomotion: Hybrid dynamical systems.
doi;10.1070/RD2005v010n02ABEH000311

[1.164] R.M. Ghigliazza, R. Altendorfer, P. Holmes and D. Koditschek (2005) *SIAM Review 47 (3) 519-549.* A simply stabilized running model. (Updated version of [1.145] invited for republication in SIGEST.) doi:10.1137/050626594

[1.165] P. Holmes, E. Shea-Brown, J. Moehlis, R. Bogacz, J. Gao, G. Aston-Jones, E. Clayton, J. Rajkowski and J.D. Cohen (2005) *IEICE Transactions on Fundamentals on Electronics, Communications and Computer Science E88A (10), 2496-2503.* Optimal decisions: From neural spikes, through stochastic differential equations, to behavior.

[1.166] J.E. Seipel and P. Holmes (2006) *Int. J. Robotics Research 25 (9), 889-902.* Three-dimensional translational dynamics and stability of multi-legged runners. doi:10.1177/0278364906069045

[1.167] T. McMillen and P. Holmes (2006) *J. Math. Biol. 53, 843-866.* An elastic rod model for anguilliform swimming. doi:10.1007/s00285-006-0036-8

[1.168] P.A. Simen, J.D. Cohen and P. Holmes (2006) *Neural Networks 19, 1013-1026.* Rapid decision threshold modulation by reward rate in a neural network. doi:10.1016/j.neunet.2006.05.038

[1.169] J. Gao and P. Holmes (2007) *J. Comput. Neurosci. 22, 39-61.* On the dynamics of electrically-coupled neurons with inhibitory synapses. doi: 10.1007/s10827-006-9676-3

[1.170] Y.S. Liu, P. Holmes and J.D. Cohen (2008) *Neural Comput. 20 (2), 345-373.* A neural network model of the Eriksen task: Reduction, analysis, and data fitting.

[1.171] Y.S. Liu, A.J. Yu and P. Holmes (2009) *Neural Comput. 21 (6), 1520-1553.* Dynamical analysis of Bayesian inference models for the Eriksen task.

[1.172] R. Kukillaya and P. Holmes (2007) *Biol. Cybern. 97 (5-6), 379-395.* A hexapedal jointed-leg model for insect locomotion in the horizontal plane. doi:10.1007/s00422-007-0180-2

[1.173] J. Seipel and P. Holmes (2007) *Regular & Chaotic Dynamics 12 (5), 502-520.* A simple model for clock-actuated legged locomotion. doi:10.1134/S1560354707050048

[1.174] J. Zhang, R. Bogacz and P. Holmes (2009) *J. Math. Psychol. 53 (4), 231-241.* A comparison of bounded diffusion models for choice in time controlled tasks. doi:10.1016/j.jmp.2009.03.001

[1.175] P. Eckhoff, P. Holmes, C. Law, P.M. Connolly and J.I. Gold (2008) *New J. of Physics 10, 015006.* On diffusion processes with variable drift rates as models for decision making during learning. doi: 1367-2630/10/1/015006

[1.176] P. Simen, D. Contreras, C. Buck, P. Hu, P. Holmes and J.D. Cohen (2009) *J. Exp. Psych. Human Perception and Performance 35 (6), 1865-1897.* Reward rate optimization in two-alternative decision making: Empirical tests of theoretical predictions. doi:10.1037/a0016926

[1.177] M. Zacksenhouse, R. Bogacz and P. Holmes (2010) *J. Math. Psychol. 54, 230-246.* Robust versus optimal strategies for two-alternative forced choice tasks. Online pub. 13 Jan 2010, doi: 10.1016/j.jmp.2009.12.004.

[1.178] M. Srinivasan and P. Holmes (2008) *J. Theoretical Biology 255, 1-7.* How well can spring-mass-like telescoping leg models fit multi-pedal locomotion data? doi:10.1016/j.jtbi.2008.06.034

[1.179] R. Bogacz, P. Hu, P. Holmes and J.D. Cohen (2010) *Quart. J. Exp. Psych. 63 (5), 863-891.* Do humans produce the speed-accuracy tradeoff that maximizes reward rate? Online publ. Sept 10th, 2009, doi: 10.1080/17470210903091643.

[1.180] P. Varkonyi, P. Holmes, T. Keimel, K. Hoffman and A.H. Cohen (2008) *J. Comput. Neurosci. 25 (2), 245-261.* On the derivation and tuning of phase oscillator models for lamprey central pattern generators. doi:10.1007/s10827-008-0076-8

[1.181] J. Gao, G. Schwartz, P. Holmes and M. Berry II (2009) *Network: Computation in Neural Systems 20 (2), 106-135.* An oscillatory circuit underlying the detection of disruptions in temporally-periodic patterns. doi:10.1080/09548980902991705

[1.182] P. Varkonyi and P. Holmes (2008) *SIAM J. on Appl. Dyn. Systems 7 (3), 766-794.* On synchronization and traveling waves in chains of relaxation oscillators with an application to lamprey CPG. doi:10.1137/070710329

[1.183] T. McMillen, T.L. Williams and P. Holmes (2008) *PLoS Comput. Biol. 4 (8), e1000157.* Nonlinear muscles, passive viscoelasticity and body taper conspire to create neuro-mechanical phase lags in anguilliform swimmers. doi:10.1371/journal.pcbi.1000157

[1.184] Y. Liu, P. Holmes and J.D. Cohen (2008) *(In review).* A Bayesian inference model for sequential effects in the Eriksen task.

[1.185] J.Gao, K.F. Wong-Lin, P. Holmes, P. Simen and J.D. Cohen (2009) *Neural Comput. 21 (9), 2407-2436.* Sequential effects in two-choice reaction time tasks: Decomposition and synthesis of mechanisms.

[1.186] P. Eckhoff, K.F. Wong-Lin and P. Holmes (2009) *J. Neurosci. 29 (13), 4301-4311.* Optimality and robustness of a biophysical decision-making model under nonepinephrine modulation. doi:10.1523/JNEUROSCI.5024-08.2009

[1.187] J. Proctor and P. Holmes (2008) *Regular & Chaotic Dynamics 13 (4), 267-282.* Steering by transient destabilization in piecewise-holonomic models of legged locomotion. doi:10.1134/S1560354708040047

[1.188] R. Kukillaya and P. Holmes (2009) *J. Theor. Biol. 261 (2), 210-226.* A model for insect locomotion in the horizontal plane: Feedforward activation of fast muscles, stability, and robustness. Online pub 29 Aug 2009, doi:10.1016/j.jtbi.2009.07.036.

[1.189] S. Feng, P. Holmes, A. Rorie and W.T. Newsome (2009) *PLoS Comput. Biol. 5 (2), e1000284.* Can monkeys choose optimally when faced with noisy stimuli and unequal rewards? doi:10.1371/journal.pcbi.1000284

[1.190] X. Zhou, K.F. Wong-Lin and P. Holmes (2009) *Neural Comput. 21 (8), 2336-2362.* Time-varying perturbations can distinguish among integrate-to-threshold models for perceptual decision making in reaction time tasks.

[1.191] R. Kukillaya, J. Proctor and P. Holmes (2009) *Chaos 19 (2), 026107.* Neuromechanical models for insect locomotion: Stability, maneuverability, and proprioceptive feedback. doi:10.1063/1.3141306

[1.192] P. Eckhoff, K.F. Wong-Lin and P. Holmes (2011) *SIAM J. on Appl. Dyn. Systems 10 (1), 148-188.* Dimension reduction and dynamics of a spiking neuron model for decision making under neuromodulation. Online pub. 22 Feb 2011, doi:10.1137/090770096.

[1.193] J. Proctor and P. Holmes (2010) *Biol. Cybern. 102, 513-531.* Reflexes and preflexes: On the role of sensory feedback on rhythmic patterns in legged locomotion. Online pub. 1 April 2010, doi:10.1007/ s00422-010-0383-9

[1.194] T. Broderick, K.F. Wong-Lin and P. Holmes (2010) *Applied Mathematics Research eXpress Vol 2009 (2), 123-141.* Closed-form approximations of first-passage distributions for a stochastic decision-making model. Online pub. 11 Feb 2010, doi:10.1093/amrx/abp008.

[1.195] K.F. Wong-Lin, P. Eckhoff, P. Holmes and J.D. Cohen (2010) *Brain Research 1318, 178-187.* Optimal control of countermanding saccades. Online pub. 27 Jan 2010, doi:10.1016/j.brainres.2009.12.018.

[1.196] F. Balci, P. Simen, R. Niyogi, A. Saxe, P. Holmes and J.D. Cohen (2011) *Attention, Perception & Psychophysics 73 (2), 640-657.* Acquisition of decision making criteria: Reward rate ultimately beats accuracy. Online pub. 19 Nov 2010, doi:10.3758/s13414-010-0049-7.

[1.197] P. Simen, F. Balci, L. deSouza, J.D. Cohen and P. Holmes (2011) *J. Neurosci. 31 (25), 9238-9253.* A model of interval timing by neural integration. Online pub. 22 June 2011, doi:10.1523/JNEUROSCI.3121-10.2011

[1.198] D. Tomlin, A. Nedic, D.A. Prentice, P. Holmes and J.D. Cohen (2013) *PLoS ONE 8 (1), e52630.* The neural substrates of social influence on decision making. doi:10.1371/journal.pone.0052630

[1.199] J. Proctor, R.P. Kukillaya and P. Holmes (2010) *Phil. Trans. Roy. Soc. Lond. A368, 5087-5104.* A phase-reduced neuro-mechanical model for insect locomotion: Feedforward stability and proprioceptive feedback. doi:10.1098/rsta.2010.0134.

[1.200] A. Nedic, D. Tomlin, P. Holmes, D.A. Prentice and J.D. Cohen (2012) *Proc IEEE 100 (3), 713-733.* A decision task in a social context: Human experiments, models, and analyses of behavioral data. doi:10.1109/JPROC.2011.2166437

[1.201] E. Fuchs, P. Holmes, T. Kiemel and A. Ayali (2011) *Frontiers in Neural Circuits 4: 125.* Intersegmental coordination of cockroach locomotion: Adaptive control of centrally coupled pattern generator circuits. Online pub. 20 Jan 2011, doi:10.3389/fncir.2010.00125.

[1.202] E.D. Tytell, P. Holmes and A.H. Cohen (2011) *Current Opinion in Neurobiology 21 (5), 816-822.* Spikes alone do not behavior make: Why neuroscience needs biomechanics. Online pub 21 June 2011, doi:10.1016/j.conb.2011.05.017.

[1.203] E. Shlizerman and P. Holmes (2012) *Neural Comput. 24 (8), 2078-2118.* Neural dynamics, bifurcations and firing rates in a quadratic integrate-and-fire model with a recovery variable. I: deterministic behavior.

[1.204] F. Balci, D. Freestone, P. Simen, L. deSouza, P. Holmes and J.D. Cohen (2011) *Frontiers in Integrative Neurosci. 5: 56.* Optimal temporal risk assessment. Online pub 27 Sept 2011, doi:10.3389/fnint.2011.00056.

[1.205] P. Simen, F. Balci, L. deSouza, J.D. Cohen and P. Holmes (2011). *Frontiers in Integrative Neurosci. 5: 28.* Interval timing by long-range temporal integration. Online pub 1 July 2011, doi:10.3389/fnint.2011.00028.

[1.206] M.K. van Vugt, P. Simen, L.E. Nystrom, P. Holmes and J.D. Cohen (2014) *PLoS ONE 9 (3), e90943.* Lateralized readiness potentials reveal properties of a neural mechanism for implementing a decision threshold. doi:10.1371/journal.pone.0090943

[1.207] E. Fuchs, P. Holmes, I. David and A. Ayali (2012) *J. Exp. Biol. 215, 1884-1891.* Proprioceptive feedback reinforces centrally-generated stepping patterns in the cockroach. doi:10.1242/jeb.112805

[1.208] S. Goldfarb, K.F. Wong-Lin, M. Schwemmer, N.E. Leonard and P. Holmes (2012) *Frontiers in Psychology 3: 213.* Can post-error dynamics explain sequential reaction time patterns? Online pub 16 July 2012, doi:10.3389/fpsyg.2012.00213

[1.209] M.K. van Vugt, P. Simen, L. Nystrom, P. Holmes and J.D. Cohen (2012) *Frontiers in Neurosci. 6: 106.* EEG oscillations reveal neural correlates of evidence accumulation. Online pub 17 July 2012, doi:10.3389/fnins.2012.00106

[1.210] P. Holmes and J.D. Cohen (2014) *Topics in Cog. Sci. 6 (2), 258-278.* Optimality and some of its discontents: Successes and shortcomings of existing models for binary decisions. Online pub 19 Mar 2014, doi:10.1111/tops.12084

[1.211] P. Holmes (2014) *J. Nonlinear Sci. 24 (2), 201-242.* Some joys and trials of mathematical neuroscience (also *J. Nonlinear Sci. 24 (2), 243-244.* Erratum). Online pub 29 Nov 2013, doi: 10.1007/s00332-013-9191-4 & 12 Mar 2014, doi: 10.1007/s00332-014-9198-5

[1.212] J.I. Tam and P. Holmes (2014) *J. Sound Vib. 333 (6), 1767-1780.* Revisiting a magnetoelastic strange attractor. Online pub 9 Dec 2013, doi:10.1016/j.jsv.2013.11.022 (also *J. Sound Vib. 367, 256.* Corrigendum. doi:10.1016/j.jsv.2015.12.045)

[1.213] S. Goldfarb, P. Simen, N.E. Leonard and P. Holmes (2014) *Frontiers in Neurosci. 8: 148.* A comparative study of drift-diffusion and leaky ballistic accumulator models in a reward-maximization perceptual choice task. Online pub 5 Aug 2014, doi:10.3389/fnins.2014.00148

[1.214] E. Couzin-Fuchs, T. Kiemel, O. Gal, P. Holmes and A. Ayali (2015) *J. Exp. Biol. 218, 285-297.* Intersegmental coupling and recovery from perturbations in freely-running cockroaches. doi:10.1242/jeb.112805

[1.215] A. Ayali, E. Couzin-Fuchs, I. David, O. Gal, P. Holmes and D. Knebel (2014) *J. Comparative Physiol. A 201, 841-850.* Sensory feedback in cockroach locomotion: current knowledge and open questions. Online pub 2 Dec 2014, doi:10.1007/s00359-014-0968-1

[1.216] M. Schwemmer, S. Feng, P. Holmes, J. Gottlieb and J.D. Cohen (2015) *PLoS ONE 10 (8), e0136097.* A multi-area stochastic model for a covert visual search task. Online pub 19 Aug 2015, doi:10.137/journal.pone.0136097

[1.217] E. Couzin-Fuchs, O. Gal, P. Holmes and A. Ayali (2015) *J. Insect Physiol. 79, 96-104.* Differential control of temporal and spatial aspects of cockroach leg coordination. Online pub 20 June 2015, doi:10.1016/j.jinsphys.2015.06.007

[1.218] D.Y. Takahashi, A.R. Fenley, Y. Teramoto, D.Z. Narayanan, J.I. Borjon, P. Holmes and A.A. Ghazanfar (2015) *Science 349 (6249), 734-738.* The developmental dynamics of marmoset monkey vocal production. doi:10.1126/science.aab1058

[1.219] J.L. Proctor and P. Holmes (2017) *(In review.)* The effects of feedback on stability and maneuverability of a phase-reduced model for insect locomotion.

[1.220] A. Ayali, A. Borgmann, A. Büschges, E. Couzin-Fuchs, S. Daun-Gruhn and P. Holmes (2015) *Current Opinion in Insect Science 12, 1-10.* The comparative investigation of the stick insect and cockroach models in the study of insect locomotion. Online pub 20 Aug 2015, doi:10.1016/j.cois.2015.07.004

[1.221] G. Domokos, P. Holmes and Z. Lángi (2016) *J. Nonlinear Sci. 26 (6), 1789-1815.* A genealogy of convex solids via local and global bifurcations of gradient vector fields. Online pub 29 June 2016, doi:10.1007/s00332-016-9319-4

[1.222] I. David, P. Holmes and A. Ayali (2016) *Biology Open 5, 1229-1240.* Endogenous rhythm and pattern generating circuit interactions in cockroach motor centers. Online pub 15 Sept 2016, doi:10.1242/bio.081705

[1.223] V. Srivastava, P. Holmes and P. Simen (2016) *J. Math. Psychol. 75, 96-109.* Explicit moments of decision times for single- and double-threshold drift-diffusion processes. doi:10.1016/j.jmp.2016.03.005

[1.224] S. Feng and P. Holmes (2016) *IMA J. Applied Math. 81, 432-456.* Will big data yield new mathematics? An evolving synergy with neuroscience. Online pub 11 July 2016, doi:10.1093/imamat/hxw026

[1.225] D. Tomlin, A. Nedic, D. Prentice, P. Holmes and J.D. Cohen (2017) *Cognitive, Affective and Behavioral Neuroscience (in press).* The integration of social influence and reward: Computational approaches and neural evidence. Online pub 24 May 2017, doi: 10.3758/s13415-017-0512-1

[1.226] P. Kreuger, M.K. van Vugt, P. Simen, L. Nystrom, P. Holmes and J.D. Cohen (2017) *J. Neurosci. Methods 281, 21-32.* Evidence accumulation detected in BOLD signal using slow perceptual decision making. doi: 10.1016/j.jneumeth.2017.01.012

[1.227] Y. Teramoto, D.Y. Takahashi, P. Holmes and A.A. Ghazanfar (2017) *eLife 2017;6:e20782.* Vocal development in a Waddington landscape. doi: 10.7554/eLife.20872

[1.228] Z. Aminzare, V. Srivastava and P. Holmes (2017) *(In review).* Gait transitions in a phase oscillator model of an insect central pattern generator.

[1.229] C. Mantziaris, T. Bockemühl, P. Holmes, A. Borgmann, S. Daun and A. Büschges (2017) *(In review).* Intersegmental influences between central pattern generating networks in the walking system of the stick insect.

(2) Conference Proceedings and Abstracts, Book Chapters and Invited Papers (* indicates refereed paper or poster).

[2.1] P.J. Holmes (1973) Experimental correlation techniques for the characterization of vibration transmission paths. Soc. Environmental Engr. Summer Symposium, SEECO 73 paper D1.

[2.2] P.J. Holmes (1974) A transient excitation function for use in the measurement of dispersive wave propagation characteristics. In "Proc. 8th Intl. Congress on Acoustics", Vol. II, 590. London.

[2.3]* P.J. Holmes (1977) The experimental characterization of wave propagation mechanisms. In "Proc. Int. Symposium on Shipboard Acoustics, 237-236. Delft. (Technishe Physische Dienst and Netherlands Maritime Institute: published by Elsevier)

[2.4]* P.J. Holmes and D.A. Rand (1977) Identification of vibrating systems by generic modelling. In "Proc. Int. Symposium on Shipboard Acoustics", 89-105, Delft. (Technishe Physische Dienst and Netherlands Maritime Institute: published by Elsevier)

[2.5] P.J. Holmes and J.E. Marsden (1977) Bifurcations to Divergence and flutter in flow induced oscillations: an infinite dimensional analysis. IFAC Symposium on Control of Distributed Parameter Systems, Warwick, U.K. June 28-July 1, 1977.

[2.6]* P.J. Holmes and J.E. Marsden (1977) Bifurcations of dynamical systems and nonlinear oscillations in engineering systems. In "Proc. Indiana Conf. on Nonlinear Partial Differential Equations, November 1976", 163-206. Springer Lecture Notes in Mathematics No. 648, Springer-Verlag, New York.

[2.7] P.J. Holmes (1977) Identification of Vibration Transmission Systems by Generic Modelling. In "Proc. 9th Intl. Congress on Acoustics", Madrid, Vol. II.

[2.8]* P.J. Holmes and J.E. Marsden (1977) Qualitative techniques for the bifurcation analysis of complex systems. In "Proc. N.Y. Acad. Sci. meeting on Bifurcation Theory", *Ann. N.Y. Acad. Sci. 316; 608-622.*

[2.9] P.J. Holmes (1978) Nonlinear stability of pipes by Liapunov's second method. 8th U.S Congress on Applied Mechanics, Los Angeles.

[2.10]* P.J. Holmes (1978) Global bifurcation and chaos in the forced oscillations of buckled structures. In "Proc. 17th IEEE Conference on Decision and Control", 181-185, IEEE Service Center, Piscataway, NJ. (Invited paper.)

[2.11] P.J. Holmes (1979) Recurrent periodic and nonperiodic behavior in simple dynamical systems. In "Proc. Joint National Meeting" TIMS/ORSA, Bulletin 7, 107. (Invited paper.)

[2.12]* P.J. Holmes (1979) Bifurcations in coupled nonlinear oscillators with applications to flutter and divergence. In "Proc. ASME Winter Annual Meeting, New York, December 1979" *A.S.M.E. monograph on Nonlinear Dynamics, ed. J.K. Hedrick and H.M. Paynter.* (Invited paper.)

[2.13]* P.J. Holmes (1980) Unfolding a degenerate nonlinear oscillator. In "Proc. International Conference on Nonlinear Dynamics, New York, December 17-21, 1979", *Ann. N.Y. Acad. Sci. 357, 473-488).* (Invited paper.)

[2.14]* J.E. Marsden and P.J. Holmes (1980) A horseshoe in the dynamics of a forced beam. In "Proc. International Conference on Nonlinear Dynamics, New York, December 17-21, 1979", *Ann. N.Y. Acad. Sci. 357, 313-321.* (Invited paper.)

[2.15] P.J. Holmes (1980) Phase locking and chaos in coupled limit cycle oscillators. In "Proc. International Conference on Recent Advances in Structural Dynamics, Southampton, July 7-11, 1980."

[2.16] J.E. Marsden and P.J. Holmes (1980) Dynamical systems and invariant manifolds. In "New Approaches to Nonlinear Problems in Dynamics", 3-25, ed. P.J. Holmes. SIAM Publications, Philadelphia.

[2.17] P.J. Holmes (1981) Bifurcations and chaotic motions in nonlinear dynamical systems. Society of Engineering Science 18th Annual Meeting, Providence, RI, September 2-4 1981. (Invited paper).

[2.18] P.J. Holmes (1981) Global bifurcation and chaos in nonlinear oscillations. Society for Natural Philosophy 24th Meeting, Urbana-Champaign, IL, December 3-5, 1981. (Invited paper.)

[2.19] P.J. Holmes (1982) Qualitative theory and bifurcation to chaotic motions in nonlinear mechanics. 9th U.S. Congress on Theoretical and Applied Mechanics, Ithaca, NY June 21-24 (Invited paper.)

[2.20] P.J. Holmes (1982) One and two dimensional maps as models of periodically forced nonlinear oscillations. Canadian Math. Soc. Winter Annual Meeting, Toronto, Ontario, December 11-13, 1982. (Invited paper.)

[2.21] P.J. Holmes (1983) The tangled bifurcations of one and two dimensional maps: Spaghetti in R2. Chaos in Dynamical Systems, College Park, MD, March 16-18.

[2.22] P.J. Holmes (1983) This elegant hope: reflections on order and chaos in nonlinear dynamics. Applied Math Days, Ithaca, NY, May 23-24.

[2.23] P.J. Holmes (1983) Attracting sets for Duffing's equation. In "Proc. Fourth International Symposium on Differential Equations and Differential Geometry", Beijing, People's Republic of China, August 29-September 9. (Invited paper).

[2.24]* P.J. Holmes (1984) Some remarks on chaotic particle paths in time periodic three-dimensional swirling flows. *Contemporary Math 28, 393-404.* (Proc. AMS Summer Conference on Fluids and Plasmas, Geometry and Dynamics, Boulder,CO, July 17-23, 1983.) (Invited paper.)

[2.25] P.J. Holmes (1984) Bifurcations of One and Two Dimensional Maps. Dynamics Days, La Jolla, CA, Jan. 3-5, 1984. (Invited paper.)

[2.26] P.J. Holmes (1984) Tying shoelaces: knotted periodic orbits and bifurcation sequences in suspensions of horseshoes. Workshop on Topology and Geometry of Smooth Dynamical Systems, MSRI, Berkeley, CA, June 4-8, 1984. (Invited paper.)

[2.27] A.H. Cohen and P.J. Holmes (1984) Swimming in Lamprey: a neuronal central pattern generator. Gordon Conference on Theoretical Biology and Biomathematics, New London, NH, July 2-6, 1984.

[2.28] P.J. Holmes (1984) Knotted orbits and bifurcation sequences in periodically forced oscillations. XVIth ICTAM, Lyngby, Denmark, August 19-25, 1984.

[2.29] P.J. Holmes (1984) Global bifurcation and chaos in nonlinear structures. Computational Mechanics, A workshop at the NASA Lewis Research Center, Cleveland, OH, September 24-25, 1984. (Invited paper.)

[2.30] P.J. Holmes (1984) Vibrations, impacts, knots, horseshoes and chaos. Chaos: Applications of Nonlinear Dynamics in the Sciences, Boston University, October 24-25, 1984. (Invited paper.)

[2.31] P.J. Holmes (1984) Global bifurcations in nonlinear oscillators. First Inaugural Conference of Berkeley Research Group in Nonlinear Systems and Dynamics, University of California, Berkeley, January 7-8, 1985. (Invited paper.)

[2.32] P.J. Holmes (1985) Period multiplying and iterated torus knots in nonlinear oscillations. 89th AMS Summer Meeting, Laramie, WY, August 12-15, 1985. (Invited paper.)

[2.33] P.J. Holmes and S.R. Wiggins (1985) Slowly varying oscillations. 89th AMS Summer Meeting, Laramie, WY, August 12-15, 1985. (Invited paper.)

[2.34] P.J. Holmes (1986) Chaotic motions in a weakly nonlinear model for surface waves. Conference on the Dynamics of Fluids, Plasmas and Hamiltonian Systems, Berkeley, CA January 15-17, 1986. (Invited paper.)

[2.35] P.J. Holmes (1986) Perturbations of integrable Hamiltonian systems: global bifurcation and chaos I and II. Applications Physiques des Systems Non-Lineares: Ondes dans les Fluides et Plasmas, Univ. de Montréal, Montréal, Quebec,Canada, May 1986. (Invited papers.)

[2.36] P.J. Holmes (1986) Spatial Structure of time-periodic solutions of the Ginzburg-Landau equation. Fourth Army Conference on Applied Mathematics and Computing, Cornell University, Ithaca, NY, May 27-30, 1986.

[2.37] N. Aubry, P.J. Holmes, J.L. Lumley and E. Stone (1986) Models for coherent structures in the wall layer. First European Turbulence Conference, Lyon, France, July, 1986.

[2.38] P.J. Holmes (1986) Low Dimensional Models of turbulent boundary layers in the wall region. 23rd Society of Engineering Science Annual Meeting, Buffalo, NY, August 25-27, 1986.

[2.39] P.J. Holmes (1986) (a) Dynamics of coherent structures in a turbulent boundary layer and (b) Rotating Cantor sets and periodic orbits in maps of the annulus. Penn State Dynamical Systems Conference, State College, PA, September 23-26, 1986.

[2.40] P.J. Holmes (1987) Knots and orbits genealogies in nonlinear oscillations. Knotting Phenomena in the Natural Sciences, Chicago, Feb 14-15, 1986. (Invited paper.)

[2.41] P.J. Holmes (1987) The dynamics of coherent structures in boundary layers. University of California Conference on Nonlinear Science, Santa Barbara, CA, March 27-28.

[2.42] P.J. Holmes, J.E. Marsden, J. Scheurle (1987). Exponentially small splittings of separatrices in KAM theory and degenerate bifurcations. AMS Summer Research Conference on Infinite and Finite Dimensional Dynamical Systems, Boulder, CO, July 19-25.

[2.43] P.J. Holmes (1987) Knots and Orbit Genealogies in Nonlinear Oscillations. XI International Conference on Nonlinear Oscillations, Budapest, Hungary, Aug.17-23. (Invited paper.)

[2.44] P.J. Holmes (1987) Dynamics of coherent structures in boundary layers. SIAM 35th Anniversary Meeting, Denver, CO, Oct. 12-15, 1987.

[2.45] P.J. Holmes (1987) Knots and Orbit Genealogies in Nonlinear Oscillations. CMS Winter Meeting, Vancouver, BC, Dec 13-15, 1987. (Invited paper.)

[2.46] P.J. Holmes (1988) Angels Fallen from the Devil's Staircase. Dynamics Days Texas, Houston, Jan. 5-8, 1988. (Invited paper.)

[2.47] P.J. Holmes, J. Marsden, J. Scheurle (1988) Exponentially Small Splitting of Separatrices. Society for Natural Philosophy 25th Anniversary Meeting, Johns Hopkins University, March 21-23, 1988.

[2.48] N. Aubry, P.J. Holmes, J.L. Lumley and E. Stone (1988) Behavior of coherent structures in the wall region by dynamical systems theory. Zoran Zuric Memorial Meeting, Dubrovnik, Yugoslavia, May 16-20, 1988.

[2.49]* P.J. Holmes (1988) Nonlinear oscillations and the Smale horseshoe map. *Proc. Symp. Appl. Math. 39, 25-39.* (Short Course on Chaos and Fractals, Aug. 6-7 at the AMS Centennial Meeting, Providence, RI.) AMS publications, Providence, RI.

[2.50] P.J. Holmes (1988) Knots and Orbit Genealogies. Mini-Symposium on Differential and Dynamical Systems, University of Southern California, Los Angeles, CA, Nov. 14-16, 1988.

[2.51]* N. Aubry, P.J. Holmes, J. L. Lumley and E. Stone (1988) A simple model for the wall region of a turbulent boundary layer. Chaotic Motion Session, ASME Int. Symp. on Flow-Induced Vibration and Noise, 1988 ASME Winter Meeting, Buffalo, NY, Nov. 26-Dec. 2, 1988. In "Nonlinear Interaction Effects and Chaotic Motions", Vol. 7, M.M. Reischman, M.P. Paidoussis and R.J. Hanseh, eds., 53-62.

[2.52]* A. Szeri and P.J. Holmes (1990) Nonlinear stability and bifurcation in Hamiltonian systems with symmetry. AMS Annual Meeting, Phoenix, AZ, January 11-14, 1989. In *Contemp. Math. 108, 33-62.*

[2.53] P.J. Holmes (1990) Nonintegrability and chaos in classical mechanics. AAAS Annual Meeting, Nonlinear Mathematics Sessions, San Francisco, CA, January 14-19, 1990.

[2.54]* E. Stone and P.J. Holmes (1989) Noise induced intermittency in a model of a turbulent boundary layer. Los Alamos Turbulence Meeting, May 1988. In *Physica D 37 (1-3), 20-32* (also *Physica D 104 (2), 212-213.* Erratum.)

[2.55] P.J. Holmes (1989) Can dynamical systems approach turbulence? Sherwood Theory Meeting (Plasma Physics), San Antonio, TX, April 3-5, 1989.

[2.56] P.J. Holmes (1990) How attractive is chaos? Nonlinear models in neurobiology. Mathematical Approaches to Cardiac Arrhythmias, New York, October 16-18, 1990. In *Proc. N.Y. Acad Sci. 591, 301-302.*

[2.57] P.J. Holmes (1990) Nonlinear dynamics, chaos and mechanics. US National Congress on Theoretical and Applied Mechanics, Tucson, AZ, May 21-25, 1990 (plenary lecture), also session presentation: A mathematical cartoon for the dynamics of fine structure.

[2.58]* P.J. Holmes (1993) Symmetries, heteroclinic cycles and intermittency in fluid flow. In "Turbulence in Fluid Flows: A Dynamical System Approach", 49-58, ed. C. Foias, G.R. Sell and R. Temam, IMA Volumes in Mathematics and its Applications 55, Springer Verlag, New York.

[2.59]* D.M. Kammen, C. Koch and P.J. Holmes (1990) Collective oscillations in the visual cortex. In "Advances in Neural Network Information Processing Systems 2", 76-83, ed. D.S. Touretzky, Morgan-Kaufman, San Mateo, CA.

[2.60] G. Berkooz, J. Guckenheimer, P.J. Holmes, J.L. Lumley, J.E. Marsden, N. Aubry and E. Stone (1990) Dynamical systems theory approach to the wall region. AIAA Fluid Dynamics, Plasma Dynamics and Lasers Conference, Seattle, WA, June 18-20, 1990.

[2.61] P.J. Holmes (1991) A mathematical cartoon for the dynamics of fine structure. 8th Army Conference on Applied Mathematics and Computing, Ithaca, NY, June 19-22, 1990. In *ARO Report 91-1, 11-21.*

[2.62]* P.J. Holmes (1991) A degenerate Hamiltonian System and a slow flow with jumps. Eleventh Conference on Ordinary and Partial Differential Equations, Dundee, Scotland, July 3-6, 1990. In "Ordinary and Partial Differential Equations III", 95-105, eds B.D. Sleeman and R.S. Jarvis, Longmans, Harlow, UK.

[2.63]* P.J. Holmes (1993) On paradigm and method. Smalefest, Berkeley, CA, August 5-9, 1990. In "From Topology to Computation: Proceedings of the Smalefest", 534-544, ed M.W. Hirsch, J.E. Marsden, M. Shub, Springer-Verlag, New York.

[2.64]* P.J. Holmes, G. Berkooz and J.L. Lumley (1991). Turbulence, dynamical systems and the unreasonable effectiveness of empirical eigenfunctions. ICM-90, Kyoto, Japan, August 21-29,1990. In "Proceedings of the International Congress of Mathematicians", 1607-1617, ed. I. Satake, Springer-Verlag, Tokyo.

[2.65]* P.J. Holmes and E. Stone (1991) Heteroclinic cycles, exponential tails and intermittency in turbulence production. The Lumley Symposium: Recent Developments in Turbulence, ICASE, NASA Langley Research Center, VA, November 12-13, 1990. In "Studies in Turbulence", 179-189, ed. T.B. Gatski, S. Sarkar and C.G. Speziale, Springer-Verlag, New York.

[2.66] P.J. Holmes (1990) Nonlinear, nonplanar, nonperiodic oscillations of a taut string. Canadian Mathematical Society Winter Annual Meeting, University of Waterloo, Ontario, December 9-11, 1990.

[2.67] P.J. Holmes (1991) An evolution equation with everything to lose but nowhere to go. Dynamics Days Texas, Houston, Texas, January 6-9, 1991.

[2.68]* J. Scheurle, J. Marsden and P. Holmes (1991) Exponentially small estimates for separatrix splittings. NATO Advanced Research Workshop on Asymptotics Beyond all Orders, San Diego, CA, January 7-11, 1991. In "Asymptotics Beyond all Orders", 187-195, ed. H. Segur and S. Tanveer, Plenum, New York.

[2.69] P.J. Holmes and P.J. Swart (1991) Dynamics, energy minimization and phase transformations in nonlinear elasticity. Contemporary Developments in Solid Mechanics, Caltech, Pasadena, Ca. March 15-16, 1991.

[2.70]* G. Berkooz, J. Elezgaray and P. Holmes (1992) Coherent structures in random media and wavelets. DARPA/ONERA Workshop on Wavelets and Applications, Princeton, June 1991. In *Physica D 61, 47-58.*

[2.71] P. Holmes and G. Berkooz (1991) Intermittent dynamics in the wall layer: A challenge for nonlinear control. In "Abstracts of the AFOSR Workshop on the Theory and Applications of Nonlinear Control", 52-57, Washington University, St. Louis, MO, August 15-16, 1991.

[2.72] G. Berkooz, P. Holmes and J.L. Lumley (1991) Low dimensional models of the wall region in a turbulent boundary layer: new results. IUTAM Symposium and NATO Advanced Research Workshop on the Interpretation of Times Series from Nonlinear Mechanical Systems, University of Warwick, U.K., August 25-30, 1991.

[2.73] P. Holmes and C.A. Stuart (1992) Homoclinic orbits for eventually autonomous planar systems. Applied Dynamics and Bifurcation, Mathematisches Forschungsinstitut Oberwolfach, Germany, January 12-18, 1992.

[2.74] P. Holmes (1992) Symmetry, global dynamics and intermittency. 34th British Theoretical Mechanics Colloquium, Keele University, U.K., March 30-April 2, 1992

[2.75]* J. Elezgaray, G. Berkooz and P. Holmes (1993) Wavelet analysis of the motion of coherent structures. In "Progress in Wavelet Analysis and Applications", 471-476, Ed. Y. Meyer and S. Roques, Editions Frontières, Gif-sur-Yvette, 1993.

[2.76] G. Berkooz, P. Holmes and J.L. Lumley (1993) Dynamics and control of coherent structures in the turbulent wall layer: an overview. AGARD Guidance and Control Panel Workshop on stability in Aerospace Systems, ONERA, Toulouse, France, June 23-25, 1992. In *AGARD Report 789, pp. 8.1-8.5.*

[2.77] P. Holmes (1992) Five lectures on strange attractors and knots. Dynamical Systems Institute, Boston University, July 6-10, 1992

[2.78]* R. Ghrist and P. Holmes (1993) Knots and orbit genealogies in three dimensional flows. Seminaire de Mathématiques Supérieures, Université de Montréal, July 13-24, 1992. In "Bifurcations and Periodic Orbits of Vector Fields", 185-239, ed. D. Schlomiuk, NATO ASI Series C-408, Kluwer, Dordrecht, 1993.

[2.79] P. Holmes and P.J. Swart (1992) The dynamics of phase transformation in an anti-plane shear problem, and (with G. Berkooz and J. Elezgaray) The local nature of coherent structure interaction. XVIII International Congress on Theoretical and Applied Mechanics, Haifa, Israel, August 22-28, 1992.

[2.80]* G. Berkooz, J. Elezgaray, P. Holmes, J. Lumley and A. Poje (1994) The proper orthogonal decomposition, wavelets and modal approaches to the dynamics of coherent structures. IUTAM Symposium on Eddy Structure Identification in Free Turbulent Shear Flows, Poitiers, France, October 12-14, 1992. *Applied Scientific Research 53 (3-4), pp 321-338.*

[2.81] P. Holmes (1992) Metaphors, models and mathematics, or how strange is turbulence? (plenary lecture) and On wavelet projections of an evolution equation. SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, October 15-19, 1992.

[2.82]* W. D. Kalies and P. Holmes (1993) On a dynamical model for phase transformation in nonlinear elasticity. Applications of Pattern Formation Workshop, Fields Institute, Waterloo, Ontario, March 23-28, 1993 *Fields Institute Communications* 5, 255-269, 1996

[2.83] J. Elezgaray, G. Berkooz and P. Holmes (1993) Wavelet projections of an evolution equation. AMS Meeting 881, Howard University, Washington D.C., April 17-18th, 1993.

[2.84]* P. Holmes and R. Ghrist (1993) Knotting within the gluing bifurcation. IUTAM Symposium on Nonlinearity and Chaos in Engineering Dynamics, University College, London, July 19-23, 1993. "Nonlinearity and Chaos in Engineering Mechanics", 299-315, ed. J.M.T. Thompson and S.R. Bishop, Wiley, Chichester, U.K.

[2.85] P. Holmes (1994) Wavelet projections and "local models" for the Kuramoto-Sivashinsky Equation. Workshop on Dynamical Systems Methods for Partial Differential Equations, M.S.R.I., Berkeley, March 14-18, 1993.

[2.86]* B.D. Coller, P. Holmes and J.L. Lumley (1994) Control of bursting in boundary layer models. 12th U.S. National Congress of Applied Mechanics, Seattle, WA, June 26-July 1, 1994. In "Mechanics USA 1994", ed. A.S. Kobayashi, *Appl. Mech. Rev.* 47 (6), part 2, S139-S143.

[2.87]* A. Doelman and P. Holmes (1995) On the creation of multi-pulse traveling waves by global bifurcations. IUTAM/ISIMM Symposium on Structure and Dynamics of Nonlinear Waves in Fluids, Hannover, Germany, August 17-20, 1994. In "Proc. IUTAM/ISIMM Symposium on Structure and Dynamics of Nonlinear Waves in

Fluids", 201-208, ed. A. Mielke and K. Kirchgässner, Advanced Series in Nonlinear Dynamics, vol. 7, World Scientific, London.

[2.88] P. Holmes (1994) On the dynamics of a phase field model. Society for Natural Philosophy 38th Annual Meeting, Ithaca, NY, September 23-25th, 1994.

[2.89]* D.A. Taylor, P. Holmes and A.H. Cohen (1997) Excitable oscillators as models of central pattern generators. pp 103-118 in "Nonlinear Dynamics: The Richard Rand 50th Anniversary Volume", ed A. Guran, Series on Stability, Vibration and Control of Systems, Vol 2, World Scientific Publishing Company, Singapore, 1997.

[2.90]* R. Ghrist and P. Holmes (1996) An ODE whose solutions contain all knots and links. Invited paper for Theme Issue honoring L.P. Shil'nikov, ed. L. Lerman. *Int. J. of Bifurcation and Chaos, 6(5), 779-800.*

[2.91] P. Holmes (1995) Symmetry, heteroclinic cycles, noise and control (invited presentation). Third SIAM Conference on Control and its Applications, St. Louis, MO, April 27-29th, 1995.

[2.92] P. Holmes (1995) Local models of turbulent processes, and On the dynamics of phase transitions in elastic bars (invited presentations). Third SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, May 21-24th, 1995.

[2.93]* P. Holmes (1997) Metaphor and Models in Science and Art. In "Advances in the Mathematical Sciences – CRM's 25 Years", ed L. Vinet, 169-182, CRM Proc. and Lecture Notes, vol. 11, Amer. Math. Soc., Providence, RI, 1997.

[2.94]* P. Holmes, J. Mattingley and R.W. Wittenberg (2001) Low Dimensional Models of Turbulence, or The Dynamics of Coherent Structures. NATO Advanced Study Institute Lectures, Newton Institute, Cambridge, UK, August 21-Sept 1st, 1995. In "From Finite to Infinite Dimensional Dynamical Systems", NATO Science Series II, 19, pp. 177-215, ed. J.C. Robinson and P.A. Glendinning, Kluwer Academic Publishers, Dordrecht, the Netherlands, 2001.

[2.95] P. Holmes (1995) Dynamics of Coherent Structures. Lectures delivered at the Fourth Latin American Workshop on Nonlinear Phenomena, San Carlos de Bariloche, Argentina, Sept 25-29th, 1995.

[2.96] P. Holmes and R.W. Ghrist (1996) Ordinary Differential Equations which Generate all Knots and Links. Plenary lecture, AMS Winter Annual Meeting, Orlando, FL, January 10-13th, 1996.

[2.97] P. Holmes (1996) Homoclinic Explosions and Implosions. Workshop on Advances in Dynamical Chaos: Self-Similarity, Renormalization, and Multifractality, Courant Institute, NYU, January 18-20, 1996.

[2.98]* J. Elezgaray, G. Berkooz, H. Dankowicz, P. Holmes and M. Myers (1996) Local models and large scale statistics of the Kuramoto-Sivashinsky equation. In "Multiscale Wavelet Methods for Partial Differential Equations", pp. 441-471, ed. W. Dahmen, A. Kurdila, and P. Oswald, Wavelet Analysis and its Applications Vol. 6, Academic Press, London.

[2.99] P. Holmes (1996) Low Dimensional Models of Turbulence. Dynamical Systems Methods in Fluid Mechanics, Mathematisches Forschungsinstitut Oberwolfach, Germany, June 30-July 6, 1996.

[2.100] P. Holmes (1997) Knots and Links in Three Dimensional Flows. International Conference on Dynamical Systems, Indian Institute of Science, Bangalore, India, January 10-15, 1997.

[2.101] P. Holmes, G. Domokos, B.S.H. Royce and J. Schmitt (1997) Constrained Euler Buckling. Conference in Honour of Vladimir Arnol'd, Fields Institute, Toronto, Canada, June 15-21, 1997.

[2.102] P. Holmes (1997) Dynamics of Coherent Structures. Five lectures in the School on Non-Linear Dynamics, International Center of Condensed Matter Physics, Universidade de Brasília, Brazil, July 14-24, 1997.

[2.103] P. Holmes (1997) Homoclinic Explosions and Implosions. Invited lecture in Dynamical Systems Session of 21st Brazilian Mathematics Colloquium, IMPA, Rio de Janiero, July 21-25, 1997.

[2.104]* J. Elezgaray, G. Berkooz and P. Holmes (1999) Modelling the coupling between small and large scales in the Kuramoto-Sivashinsky equation. In CRM Proc. and Lecture Notes, vol. 18, pp. 293-301, ed. S. Dubuc. Amer. Math. Soc., Providence, RI, 1999.

[2.105]* P. Holmes, J. Schmitt and G. Domokos (1998) Constrained Euler Buckling: line contact solutions. In Proc. IUTAM Symposium on New Applications of Nonlinear and Chaotic Dynamics in Mechanics, Ithaca, NY U.S.A. 27 July -1 August 1997. Solid Mechanics and its Applications, Vol. 63, pp. 149-158, ed. F.C. Moon. Kluwer Academic Publishers, Dordrecht, The Netherlands 1998.

[2.106] P. Holmes, A. Doelman, G. Hek and E. Lynch (1997) Homoclinic Explosions and Implosions. Invited lecture in Multibump Solutions Workshop, Program on Dynamical Systems and Pattern Formation, Lorentz Center, Leiden, Holland, Oct 6-9, 1997.

[2.107] R. Wittenberg and P. Holmes (1997) Spatial Localisation in the Kuramoto-Sivashinsky Equation. Cornell Workshop on POD-Galerkin Models for the Dynamics and Control of Complex Flows, Ithaca, NY, Oct 13-14, 1997.

[2.108] P. Holmes, A. Doelman, G. Hek and E. Lynch (1998) Homoclinic Explosions and Implosions. Invited lecture at Dynamic Days, Chapel Hill, NC, Jan 7-10, 1998.

[2.109] P. Holmes, D.A. Taylor and A.H. Cohen (1998) Simple models of excitable oscillators and CPGs. IMA Conference on Animal Locomotion and Robotics, Institute for Mathematics and its Applications, Minneapolis, MN, June 1-5, 1998.

[2.110] P. Holmes, A. Mielke and N. Kutz (1998) Two models from nonlinear optics. IMA Conference on Continuum mechanics and non-linear partial differential equations, Institute for Mathematics and its Applications, Minneapolis, MN, June 8-12, 1998.

[2.111] P. Holmes and R.W. Wittenberg (1998) Wavelets and local models of the Kuramoto-Sivashinsky equation. Invited lecture in Conference on Mathematical Problems in Meteorology and Oceanography, Indiana University, Bloomington, IN, Nov 9-12,1998.

[2.112] P. Holmes and J. Schmitt (1999) Mechanical models for insect locomotion: dynamics and stability in the horizontal plane. Invited lecture in workshop on 'Biology, Mechanics and Theory of Walking', IEEE Conference on Robotics and Automation, Detroit, MI, May 10-15, 1999.

[2.113] P. Holmes (1999) Why Knot? Some Links among Topology, Dynamics, and Bifurcations. Introductory lecture in minisymposium on 'Applications of Knot Theory in Dynamics and Fluid Mechanics,' Fourth International Congress on Industrial and Applied Mathematics, Edinburgh, Scotland, July 4-9, 1999.

[2.114] P. Holmes (1999) The Proper Orthogonal Decomposition and Dimension Reduction. Invited lecture in minisymposium on 'Methods of Dimension Reduction,' Fourth International Congress on Industrial and Applied Mathematics, Edinburgh, Scotland, July 4-9, 1999.

[2.115]* T.R. Smith and P. Holmes (1999) Low dimensional models with varying parameters: a model problem and flow through a diffuser with variable angle. Invited lecture in 'Fluid Dynamics and the Environment: Dynamical Approaches. A symposium in honor of Sidney Leibovich on his 60th birthday,' Cornell University, Ithaca, NY, August 23-24, 1999. In "Fluid Mechanics and the Environment: Dynamical Approaches", pp 315-336, ed J.L. Lumley, Springer Lecture Notes in Physics 566, Springer Verlag, New York.

[2.116]* P. Holmes (1999) Chaos, Mechanical and Mathematical. Invited lecture in the symposium on 'Methods of Understanding in Art and Science: The Case of Duchamp and Poincaré, Harvard University, Cambridge, MA, Nov 5-7, 1999. (To appear in Conference Proceedings.)

[2.117] P. Holmes (1999) Non-holonomic and piecewise-holonomic mechanical systems. Canadian Mathematical Society Winter Meeting. Invited lecture in the session on 'Progress in Celestial Mechanics and Hilbert's Sixteenth Problem,' Montreal, Canada, Dec 10-12th, 1999.

[2.118] P. Holmes (2000) Non-holonomic and piecewise-holonomic mechanics. Conference in honor of the 60th birthday of Stuart Antman, University of Maryland, May 12-13, 2000.

[2.119] P. Holmes (2000) Mechanical models for insect locomotion. Invited paper in Symposium on Nonlinear Systems, Conference Hotel Drienerburght, Twente University, The Netherlands, May 25-26th, 2000.

[2.120] P. Holmes (2000) Poincaré's mistake and the origins of 'chaos theory.' Journée Poincaré, Université de Paris VI, P. et M. Curie, June 5th, 2000.

[2.121] P. Holmes (2000) Mechanical models for insect locomotion. Invited paper in European Dynamics Days 2000, University of Surrey, Guildford, UK, June 25-29th, 2000.

[2.122] P. Holmes (2000) Two models from nonlinear optics. Course of three lectures in EVEQ 2000 (Theory of Evolution Equations), Prague, July 3-7th, 2000.

[2.123] P. Holmes (2000) Unconstrained Euler buckling in a potential field. Invited paper in workshop on Symmetry and Stability in Nonlinear Mechanics, Technical University of Budapest, Hungary, July 10-14th, 2000.

[2.124] P. Holmes and J. Schmitt (2000) Mechanical models for insect locomotion: Dynamics and stability in the horizontal plane. Contributed paper at 20th International Congress of Theoretical and Applied Mechanics, Chicago, IL, Aug 27-Sept 2, 2000.

[2.125]* P. Holmes, A. Doelman, G. Hek and G. Domokos (2000) Homoclinic orbits and chaos in 3 and 4 dimensional flows. Invited paper in Royal Society Discussion Meeting on Topological Methods in the Physical Sciences, London, UK, Nov 15-16th, 2000. *Proc. Roy. Soc. Lond. A 359, pp 1429-1438, 2001.*

[2.126] P. Holmes, T.R. Smith, E. Fiorelli and N.E. Leonard (2001) Flotillas and flocks: Interacting autonomous vehicles. Minisymposium presentation at Sixth SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, May 20-24th, 2001.

[2.127] P. Holmes, E. Brown, and G. Medvedev (2001) On simple models of groups of spiking neurons. Minisymposium presentation at Sixth SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, May 20-24th, 2001.

[2.128]* H. Hanßmann and P. Holmes (2001) On the global dynamics of Kirchhoff's equations: Rigid body models for underwater vehicles. Invited paper at Workshop in honor of Floris Takens, Lorentz Center of Leiden University, Netherlands, June 24-29, 2001. In "Global Analysis of Dynamical Systems", pp 353-371, Ed. H.W. Broer, B. Krauskopf and G. Vegter, Institute of Physics Publishing, Bristol, UK, and Philadelphia, PA.

[2.129]* P. Holmes, R. Goodman and M. Weinstein (2001) Interaction of sine-Gordon kinks with defects: Phase space transport in a two-mode model. Invited paper for Progress in Nonlinear Science: A conference dedicated to the 100-th Anniversary of Alexander A. Andronov, Nizhny Novgorod, Russia, July 2-6, 2001.

[2.130] P. Holmes (2001) Dynamical Systems: Chaos in Poincare's wake. Invited address at the opening ceremonies for the Centre for the History of the Mathematical Sciences, Open University, Milton Keynes, UK, July 11th, 2001.

[2.131]* J. Moehlis, T. Smith and P. Holmes (2001) A model for turbulent plane Couette flow using the proper orthogonal decomposition. Contributed paper at the 12th International Couette-Taylor Workshop, Evanston, IL, Sept 6-8th, 2001.

[2.132] M.S. Gilzenrat, B.D. Holmes, P.J. Holmes, J. Rajkowski and J.D. Cohen (2001) A modified Fitzhugh-Nagumo system simulates locus coeruleus-mediated regulation of cognitive performance. Abstract for poster presentation at 31st Annual Meeting of the Society for Neuroscience in San Diego, CA, Nov 10-15, 2001.

[2.133]* P. Holmes, R. Goodman and M.I. Weinstein (2002) Interaction of solitons with defects: Phase space transport in a finite-dimensional model. Invited paper for Mathematics as a Guide to the Understanding of Applied Nonlinear Problems, a conference in honor of Klaus Kirchgässner's 70th birthday, Kloster Irsee, Germany, Jan 6-10, 2002.

[2.134] P. Holmes, E. Brown and J. Moehlis (2002) Globally coupled oscillator networks. Invited paper for Nonlinear Differential Equations, Mechanics and Bifurcation, a conference in honor of David G. Schaeffer. Duke University, Durham, NC, May 20-22, 2002.

[2.135] P. Holmes (2002) How Nonlinear is Science? Reflections on a chaotic, dynamical century. Invited plenary address at the SIAM 50th Anniversary Meeting, Philadelphia, PA, July 8-12, 2002.

[2.136] D. Koditschek, R. Altendorfer, R. Ghigliazza and P. Holmes (2002) Self-stability mechanisms for sensor-cheap legged locomotion. Invited paper for symposium on self-stability at the IVth World Congress of Biomechanics, Calgary, Aug 4-9 2002.

[2.137] P. Holmes, T.R. Smith and J. Moehlis (2002) Low dimensional models of turbulent plane Couette flow. Invited paper for Workshop on Geometry, Dynamics and Mechanics in honor of the 60th birthday of J.E. Marsden. Fields Institute for Research in the Mathematical Sciences, Toronto, Canada, Aug 7-11, 2002

[2.138]* R. Altendorfer, R. Ghigliazza, P. Holmes and D. Koditschek (2002) Exploiting passive stability for heirarchical control. Clawar, Paris, France, Sept 25-27, 2002.

[2.139] E. Brown, J. Moehlis, P. Holmes, E. Clayton, J. Rajkowski and G. Aston-Jones (2002) The influence of spike rate and stimulus duration on response in *locus coeruleus*. Systems Level Neuroscience Workshop, Mathematical Biosciences Institute, Ohio State University, Columbus. OH, Nov 18-22, 2002.

[2.140]* R. Altendorfer, D. Koditschek and P. Holmes (2003) Towards a factored analysis of legged locomotion models. IEEE International Conference on Robotics and Automation (ICRA'03), Grand Hotel in Taipei, Taiwan, May 12-17, 2003.

[2.141] P. Holmes (2003) Optimal decisions: From neural oscillations to stochastic differential equations. IAS Program for Women in Mathematics, 10th anniversary reunion, May 16-18, 2003, Princeton, NJ.

[2.142]* T.R. Smith, J. Moehlis and P. Holmes (2003) Minimal plane Couette flow turbulence: a low-dimensional, uncoupled model. 13th International Couette Taylor Workshop, July 3-5, 2003, Universitat Politecnica de Catalunya, Barcelona, Spain.

[2.143] P. Holmes (2003) Piecewise-holonomic mechanics, hybrid dynamical systems and escaping cockroaches, and Optimal decisions: from neural spikes, through stochastic differential equations, to behavior. London Mathematical Society regional meeting on Nonlinear Dynamics, Southampton University, UK, Oct 24-26, 2003.

[2.144] R. Bogacz, J.M. Moehlis, E.T. Brown, P. Holmes, J.D. Cohen (2003) Neural mechanisms for decision optimization, 2003 Abstract Viewer/Itinerary Planner. Society for Neuroscience, Washington DC, CD-ROM, Program No. 197.6.

[2.145]* T.R. Smith, J. Moehlis and P. Holmes (2003) Modeling and control of minimal flow unit turbulence in plane Couette flow. 42nd IEEE CDC, Hyatt Regency Maui, Hawaii, Dec 9-12, 2003.

[2.146] P. Holmes, T.R. Smith and J. Moehlis (2003) Dynamics of an 0-1-2 O(2)-equivariant system: Heteroclinic cycles and periodic orbits. Workshop on Bifurcation Theory and Spatio-Temporal Pattern Formation in PDE, Fields Institute for Research in Mathematical Sciences, Toronto, Dec 11-13, 2003.

[2.147] R.J. Full, J. Seipel and P. Holmes (2004). Dynamic stability model predicts constraints in sprawled posture running. Final Program and Abstracts, p. 286, Society of Integrative and Comparative Biology, Annual Meeting and Exhibition, New Orleans, Jan 4-9, 2004.

[2.148] R. Bogacz, E. Brown, J. Moehlis, P. Holmes and J.D. Cohen (2004). Reward optimization in decision making. Workshop on The Neurobiology of Decision-making: Theory and Experiment, Cold Spring Harbor Laboratory, NY, Mar 24, 2004.

[2.149] J. Gao and P. Holmes (2004) Model reduction and optimization in a decision-making task (poster). Computational and Systems Neuroscience 2004, Cold Spring Harbor Laboratory, NY, Mar 24-28, 2004.

[2.150] E. Brown, J. Moehlis, P. Holmes, E. Clayton, J. Rajkowski and G. Aston-Jones (2004). From spikes to speed-accuracy via the locus coeruleus (poster). Computational and Systems Neuroscience 2004, Cold Spring Harbor Laboratory, NY, Mar 24-28, 2004.

[2.151] P. Holmes (2004). Low-dimensional models of plane Couette flow. Invited lecture for International Workshop on Bifurcation Theory and Applications, Shanghai Jiaotong University, PRC, May 23-26, 2004.

[2.152] P. Holmes (2004). Applied dynamical systems: From low to high dimensions and back again. International Workshop on Nonlinear Dynamics and Stochastic Partial Differential Equations, Morningside Center of Mathematics, Chinese Academy of Sciences, Beijing, May 27-31, 2004.

[2.153] R. Bogacz, E. Brown, P. Hu, P. Holmes and J.D. Cohen (2004). Optimization of decision making: speed-accuracy trade-off maximizing reward rate. 4th Forum of European Neuroscience, Lisbon, Spain, July 10-14, 2004.

[2.154]* J. Seipel and P. Holmes (2004) Three-dimensional running is unstable but easily stabilized. 7th International Conference on Climbing and Walking Robots, CLAWAR 2004, Madrid, Spain, Sept 22-24, 2004.

[2.155]* P. Holmes, E. Brown, J. Moehlis, R. Bogacz, J. Gao, P. Hu, G. Aston-Jones, E. Clayton, J. Rajkowski and J.D. Cohen (2004) Optimal decisions: From neural spikes, through stochastic differential equations, to behavior. Invited plenary lecture, International Symposium on Nonlinear Theory and its Applications. NOLTA2004, Fukuoka, Japan, Nov 29 - Dec 3, 2004.

[2.156] P. Holmes (2004). Low-dimensional models of plane Couette flow. Invited lecture at International Symposium on Complexity Modelling and its Applications, Faculty of Engineering, University of Tokyo, Japan, Dec 5-8, 2004.

[2.157] P. Holmes and R. Ghigliazza (2005). A central pattern generator for insect locomotion. Invited lecture at Coupled 60: A Focussed Research Group Workshop on the Dynamics, Classification and Applications of Coupled Systems, University of Houston, TX, Feb 3-6, 2005.

[2.158] P. Holmes (2005). Poincaré's mistake and the origins of 'Chaos Theory.' Invited talk at the Third Annual Workshop on Applied Mathematics and Computational Physics, Budapest University of Technology and Economics, March 18th, 2005.

[2.159] P. Holmes (2005). Piecewise-holonomic mechanics, hybrid dynamical systems, and escaping cockroaches. Invited lecture at Mathematical Association of America New Jersey Section Meeting, Middlesex Community College, Edison, NJ, April 2, 2005.

[2.160] P. Holmes (2005). A central pattern generator for insect locomotion. Minisymposium presentation at the Conference on Frontiers in Applied and Computational Mathematics, New Jersey Institute of Technology, May 13-15, 2005.

[2.161] P. Simen, P. Holmes and J.D. Cohen (2005). Performance adaptation by a drift-diffusion-based decision making circuit. Lecture at the 9th International Conference on Cognitive and Neural Systems, Center for Adaptive Systems and Department of Cognitive and Neural Systems, Boston University, May 18-21, 2005.

[2.162] P. Holmes and T. McMillen (2005). What's optimal about decision-making for two and more choices? Invited presentation at Neurobiology of Decision-Making, Banbury Center, Cold Spring Harbor Laboratory, Long Island, NY, May 22-25, 2005.

[2.163]* R. Bogacz, E. Brown, J. Moehlis, P. Holmes and J.D. Cohen (2005) How a biological decision network can implement a statistical test. Presentation at the workshop on Modelling Natural Action Selection, Edinburgh University, UK, July 30-31, 2005.

[2.164]* P. Holmes (2005). Ninety plus thirty years of nonlinear dynamics: More is different and less is more. Opening plenary lecture at the Fifth EUROMECH Nonlinear Dynamics Conference (ENOC-05), Eindhoven University of Technology, The Netherlands, Aug 7-12, 2005. Invited paper for special ENOC issue of *Int. J. Bifurcation and Chaos 15(9), 2703-2716, 2005.*

[2.165] P. Holmes (2005). A swimming rod with a mind of its own (or at least a muscle). Plenary lecture at IMA Conference on Recent Advances in Nonlinear Mechanics (RANM-05), University of Aberdeen, Scotland, Aug 29-Sept 1, 2005.

[2.166] P. Holmes (2006). Dynamics and control in insect running. Invited lecture at Design Principles in Biological Systems, Banbury conference center, Cold Spring Harbor Laoratory, May 7-10, 2006.

[2.167]* P. Holmes, M. Srinivasan, K. Rogale and R. Kukillaya (2006). On spring-mass models for running animals: Approximate solutions, natural frequencies, stability, and double stance phases. Keynote lecture at the James H. Belfer Memorial Symposium on Nonlinear Mechanics, Technion - Israel Institute of Technology, Department of Mechanical Engineering, June 12th, 2006.

[2.168] T. McMillen and P. Holmes (2006). On the neuromechanics of swimming in lampreys. Invited talk at "From Dust to Planets," a symposium to honor Joe Burns on his 65th birthday. Cornell University, July 28-29th, 2006.

[2.169] P. Holmes (2006) On modeling legged locomotion. Invited lecture at Engineering Principles in Biological Systems, Cold Spring Harbor Laoratory, Dec 3-6, 2006.

[2.170]* R. Ball and P. Holmes (2007) Dynamical systems, stability and chaos. Expository chapter based on lectures given at COSNet/CSIRO Workshop on Turbulence and Coherent Structures in Fluids, Plasmas and Nonlinear Media, Australian National University, Canberra, Australia Jan 10-13, 2006. In "Frontiers in Turbulence and Coherent Structures," ed. J.P. Denier and J.S. Frederiksen, pp 1-27, World Scientific Press, Singapore, 2007.

[2.171] R. Kukillaya and P. Holmes (2007) Realistic hexapedal models of insect locomotion: Jointed legs and Hill-type muscles. Society for Integrative and Comparative Biology Annual Meeting, Phoenix, AZ, Jan 3-7, 2007.

[2.172] D.M. Dudek, P. Holmes, M. Srinivasan, K. Rogale, R. Kukillaya and R.J. Full (2007) The relevance of resonant frequency in running cockroaches modeled by a spring-loaded, inverted pendulum. Society for Integrative and Comparative Biology Annual Meeting, Phoenix, AZ, Jan 3-7, 2007.

[2.173] P. Holmes (2007) A central pattern generator for insect locomotion: Phase response curves, averaging and reduction of ionic current models of bursting neurons. Invited lecture at MSRI Introductory Workshop on Dynamical Systems with Emphasis on Extended Systems, Berkeley, CA, Jan 21-26, 2007.

[2.174] P. Holmes (2007) Do deciders drift and diffuse? On models of decision making. Invited lecture at AFOSR workshop on Robust Decision Making, Alexandria, VA, Feb 27-28, 2007.

[2.175] P. Holmes (2007) Piecewise-holonomic mechanics, hybrid dynamical systems, and excaping cockroaches. Invited plenary lecture at British Applied Mathematics Colloquium, Bristol University, Bristol, UK,

April 16-20, 2007.

[2.177]* P. Holmes and E.T. Shea-Brown (2007) Stability. Scholarpedia, p.4208.
http://www.scholarpedia.org/article/Stability

[2.178]* P. Holmes (2007) History of Dynamical Systems. Scholarpedia, p.13425.
http://www.scholarpedia.org/article/History_of_Dynamical_Systems

[2.179] P. Holmes (2007) Drift-diffusion models for the dynamics of decision making. Contributed presentation at the SIAM Conference on Applications of Dynamical Systems, Snowbird, UT, May 28-June 1, 2007.

[2.180] P. Holmes (2007) Models of legged locomotion, or how cockroaches run stably without thinking about it. Invited presentation at the Danish Symposium on Applied Analysis, University of Copenhagen, Copenhagen, Denmark, Aug 16-18, 2007.

[2.181] P. Holmes (2007) Oscillatory circuits underlying the retinal detection of temporal patterns. Invited presentation at the Workshop in Mathematical Neuroscience, Centre de Recherches Mathématiques, Université de Montréal, Canada, Sept 16-19, 2007.

[2.182] P. Holmes (2007) What do poems and differential equations share? Some thoughts on metaphors and models. Mathematical Association of America Eastern Pennsylvania and Delaware Section Meeting, Drexel University, Philadelphia PA, Nov 10th, 2007.

[2.183] P. Holmes (2007) Anguilliform swimming by muscle activation of an elastic rod. Invited presentation at Fluids Days, Jawaharlal Nehru Center for Advanced Scientific Research, Bangalore, India, Dec 31, 2007-Jan 1, 2008.

[2.184] P. Holmes (2008) Towards an integrated model for insect locomotion. Invited presentation at the Workshop on Neuromechanics of Locomotion, Mathematical Biosciences Institute, Ohio State University, Mar 31-Apr 4, 2008.

[2.185] P. Holmes (2008) An oscillatory circuit underlying the retinal detection of disruptions in temporally-periodic patterns. Invited presentation at the Workshop on Dynamical Systems in Biology, New York University NYC, Apr 12-13, 2008.

[2.186] P. Holmes (2008) Stochastic models for individual decisions and social influence in groups. Invited presentation at the Workshop on Systems Biology of Decision Making, Mathematical Biosciences Institute, Ohio State University, June 16-20, 2008.

[2.187]* P. Simen, J.D. Cohen and P. Holmes (2009) On the neural implementation of optimal decisions. In "The Oxford Handbook of Human Action," ed. E. Morsella, J.A. Bargh, and P.M. Gollwitzer, pp 533-548, Oxford University Press, Oxford, UK.

[2.188]* P. Holmes (2008) A Short History of Dynamical Systems Theory: 1885-2007. In the "Encyclopedia of Life Support Systems (EOLSS): Mathematical Sciences," UNESCO-EOLSS Publishers, Oxford, UK. Accessible online at www.eolss.net.

[2.189]* A. Nedic, D. Tomlin, P. Holmes, D.A. Prentice and J.D. Cohen (2008) A simple decision task in a social context: preliminary experiments and a model. Invited presentation for the special session Mixed Robot/Human Team Decision Dynamics, IEEE CDC, Cancun, Mexico, Dec 9-11th, 2008. *Proc. 47th IEEE Conference on Decision and Control.*

[2.190] P. Holmes (2008) From spike rates to simple decisions: Stochastic ODEs as models for evidence accumulation in cortical circuits. Invited presentation at "From Nonlinear Dynamics to Systems Biology: a conference in honor of David Rand on his 60th birthday," Mathematics Institute, University of Warwick, Coventry, U.K., Dec 1-2, 2008.

[2.191] P. Holmes (2008) Neuromechanical models of animal locomotion. Invited presentation at "Stability and Instability in Dynamical Systems: Applications and Numerical Tools," University of Barcelona and Centre de Recerca Matemàtica, Bellaterra, Barcelona, Spain, Dec 1-5, 2008.

[2.192]* P. Holmes (2009) Neuromechanical models of legged locomotion: How cockroaches run fast and stably without thinking about it. Keynote lecture at the James H. Belfer Memorial Symposium on Neuro-Mechanics, Dynamics and Decision-making, Technion - Israel Institute of Technology, Department of Mechanical Engineering, Feb 15-16th, 2009.

[2.193] P. Holmes, A. Nedic, D. Tomlin, D. Prentice and J.D. Cohen (2009) A decision task in a social context: Experiments, modeling, and preliminary analyses of behavioral and brain imaging data. SIAM Conference on

Control and its Applications, Denver, CO, July 6-8, 2009.

[2.194] P. Holmes, M. Zacksenhouse and R. Bogacz (2009) Robust versus optimal strategies for two-alternative forced-choice tasks. MathPsych 2009, University of Amsterdam, Aug 1-4, 2009.

[2.195] P. Simen, D. Contreras, P. Holmes and J.D. Cohen (2009) Adaptive performance in two-alternative decision making. MathPsych 2009, University of Amsterdam, Aug 1-4, 2009.

[2.196]* P. Holmes, P. Eckhoff, KF. Wong-Lin, R. Bogacz, M. Zacksenhouse and J.D. Cohen (2010) The physics of decision making: Stochastic differential equations as models for neural dynamics and evidence accumulation in cortical circuits. Plenary lecture at the XVIth International Congress on Mathematical Physics, Prague, Czech Republic, Aug 3-8, 2009; pp 123-142 in Proceedings volume, ed. P. Exner, World Scientific, 2010.

[2.197] P. Holmes (2009) The dynamical legacy of Lyapunov and Poincaré: Reflections on stability, chaos and randomness. Lyapunov Award Lecture for the Technical Committee on Multibody Systems and Nonlinear Dynamics, ASME Design Engineering Technical Conferences and Computers and Information in Engineering Conference, San Diego, CA, Aug 31-Sept 2, 2009.

[2.198] J.L. Proctor and P. Holmes (2010) Chasing the Cockroach: How reflexes enhance running. Presentation at Society for Integrative and Comparative Biology Meeting, Seattle, WA, Jan 3-7, 2010. Integrative and Comparative Biology 50, E140-E140 Suppl. 1, 2010.

[2.199] P. Holmes (2010) The neural dynamics of decision making: multiple scales in a single brain. Invited presentation in the Symposium "Moving across scales: Mathematics for investigating biological hierarchies," AAAS Annual Meeting, San Diego, CA, Feb 18-22, 2010.

[2.200] P. Holmes (2010) Panel discussions on creativity in the arts and sciences (participant). Banff International Research Station for Mathematical Innovation and Discovery workshop on Creative Writing in Mathematics and Science, The Banff Centre, Alberta, Canada, May 2-7, 2010.

[2.201] P. Holmes (2010) The neurodynamics of simple decisions: Drift-diffusion equations as models for single brains, and for group behaviors. Invited plenary lecture at SIAM Conference on the Life Sciences, Pittsburgh, PA, July 12-15, 2010.

[2.202] P. Holmes (2010) How do neurons integrate information? Clues from optimal signal processing theory. Invited lecture in minisymposium on Understanding the Link Between Neuronal Dynamics and Neuronal Computation, SIAM Conference on the Life Sciences, Pittsburgh, PA, July 12-15, 2010.

[2.203] P. Holmes (2010) From spiking cortical cells to decisions and actions: Two neuroscience problems that I don't really understand. Invited lecture in OCCAM workshop on Future Challenges in Mathematical and Computational Neuroscience, Oxford University, Sept 13-15, 2010.

[2.204]* P. Holmes (2010) Caos e dinamica non lineare (Nonlinear Dynamics and Chaos: A mechanical and mathematical primer), pp 355-394 in La Matematica Vol 4: Pensare il mondo (Intertwinements of Mathematics and Science), ed. Claudio Bartocci and Piergiorgio Odifreddi, Einaudi editore, Torino, Italy.

[2.205] J.L. Proctor and P. Holmes (2011) Reflexes and running: Modeling neural feedback in a running cockroach. Presentation at Society for Integrative and Comparative Biology Meeting, Salt Lake City, UT, Jan 3-7, 2011.

[2.206] P. Holmes (2011) Still running! Recent work on the neuromechanics of insect locomotion. Invited lecture at Dynamics Days, University of North Carolina, Jan 5-8, 2011.

[2.207] P. Holmes (2011) The neuromechanics of insect locomotion: How cockroaches run fast and stably without much thought. Invited presentation at ICIAM 2011: 7th International Congress on Industrial and Applied Mathematics, Vancouver, BC, July 18-22, 2011.

[2.208] E. Shlizerman and P. Holmes (2011) Geometry of a hybrid dynamical system modeling cortical neurons. Minisymposium presentation at ICIAM 2011: 7th International Congress on Industrial and Applied Mathematics, Vancouver, BC, July 18-22, 2011.

[2.209] S. Feng, M. Schwemmer, S. Gershman, P. Holmes, and J.D. Cohen (2011) Computational constraints on cognitive control. Program No. 930.27 Neuroscience Meeting Planner. Society for Neuroscience Annual Meeting, Washington, DC, Nov 12-16, 2011.

[2.210] D. Tomlin, A. Nedic, M.T. Todd, R.C. Wilson, D.A. Prentice, P. Holmes, and J.D. Cohen (2011) Group foraging task reveals separable influences of individual experience and social information. Program No.

832.05 Neuroscience Meeting Planner. Society for Neuroscience Annual Meeting, Washington, DC, Nov 12-16, 2011.

[2.211] P. Holmes (2011) A short, truncated, and partial history of chaos. Opening lecture, IUTAM Symposium on 50 Years of Chaos: Applied and Theoretical, Kyoto University, Japan, Nov 28-Dec 2, 2011.

[2.212] P. Holmes (2011) The neuromechanics of insect locomotion: How cockroaches run fast and stably without much thought. Workshop on Applied Dynamical Systems, Kyoto University, Japan, Dec 3, 2011.

[2.213] P. Holmes (2012) Mathematical models of legged locomotion: from passive mechanics to neuromechanics. Winter Workshop of NSF Research Coordination Network on Neuromechanics and dynamics of locomotion, Princeton University, Jan 26-27, 2012.

[2.214] P. Holmes (2012) The neural dynamics of decision making: Multiple time scales and multiple brain areas. Symposium on cortical dynamics, codes and decisions, CUNY Graduate Center, New York, Feb 7, 2012.

[2.215] P. Holmes (2012) One and a quarter centuries of nonlinear dynamics, The neural dynamics of decision making, and The neuromechanics of insect locomotion: 3 lectures in NCTS Workshop on Dynamical Systems, National Center for Theoretical Sciences, Hsinchu, Taiwan, May 16-19, 2012.

[2.216] P. Holmes (2012) Dynamical systems goes loco and neuro. Tutorial review at the ARO/NSF Workshop on Locomotive Systems Science, Arlington, VA, May 29-31, 2012.

[2.217] A. Ayali, E. Fuchs, P. Holmes, T. Kiemel and I. David (2012) Adaptive control of centrally-coupled neuronal circuits in cockroach locomotion. Cold Spring Harbor Asia Conference on Invertebrate Neurobiology, Suzhou Dushu Lake Conference Center, June 18-22, 2012.

[2.218] P. Holmes (2012) Reading during 'An Afternoon of Mathematical Poetry.' Bridges Conference on Mathematics, Music, Art, Architecture, Culture, Towson University, Towson, MD, July 25-29, 2012.
`http://bridgesmathart.org/bridges-2012/2012-poetry-day/`

[2.219] E. Fuchs, A. Ayali, P. Holmes, T. Kiemel and I. David (2012) Adaptive control of six-legged locomotion. 10th International Congress of Neuroethology, University of Maryland, College Park, MD USA, August 5-10, 2012.

[2.220]* P. Reverdy, R.C. Wilson, P. Holmes and N.E. Leonard (2012) Towards optimization of a human-inspired heuristic for solving explore-exploit problems. Session TuB04.6: Persistent Monitoring, 51st IEEE Conference on Decision and Control, Maui, Hawaii, USA, Dec 10-13, 2012.

[2.221] P. Holmes (2012) The neural dynamics of decision making: multiple scales and a range of models. Invited presentation in Workshop on Cognitive Neuroscience, Mathematical Biosciences Institute, Ohio State University, Columbus, OH, Dec 10-14, 2012.

[2.222] P. Holmes (2013) The neuro-mechanics of running cockroaches: How much natural detail do we need? Invited presentation in Workshop on Natural Algorithms and the Sciences, Princeton, NJ, May 20-21, 2013.

[2.223] P. Holmes (2013) Presentation and discussions of poems at the workshop 'Creative Writing in Mathematics and Science,' Banff International Research Station, Alberta, Canada, Nov 10-15, 2013.

[2.224] P. Holmes (2014) Moving fast and moving slow: Feedforward and feedback control in insect locomotion. Invited presentation at Investigating Dynamics in Engineering and Applied Science: A workshop celebrating Gábor Stépán's 60th birthday, July 3-5, 2014, Budapest, Hungary.

[2.225] E. Couzin-Fuchs, A. Ayali, P. Holmes, T. Kiemel and I. David (2014) Leg coordination during cockroach locomotion: experiments and model-based analysis. Presentation at Invited Symposium 5, on Coordination of multilegged locomotion, 11th International Congress of Neuroethology, Sapporo, Japan, July 28-Aug 1, 2014.

[2.226] P. Holmes (2014) Some foundations and explorations in dynamical systems theory. Invited presentation at CDS 20: A "directions" workshop to celebrate the 20th anniversary of Control and Dynamical Systems, Aug 5-7, 2014, Caltech, Pasadena, CA.

[2.227] P. Holmes (2014) What can coupled, nonlinear oscillators say about noisy, perturbed cockroaches? Invited presentation at Advances in Applied Nonlinear Mathematics: A workshop celebrating the 60th birthday of S.J. Hogan, Sept 18-19, 2014, Bristol, UK.

[2.228] P. Holmes (2015) What can coupled, nonlinear oscillators say about noisy, perturbed cockroaches? Minisymposium presentation at SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah, May 17-21, 2015.

[2.229] P. Holmes (2015) Approximate symmetries in insect locomotion. Invited presentation at Topics in Applied Dynamical Systems: Equivariance and Beyond, Dept. of Mathematics, Ohio State University, May 24-27, 2015.

[2.230]* P. Holmes (2015) Dynamical Systems. In "The Princeton Companion to Applied Mathematics," ed. N.J. Higham, M.R. Dennis, P. Glendinning, P.A. Martin, F. Santosa and J. Tanner, pp 383-393, Princeton University Press, Princeton, NJ, USA.

[2.231] P. Holmes (2015) ODEs for humble bugs and flies. Invited presentation at Waves, Spectral Theory and Applications, celebrating the research of Michael Weinstein, Princeton University, Sept 10-11, 2015.

[2.232] P. Holmes (2015) CPGs, Phase Oscillators, and cross-species studies. Collaborative Research in Computational Neuroscience PI Meeting, University of Washington, Seattle, Sept 28-30, 2015.

[2.233]* P. Krueger, M. van Vugt, P. Simen, L. Nystrom, P. Holmes, J.D. Cohen (2016) Evidence accumulation detected in BOLD signal using slow perceptual decision making. Poster presentation at COSYNE2016, Poster session III-18, Salt Lake City, Utah, Feb 25-28, 2016.

[2.234]* A. Yeldesbay, P. Holmes, T. Tóth and S. Daun (2016) Phase reduction of an intersegmental network model of stick insect locomotion. Poster presentation at Advances in the Collective Behaviour of Complex Systems, University of Potsdam, Germany, Sept 1-3, 2016.

[2.235]* Z. Aminzare, V. Srivastava and P. Holmes (2016) Gait transitions in a phase oscillator model of insect central pattern generators. Poster presentation 82 at Collaborative Research in Computational Neuroscience 2016, Institut Pasteur, Paris, France, Oct 24-26, 2016.

[2.236]* I. David, P. Holmes and A. Ayali (2016) Endogenous rhythm and pattern-generating circuits in *Periplaneta americana* motor centers. Poster Session 535 - Rhythmic Motor Patterns: Connectivity. Society for Neuroscience Annual Meeting, San Diego, CA, Nov 12-16, 2016.

[2.237] Z. Aminzare, V. Srivastava and P. Holmes (2017) A bursting neuron CPG model: phase reduction, dynamical mechanisms and gait transitions. Poster presentation at Collaborative Research in Computational Neuroscience 2017, Brown University, Providence, RI, June 14-16, 2017.

[2.238] P. Holmes, Y. Teramoto, D.Y. Takahashi and A.A. Ghazanfar (2017) Vocal development in marmoset monkeys: neuromechanics and social interactions. Invited presentation at Festkolloquium in honor of Jürgen Scheurle, Technische Universität München, Institute for Advanced Study, Garching, June 14, 2017.

[2.239] Z. Aminzare, V. Srivastava and P. Holmes (2017) A bursting neuron CPG model: phase reduction, dynamical mechanisms and gait transitions. Invited poster presentation at Workshop on Brain Dynamics and Neurocontrol Engineering, Washington University, June 25-27, 2017.

[2.240] Z. Aminzare, V. Srivastava and P. Holmes (2017) Gait transitions in a phase oscillator model of an insect central pattern generator. Minisymposium presentation at Annual Meeting of the Society for Mathematical Biology, University of Utah, Salt Lake City, UT, July 17-21, 2017.

(3) Books, included edited volumes

[3.1] B.L. Clarkson, J.K. Hammond, P. Holmes and A. Kistner, editors (1977) "Stochastic Problems in Dynamics." Pitman, London.

[3.2] P. Holmes, editor (1980) "New Approaches to Nonlinear Problems in Dynamics." (Proc. Eng. Fndn. Conf., Asilomar, CA, Dec. 9-14, 1979.) SIAM Publications, Philadelphia.

[3.3] J. Guckenheimer and P. Holmes (1983) "Nonlinear Oscillations, Dynamical Systems and Bifurcations of Vector Fields." Applied Mathematical Science No. 42, Springer Verlag, New York, Heidelberg, Berlin. (Second printing 1986, third printing 1990, fourth printing 1993, fifth printing 1997, sixth printing 2002). Chinese paperbound reprint, 1999. Russian translation, IKI, Moscow, 2003.

[3.4] P. Holmes, J. L. Lumley and G. Berkooz (1996) "Turbulence, Coherent Structures, Dynamical Systems and Symmetry." Cambridge University Press, Cambridge Monographs on Mechanics. Paperbound edition, 1998; Korean translation, Taehun, Seoul, 1999.

[3.5] F. Diacu and P. Holmes (1996) "Celestial Encounters: The Origins of Chaos and Stability." Princeton University Press, Princeton, NJ. Paperbound edition in Princeton Science Library, 1999. Romanian translation

"Întâlniri Cereşti" (tr. V. Mioc), Societatea Ştiinţă şi Tehnică SA, Bucharest, 1996. Chinese translation, Shanghai Science and Technology Publishing House, 2001. Greek translation, Athens, 2001. Hungarian translation, Akkord Kiado, Budapest, 2004. Russian translation, R&C Dynamics, Moscow, 2004. Japanese translation, Springer Mathematics Club, Tokyo, 2004.

[3.6] R.W. Ghrist, P. Holmes and M. Sullivan (1997) "Knots and Links in Three-Dimensional Flows." Springer Lecture Notes in Mathematics Volume 1654, Springer Verlag, Heidelberg.

[3.7] J. Moser (2001) "Stable and Random Motions in Dynamical Systems," with a new introduction by Philip Holmes. Princeton Landmarks in Mathematics Series, Princeton University Press, Princeton, NJ, 2001.

[3.8] P. Newton, P. Holmes and A. Weinstein, editors (2002) "Geometry, Mechanics and Dynamics: Volume in honor of the 60th birthday of J.E. Marsden." Springer Verlag, New York, Heidelberg, Berlin.

[3.9] P. Holmes, J. L. Lumley, G. Berkooz and C.W. Rowley (2012) "Turbulence, Coherent Structures, Dynamical Systems and Symmetry." Second edition of [3.4], revised and expanded, with a new chapter. Cambridge Monographs on Mechanics, Cambridge University Press, UK.

[3.10] T. Hikihara, P. Holmes, T. Kambe and G. Rega (2012) Editorial Introduction for *50 Years of Chaos: Applied and Theoretical*, a Focus Issue of *CHAOS: An Interdisciplinary Journal of Nonlinear Science 22 (4), 047501 (2012).* Online pub Dec 14, 2012, doi: 10.1063/1.4769035.

(4) Reviews and Non-Technical Articles

[4.1] P.J. Holmes 1976 *J. Sound Vib. 49 (4), 607-611.* Review of "Solutions of Nonlinear Vibration Systems by means of Analogue Computers" by V. Fiala and "On the Interaction between selfexcited and forced vibrators" by A. Tondl.

[4.2] P.J. Holmes 1977 *Bull. Inst. Math. Appl. (Nov./Dec.), 289-290.* Qualitative Analysis of Partial Differential Equations: a symposium held at Southampton University, May 9-13th, 1977.

[4.3] P.J. Holmes and H. Othmer (1979) *SIAM News 12 (4) (August), 1 and 6-7.* New methods found useful for solving nonlinear applied problems.

[4.4] P.J. Holmes (1980) *SIAM News 13 (2) (April), 1 and 6.* Developments in Qualitative Approaches.

[4.5] P.J. Holmes (1980) *Trans. A.S.M.E. J. Appl. Mech., 47, 692-3.* Review of "Nonlinear Oscillations" by A.H. Nayfeh and D.T. Mook.

[4.6] P.J. Holmes (1981) *Shock and Vibration Digest 14 (9).* Review of "The Stability of Dynamical Systems" by J.P. LaSalle.

[4.7] P.J. Holmes (1983) *Trans. A.S.M.E. J. Appl. Mech. 50, 912-913.* Review of "Nonlinear Problems: Present and Future", ed. A. Bishop, D. Campbell and B. Nicolaenko.

[4.8] P.J. Holmes (1984) *American Scientist (November).* Review of "Advanced Dynamics: Modeling and Analysis" by A.F. D'Souza and V.K. Garg.

[4.9] P.J. Holmes (1985) *SIAM Review 27, 106-110.* Review of "The Lorenz Equations: Bifurcations, Chaos, and Strange Attractors" by C. Sparrow.

[4.10] P.J. Holmes (1985) *Forefronts 1, 3, July 1985, 3-4.* (Newsletter of The Center for Theory and Simulation in Science and Engineering, Cornell University). Chaotic dynamics.

[4.11] P.J. Holmes (1986) *SIAM Review 28, 106-109.* Review of "Chaos", ed. Hao Bai-Lin.

[4.12] P.J. Holmes (1986) *Cornell Engineering Quarterly 20 (3), 12-19.* Chaotic Dynamics.

[4.13] P.J. Holmes (1987) *SIAM Review 29, 654-658.* Review of "Nonlinear Dynamics and Chaos" by J. M. T. Thompson and H. B. Stewart and "An Introduction to Chaotic Dynamical Systems," by R. L. Devaney.

[4.14] P.J. Holmes (1987) *American Scientist (April).* Review of "Geometric Perturbation Theory in Physics" by S. Omohundro.

[4.15] P.J. Holmes (1987) *IMA Journal 39, 91-98.* Dynamical Systems in Chaos: Some recent books.

[4.16] P.J. Holmes (1989) *American Scientist (November).* Review of "Cell-to-Cell Mapping" by C. S. Hsu.

[4.17] P.J. Holmes (1989) *Bull. A.M.S. 21, (1) 101-105.* Review of "Multiphase averaging for classical systems with applications to adiabatic theorems" by P. Lochak and C. Meunier.

[4.18] P.J. Holmes (1989) *Cornell Engineering Quarterly 24 (1), 19-20.* Commentary.

[4.19] P.J. Holmes (1990) *Bull. A.M.S. 22 (2), 339-343.* Review of "Local Methods in Nonlinear Differential Equations" by A. D. Bruno.

[4.20] P.J. Holmes (1990) *Applied Mechanics Reviews 43(6), B130-B131.* Review of "Instabilities and Nonequilibrium Structures II", eds E. Tirapegui and D. Villarroel.

[4.21] P.J. Holmes (1991) *Physics Today 44 (8:1), (August) 59.* Review of "Lectures in Complex Systems", ed. E. Jen.

[4.22] P.J. Holmes (1992) *Physics World 5(4), (April) 29-30.* Sleeping Tops Awake!

[4.23] P.J. Holmes (1992) *Applied Mechanics Reviews 45 (6), B80-81.* Review of "Nonlinear Stability and Bifurcation Theory" by H. Troger and A. Steindl.

[4.24] P.J. Holmes (1994) *SIAM Review 37, 129-131.* Review of "The Essence of Chaos" by E. N. Lorenz.

[4.25] P.J. Holmes (1998) *Math. Reviews MR 98e:76002.* Review of "Turbulence: The Legacy of A.N. Kolmogorov" by U. Frisch.

[4.26] P.J. Holmes (1999) *Math. Reviews MR 99i:760066.* Review of "Dynamical Systems Approach to Turbulence, by T. Bohr, M.H. Jensen, G. Paladin and A. Vulpiani.

[4.27] P.J. Holmes (2000) *SIAM Review 42 (4), 748-750.* Review of "Five More Golden Rules: Gordian Knots, Secret Codes and the Importance of Being Nonlinear – More Great Theories of 20th-Century Mathematics" by J. Casti.

[4.28] I. Stakgold (2002) *SIAM News 35 (5), 1, 8-9.* 'Our models are our metaphors.' Interview with Philip Holmes on poetry and applied mathematics.

[4.29] P.J. Holmes (2002) *AMS Notices 49 (11), 1392-1396.* Review of "Does God Play Dice: The New Mathematics of Chaos" and "What Shape is a Snowflake? Magical Numbers in Nature" by Ian Stewart.

[4.30] P.J. Holmes, R. Bogacz, J.D. Cohen and J.I. Gold (2005) *The Mathematical Intelligencer 27 (1), 4-5.* Letter to the Editor (on the sequential probability ratio test in cognitive psychology).

[4.31] P. Holmes and R. Murray (2010) *SIAM News 43 (9), 2-3.* An obituary of Jerrold E. Marsden.

[4.32] P. Holmes (2014) Career: a sample path. In "50 Visions of Mathematics," Ed. Sam Parc, pp 89-91. Oxford University Press, Oxford, UK.

[4.33] P. Holmes (2015) *Notes of the Canadian Mathematical Society 47 (2), 14-15.* Gray Matter is Matter for Math.

(5) Poetry

[5.1] P. Holmes (1971) "3 Sections of Poems", Anvil Press, London.

[5.2] P. Holmes (1977) "A Place to Stand", Anvil Press, London (Eric Gregory Award, 1975).

[5.3] P. Holmes (1986) "The Green Road", Anvil Press, London (Poetry Book Society Recommendation).

[5.4] P. Holmes (2002) "Lighting the Steps", Anvil Press, London (shortlisted for Ernest Sandeen Award, Notre Dame University, 1995).

[5.5] P. Holmes (2004) *The Mathematical Intelligencer 26 (4), 7-8.* Four poems.

[5.6] P. Holmes (2008) The lines remake the places. In "The Shape of Content", ed. C. Davis, M. Wikler Senechal and J. Zwicky, A.K. Peters Ltd., Wellesley, MA.

[5.7] P. Holmes (2011) *J. of Humanistic Mathematics 1 (1).* Gaps.
doi: 10.5642/jhummath.201101.12

[5.8] P. Holmes (2011) *US 1 Worksheets 56.* Chinese inkwell.

[5.9] P. Holmes (2012) *US 1 Worksheets 57.* Fractions from the still.

[5.10] P. Holmes (2013) *US 1 Worksheets 58.* Migrants.

[5.11] P. Holmes (2013) *Bridges 2013 Poetry Booklet, 2013.* Two poems.

[5.12] P. Holmes (2014) *US 1 Worksheets 59.* Minding one's business.

[5.13] P. Holmes (2015) *J. of Humanistic Mathematics 5 (1), 295.* Intermediate values.
doi: 10.5642/jhummath.201501.17

[5.14] P. Holmes (2016) *US 1 Worksheets 61.* Approach at 6 am.

[5.15] P. Holmes (2016) *Bridges Finland 2016 Poetry Anthology, Ed. Sarah Glass, pp. 57-58.* Intermediate values; Gaps.

[5.16] P. Holmes (2017) *US 1 Worksheets 62.* Gray Matter.