

Curriculum Vitae

Robert Sinclair MacKay

December 13, 2006

Personal details

Name: Robert Sinclair MACKAY
Born: 4 July 1956, Carshalton, Surrey, England
Nationality: British
Work Address: Mathematics Institute, University of Warwick,
Gibbet Hill Road, Coventry CV4 7AL, U.K.
Telephone: +44: 24 765 22218
Fax: +44: 24 765 24182; confidential FAX 73948
E-mail: mackay@maths.warwick.ac.uk
Website: <http://www.maths.warwick.ac.uk/~mackay>
Marital Status: Married, 1 son (born 19.3.02)
Home Address: 15 The Maltings, Leamington Spa CV32 5FF, UK
Telephone: +44: 1926 888142

Education and Qualifications

1967–74: Newcastle High School, Newcastle-under-Lyme, Staffordshire, England.
1974–78: Trinity College, Cambridge University: June 1977 – BA (Hons) in Mathematics (Class 1) (and MA June 1981); June 1978 – Part III Mathematics (Distinction).
1978–82: Plasma Physics Laboratory, Princeton University: September 1982 – PhD in Astrophysical Sciences, “Renormalisation in Area-Preserving Maps”, advisors: J M Greene and M D Kruskal.
Mar 1994: Qualified for the functions of Professeur in the Universities of France in sections 25 (Mathematics), 26 (Applied Mathematics) and 29 (Theoretical Physics).

Employment

Oct 82–Aug 83: Postdoctoral Research Assistant to Prof I C Percival, Applied Mathematics, Queen Mary College, London.
Sept 83–Mar 84: Professeur Invité, Institut des Hautes Etudes Scientifique, 91440 Bures-sur-Yvette, France.
Apr 84–Sept 95: “New Blood” Lecturer in Mathematics, University of Warwick, Coventry CV4 7AL. Promoted to Lecturer grade B in Oct 88, Reader in Oct 90, and Professor in Oct 93.
Oct 94–Sept 95: On leave as Chercheur Associé au CNRS (first 6 months) and Professeur Invité (second 6 months), Laboratoire de Topologie and Centre de Dynamique des Systèmes Complexes, Université de Bourgogne, Dijon, France.
Oct 95–Feb 00: Professor of Nonlinear Dynamics, Department of Applied Mathematics and Theoretical Physics, University of Cambridge.
Mar 00–: Professor and Director of Mathematical Interdisciplinary Research, Mathematics Institute, University of Warwick, Coventry

Prizes, Awards and Honours

Oct 74	Entrance scholar, Trinity College, Cambridge.
Oct 76	Senior scholar, Trinity College, Cambridge.
June 77	Yeats Prize, Trinity College, Cambridge.
June 78	Tyson Medal, University of Cambridge.
Sept 78–May 79	Fulbright Hayes scholar (Princeton).
Oct 92–Sept 93	Nuffield Foundation Science Research Fellow.
7 Sept 93	First Stephanos Pnevmatikos International Award for research in Nonlinear Phenomena.
20 May 94	Junior Whitehead Prize, London Mathematical Society.
Dec 95–Feb 00	Fellow of Trinity College, Cambridge.
11 May 00	Elected a Fellow of the Royal Society of London.
Sept 00	Elected a Fellow of the Institute of Physics.
14 Apr 03	Elected a Fellow of the Institute of Mathematics and its Applications (UK)

Positions of Responsibility

Deputy director of the Nonlinear Systems Laboratory, University of Warwick, Oct 1986 – Sept 1995, including:

- Its creation (October 1986);
- Hosting twelve postdoctoral fellows (see list)
- Organisation of the following events:
 - Quasiperiodic orbits for Hamiltonian systems, Feb–Apr 1987 (organiser);
 - Renormalisation in Dynamical Systems, May–July 1987 (co-organiser);
 - Symposium on Strange Attractors, Dec 1987–Aug 1988 (co-organiser);
 - LMS Nonlinearity meetings, March 1988, 1989 (co-organiser);
 - Braid types of periodic orbits for surface homeomorphisms, July 1989 (organiser);
 - Water waves, July 1990 (organiser);
 - Mathematics and Industry, Sept 1990 (co-organiser);
 - Renormalisation of dynamical systems, 23 Mar–7 Apr 1992 (co-organiser);
 - Electron-phonon workshop, 5–16 Sept 1994 (co-organiser).

Director of the Nonlinear Centre, Faculty of Mathematics, University of Cambridge, Oct 1995–Feb 2000, including

- Setting it up (Oct 95)
- Hosting postdoctoral research fellows and visiting researchers (see lists)
- Special year 96/97 on Computational dynamics, in collaboration with Numerical Analysis group
- Running TUXEDO (The UK Spatially Extended Dynamics Organisation), Oct 96–Dec 00, including meeting on 24 Sept 97 at Cambridge
- Advising King’s College Research Centre on a programme on Spatially extended dynamics, Oct 1998 – Sept 2002.

Director of Mathematical Interdisciplinary Research at Warwick (MIR@W), Mar 2000–, including

- Soliciting and overseeing MIR@W day workshops, from Mar 00, about 10 per year
- Chairing the MIR@W committee, overseeing the graduate degrees in Interdisciplinary Mathematics, soliciting proposals for a centre for interdisciplinary mathematics (Jan–Mar 02)
- Director of MIR@W graduate studies, Aug–Dec 01, Aug–Dec 02 and Oct 06 - Sep 07
- Coordinator of LOCNET: an EC RTNetwork, Mar 00 – Feb 04
- Organiser, Spatially extended dynamics days, Warwick, 15 May and 4 Dec 00
- Co-organiser, Singularities in Fluids workshop, 20–23 Oct 00
- Co-organiser, Evolutionary epidemiology of strain structure workshop, 15–16 Jan 01
- Co-organiser and BAMC chair for the joint BMC/BAMC, Warwick, 7–12 Apr 02
- Co-organiser, Energy localisation and transfer, 17 Feb 03
- Co-organiser, Socio-Dynamics workshop, Warwick rooms in London, 24–25 May 2004
- Co-organiser, Complexity in Social Dynamics, 24 Jan 05
- Co-organiser, Symposium on Mathematics of Quantum Systems, Warwick, Aug 04 – Apr 05, including workshop on Quantum Lattice Models, 16–17 March 05
- Co-organiser, Sociodynamics, Networks and Markets, Warwick in London, 9–11 May 05

Chair of the Complexity Complex, Oct 05–, including

- Setting it up,
- Coordinating a successful bid for a doctoral training centre in Complexity Science,
- Co-organiser, EPSRC training school and IMA conference on Mathematics in the Science of Complex Systems, Warwick, 11–15 and 18–21 Sep 2006
- Organiser, Connection day for the complexity complex, 22 Sept 06
- Organiser, halfday workshop on Complexity Science at Warwick, 23 Oct 06
- Organiser, Complexity Science Forum (seminar series), Oct 06 –

Editorial Boards:

Physica D, May 1986–June 1992;

Nonlinearity, Feb 1987–Dec 1997; Honorary Editor (ie Chief) Jan 1993–Dec 1997;

Editor-in-charge of Advanced book series on Nonlinear Dynamics, World Scientific Publ. Co., created in 1989; 24 books published so far.

Ann IHP Physique Théorique, Jan 1997–Dec 1999.

Qualitative Theory of Dynamical Systems, Jun 1999–present.

Int J Nonlinear Sciences and Numerical Simulation, Jan 2000–Dec 03.

J Nonlinear Science, Jan 2001 – present

Contribution to Organisation of Other meetings:

Organising committee, Dynamics Days, Dusseldorf, June 1987, 88, 89, 90; Berlin, June 1991.

Organiser, Greene Fest: a workshop on Hamiltonian dynamics, La Jolla CA, 15–17 Sept 1988.

Local organising committee, Math Study Groups with Industry, Birmingham, March 1990.

Scientific committee, Chaotic Dynamics, Patras, July 1991.

Advisory committee, Renormalisation Group 91, Dubna (Moscow), Sept 1991.

Advisory committee, Nonlinear dynamics and Economics, Florence, July 1992.

Scientific committee, Transport and plasma, Marseille, July 1993.

Organiser, Nonlinearity '94, Imperial College, London, 19–20 March 1994.

Scientific committee, International Congress on Dynamics and Chaos, Tokyo, May 1994.

Organiser, Nonlinearity '96, Institute of Physics, London, 24 March 1996.
 Co-organiser, Localisation in Nonlinear Lattices, Dresden, 7–11 April 1997.
 Co-organiser, Minisymposium: Energy transport and localization, STAMM'98 Nice, 25–29 May 98
 Sci. comm., IUTAM symp, Nonlinear wave behaviour in multiphase flow, Notre Dame 7–9 Jul 99
 Advisory committee, Dynamics Days Hong Kong, 13–16 July 1999
 Session co-organiser, Computational Dynamics, Foundations of Computational Mathematics, Oxford, 19–21 Jul 99
 Co-organiser, Dynamical Systems 2000, Edinburgh, 10–14 July 2000
 Co-organiser, Dynamical Systems session of Int Congress Math Phys, London, 17–22 July 2000
 Scientific advisor, Newton Inst. programme, Geometry & topology of fluid flows, Aug – Dec 00
 Minisymp Organiser, Localisation and energy transfer in spatially discrete systems, SIAM Snowbird, 20–24 May 01
 Scientific committee, Andronov centenary conference, July 2001
 International programme committee, Fractal 2002, Granada, 17–20 Mar 02
 International committee, Differential equations and dynamical systems, Suzdal, 1–6 July 2002
 International committee, TH2002, Paris, 22–27 July 2002
 Director of LOCNET Training school, Les Houches, 27 Jan – 1 Feb 03
 Director of LOCNET final conference, Erice (joint with NATO ARW), 21–27 July 03
 Scientific committee, Coupled map lattices school and forum, IHP Paris, 21 Jun – 2 Jul 04
 Co-organiser, Nonlinear Physics (Aubry 60), IHP, Paris, 30–31 May 05
 Subject coordinator for Mathematics: Complexity, Science and Society, Liverpool, 11–14 Sept 05
 Scientific committee, Fields Institute programme on Renormalisation, Autumn 2005
 Scientific committee, Dynamics Days Europe, Loughborough, 9–13 July 2007
 Scientific committee, Model reduction, Leicester, 28-30 Aug 2007

Refereeing:

Referee for many *journals* (eg Physica D, Nonlinearity, Proc Roy Soc Lond A, Phil Trans Roy Soc Lond, Phys Lett A, Math Proc Camb Phil Soc, Ergod Th Dyn Sys, J Math Phys, Cel Mech, SIAM J Math Anal, SIAM Appl Dyn Sys, Phys Rev Lett, Phys Rev E, J Phys A, Europhys Lett, Proc Roy Soc Edin, Acta Math, J Acoustic Soc Am, Comm Nonlin Sci Num Sim);
funding agencies (eg UK: EPSRC(formerly SERC), Roy Soc London, Leverhulme, Nuffield, Trinity College Cambridge; USA: NSF, DoE, Monts; Canada: NSERC; ISF (Soros); Australia: ARC; NZ: Roy Soc NZ; Eire: IRCSET; EC; Israel: German-Israeli Foundation)
 and *publishers* (e.g. Wiley, IOPP, Taylor and Francis, World Sci, OUP, Springer, Imperial College)

Other Administration:

Chair of the Applied Mathematics Committee, University of Warwick, 1989/90.
 Chairperson of Kenilworth & Rugby Green Party, Nov 89 – Oct 90.
 Mathematics Examinations Secretary, University of Warwick, 1993/94.
 LMS prize committee, 1997.
 Examiner, Pt II, Cambridge, 1996/97 and 97/98.
 Comité scientifique du CNRS, Institut Non Linéaire de Nice, 23 Sept 1998
 EPSRC Mathematics College, 97-99 and EPSRC College 00-02, 03-05, 06–08.
 Applied Maths Panel, RAE 2001 (Nov 99 – Oct 01).
 A Vice-President of Newcastle-under-Lyme School Appeal, 2000
 Crawford prize committee, SIAM, 2000/1
 Royal Society committees: Hooke 2000, Conference grants 2000, Section 1 03&04, Conf grants and short visits 05&06.
 Nuffield Foundation: Newly appointed lecturer grants committee, Feb 2001,2, Jan 03, Mar 04
 Comité d'évaluation du CNRS, Centre de Physique Theorique Marseille, 28–29 May 2001
 Scientific advisory board, Institute for Research in Mathematics and its Applications, Swansea, 01–
 Member of EC NEST selection panel, May–Nov 03

Applied Maths subpanel, RAE 2008 (Jan 05 – Sep 08)
Coordinator of International node of Australian Research Council COSnet (teams in Brazil, Brunei, China, France, Israel, Netherlands, UK and USA), Aug 05–Aug 07
UK Scientific advisor, ERAnet on Complexity Science, Jul 06 – Jun 09

Invited conference lectures and other significant invitations taken up
(many others turned down)

Dynamics Days, La Jolla, Jan 1982, 83, 85, 86
Order in Chaos, Los Alamos, May 1982
Aspen Center for Theoretical Physics, May 1982
ETH, Zurich, Nov 1982
Ecole Polytechnique, Palaiseau, Dec 1982
Nonlinear effects in Lasers, Cambridge, Apr 1983
Dynamics Days, Enschede, June 1983, 84
Bifurcation theory and applications, Durham, July 1984
US/CERN particle accelerator school, Sardinia, Feb 1985
Nonlinear phenomena and Chaos, RSRE, Malvern, Apr 1985
Spring College on plasma physics, ICTP, Trieste, June 1985
Los Alamos, Sept 1985
Applied Mathematics, Caltech, Dec 1985
Applied dynamical systems, Calcutta, Jan 1986
Theoretical Physics, Aachen, Feb 1986
Nonlinear dynamics, Tucson, Mar–Apr 1986
Theoretical and numerical problems in chaotic ODEs, Cambridge, July 1986
Dynamical systems and chaos, Thessaloniki, Aug 1986
Number Theory and Dynamical Systems, York, Apr 1987
Dynamics Days, Dusseldorf, June 1987, 88, 90
Dynamical Systems, Gregynog, July 1987
Centre de Recerca Matematica, Barcelona and ECIT, Sept 1987
Institute for Nonlinear Studies, UC San Diego, Dec 1987
Cornell and Houston, Feb 1988
Nonlinear Dynamics, Bologna, 30 May–3 June 1988
Dynamical Systems, Durham, July 1988
Singular behaviour and nonlinear dynamics, Samos, Aug 1988
Colloques bifurcation et attracteurs, Nice, Sept 1988
ETH, Zurich, 14–18 Nov 1988
Institute for Advanced Study, Princeton, 3–29 Dec 1988
Niels Bohr Institute, Copenhagen, Apr 1989
Danish Physical Society, Nyborg, 18–19 May 1989
Symplectic geometry and Hamiltonian systems, Berkeley, 3–16 June 1989
Summer course on Universality and chaos, Univ Complutense, Madrid, 27–31 Aug 1989
Classical and Quantum Transport, Cornell, 17–21 Nov 1989
Many degree of freedom systems, Los Alamos, 20–23 Feb 1990
Twist maps and their applications, Minnesota, 10–25 March 1990
Chaos, order and patterns, Como, 29 June–6 July 1990
Dynamics of Numerics and numerics of dynamics, Bristol, 31 July–2 Aug 1990
Global geometry of turbulence, Cadiz, 8–14 July 1990
Dynamical Systems, Barcelona, 23 Sept–28 Oct 1990
Applied Math, CalTech, 8 Nov–25 Dec 1990
Dynamics Days, Houston, 5–9 Jan 1991
Asymptotics beyond all orders, San Diego, 9–11 Jan 1991

Mathematics, University of Arizona, Tucson, 12 Jan–14 Mar 1991
 Los Alamos, 15–19 Mar 1991
 University of Illinois, 21–22 Mar 1991
 Dynamical Systems, Northwestern Univ, Evanston, 24–28 Mar 1991
 Applied Math, Boulder, 29 Mar–7 May 1991
 Applied Math, University of Chicago, 8–25 May 1991
 Landau Institute and Space Research Institute, Moscow, 4–29 June 1991
 Mathematics of Nonlinear Systems, Bath, 1–5 July 1991
 Quantum Chaos, Varenna, 23 July– 2 Aug 1991
 Institut Nonlinéaire de Nice, 4 Aug–6 Sept 1991, 11–22 Sept 1993, 1–22 July 1997, 11–15 July 1998,
 10 Dec 98 - 7 Jan 99
 IHES, 7–23 Dec 1991, 1–30 Sept 1992, 15 Dec 1993 – 4 Jan 1994, 22 Mar – 16 Apr 1994
 Physics Institute, Frankfurt, Feb 1992
 Nonlinear Dynamics in Economics, Florence, 6–17 July 1992
 Dynamical Systems, Porto, Aug 1992
 Theoretical Physics Institute, Helsinki, 21–26 Feb 1993
 Tel Aviv University and the Weizmann Institute, Israel, 8–12 Mar 1993
 Mathematical Physics, Ben Gurion Univ, Israel, 15–19 Mar 1993
 Low-dimensional dynamics, Oberwolfach, 26–30 Apr 1993
 Belgian Physical Society, Leuven, 27 May 1993
 Chaos, transport and plasma physics, Marseille, 5–9 July 1993
 Centre de dynamique des systèmes complexes, Dijon, 12 July 1993
 Laboratoire Léon Brillouin, Saclay, 13–31 July 1993
 Spatial and temporal dynamics, CRM Montréal, 15 Aug–2 Sept 1993
 The Gran Finale, Como, 4–10 Sept 1993
 Seventh Toyota Conference, Shizuoka, 31 Oct–3 Nov 1993
 Nordic Nonlinear Days, Helsinki, 16 Jan 1994
 Int Congress on Dynamics and Chaos, Tokyo, 23–27 May 1994
 Int Workshop on Dynamics of Vector Fields, Kyoto, 30 May–3 June 1994
 Int Congress of Mathematical Physics, Paris, 18–23 July 1994
 Laboratoire de Topologie and Centre de Dynamiques des Systèmes Complexes, Université de Bour-
 gogne, Dijon, France, 1 Oct 1994 – 30 Sept 1995
 Royal Academy of Sciences, Amsterdam, Colloquium on Dynamical Systems, 26–28 Jan 1995
 Theoretical Physics, ETH Zurich, 6–9 Feb 1995
 Stability and Universality in Classical Mechanics, Paris, 10–11 Feb 1995
 Institute for Physics of Complex Systems, Dresden, 20–22 Feb 1995
 SIAM Applications of dynamical systems, Snowbird Utah, 21–24 May 1995
 Dynamical Systems workshop, ICTP, Trieste, 28 May–2 June 1995
 Hamiltonian systems of three or more degrees of freedom, S’Agaro, Spain, 19–30 June 1995
 Universitat Autònoma de Barcelona, 5–12 July 1995
 Dynamical Systems, Oberwolfach, 16–21 July 1995
 Finite to infinite dimensional systems, Newton Institute, Cambridge, 16 Aug–30 Sept 1995
 Workshop on Space-time dynamics, Dresden, 22–29 Feb 1996
 Physics Dept, Florence, 29 Mar–8 Apr 1996
 Invited speaker, British Mathematical Colloquium, Manchester, 9–12 Apr 1996
 Fluctuations, Nonlinearity and Disorder, Crete, 30 Sept–4 Oct 1996
 Foundations of Computational Mathematics, Rio, 5–12 Jan 1997
 Nonlinear localization in lattices, Dresden, 7–11 Apr 1997
 EPSRC ANM School, Loughborough, 14–18 Apr 1997
 Ecole d’ete, “Solitons”, Dijon, 16–20 June 1997
 Joint AMS/SAMS conference, Pretoria, 25–28 June 1997
 Int Symp on Dynamical Systems, Rio, 29 July–8 Aug 1997

Brain dynamics, Madrid, 28 Feb – 1 Mar 1998
 STAMM98, Nice, 24-29 May 1998
 Celestial mechanics, separatrix splitting and diffusion, Aussois, 21–27 June 1998
 UK Dynamics Days, Edinburgh, 30 June 1998
 Nonlinear localized excitations in condensed matter and molecular physics, Lyon, 7–10 July 1998
 Classical chaos and its quantum manifestations, Toulouse, 16–18 July 1998
 Spatio-temporal complexity, Cargèse, 2–5 Sept 1998
 Dynamical Systems, ICTP, Trieste, 6–18 Sept 1998
 Nonlinearity'99, Heraklion, 10-13 May 99
 Hamiltonian mechanics and small divisors in PDEs, Edinburgh, 24-26 May 99
 Asian Dynamics Days, Hong Kong, 13-16 July 99
 FoCM'99, Oxford, 18-21 July 99
 Equadiff'99, Berlin, 1-7 Aug 99
 BAMC, UMIST, 24-28 April 2000
 Dynamical Systems, Rio, 19-28 July 2000
 Qual Theory Diff Eqns, Certosa di Pontignano, Italy, 17–20 Sept 2000
 Royal Society, Topology in Physical Sciences, London, 16-17 Nov 00
 Anti-integrable limits, Institut H Poincaré, Paris, 15 May 01
 SIAM Dyn Sys, Snowbird, 20-24 May 01
 Colston Society, Chaos and nonlinear dynamics, Bristol, 8-10 Jun 01
 Intrinsic localised modes, Heraklion, 13-16 Jun 01
 Localisation and energy transfer in nonlinear systems, El Escorial, 17–21 June 02
 TH2002, Paris, 23–24 July 02
 Equadiff, Hasselt, 22-23 July 03
 NATO ARW, ILM and DB, Erice, 25-26 July 03
 Coupled map lattices workshop, IHP Paris, 6–8 Nov 03
 Dynamics of structured systems, Oberwolfach, 14-20 Dec 03
 ScotDyn, Stirling, 7 Jan 04
 Chaotic mixing, Bristol, 4 May 04
 Poincaré 150, Open University, 21-23 May 04
 Coupled map lattices school and forum, IHP Paris, 28 Jun – 2 Jul 04
 Dynamical Systems, ICTP, Trieste, 26 Jul – 4 Aug 04
 N-body problems, Manchester, 22 Mar 05
 IHP, Paris, 25–31 May 05 (Hamiltonian dynamics workshop and Nonlinear Physics conference)
 Limit laws for dynamical systems, ICMS, Edinburgh, 15 June 05
 IMPA, 18 Jul – 30 Aug 05, including Int Conf Dyn Sys (Angra dos Reis) and workshop on Lagrangian systems
 Complexity in Science and Society, Liverpool, 11–14 Sept 05
 Renormalization, Fields Institute, Toronto, 3–25 Oct 05, inc Renormalization in Math Phys wkshp
 Applied Math, Boulder, Colorado, 26–28 Oct 05
 MASCOs and COSnet, Australia, 3 Nov – 24 Dec 05
 IHES, 1 Jan - 1 Jul 06
 Ondes non-lineaires, IHP, Paris, 8 March 06
 Work, dissipation and fluctuations in nonequilibrium physics, Bruxelles, 22-25 Mar 06
 Stochastics and dynamics, ICMS, Edinburgh, 24 March 06
 Geometry and mechanics, Surrey, 14–15 June 06
 Statistical mechanics and dynamics, Durham, 3–7 July 06

Research grants awarded

- Fulbright-Hayes, Scholarship, 1.9.78–31.5.79 (Princeton)
- SERC, Studentship tenable overseas, 1.9.80–31.8.82 (Princeton)
- SERC, “Computing in Mathematics”, 1.1.84–31.12.86, with D.B.A. Epstein, D.F. Holt and D.A. Rand, £86,000 (VAX11/750 computer + AED767 graphics terminal); + supplement, £4,150 (extra memory and ports)
- Nuffield Foundation, “Dynamics of Hamiltonian Systems”, 1.4.84–31.3.86, £4,000 (equipment, travel and visitors)
- NATO, “Transport in Hamiltonian Systems”, 1.9.85–30.8.86, with J.D.Meiss and I.C. Percival, £2,570 (travel) + £4,151 renewal (travel) 17.11.86–16.11.87
- SERC, “Nonlinear Systems Laboratory”, 1.10.86–30.9.89, with D.A.Rand, £152,940 (3 SUN3 computers, 3 years’ visitors, 1/2 time secretary, 2 years 3/4 time programmer)
- SERC, “Breakup of invariant circles of arbitrary rotation number”, 1.10.86–30.9.87, with D.A.Rand £12,824 (1 year postdoc)
- SERC, “Nonlinear Systems Laboratory II”, 1.10.87–30.9.90, with D.A. Rand and G.P. King, £80,758 (3 year postdoc, experimental equipment)
- SERC, NSL III, 1.10.88–31.3.92, with D.A. Rand, £57,410 (3 year postdoc, 1 year 3/4 time programmer)
- SERC, Nonlinear Dynamics Computing, 1.10.88–30.9.91, with D.A. Rand, £61,056 (colour SUN, transputer, 2 years full time programmer)
- SERC, NSL IV, 1.10.89–30.9.92, with G.P. King, D.A. Rand, R.M. Roberts, D. Salamon and I.N. Stewart, £102,554 (secretary, technician, disk, SUN3/50M, visitors, meetings, one 3 year postdoc, experimental equipment)
- MoD, Dynamics of large scale networks, 1.9.89–30.8.92, £99,964 (postdoc, computing, travel)
- British Council Alliance, Dynamics of Surface Homeomorphisms, 3.12.89–2.12.90, £2,400 (travel to Nice)
- LMS, Water waves, July 1990, £500
- Royal Society, Water waves, July 1990, £500
- SERC, Nonlinear Systems Laboratory V, 1.10.90–31.12.92, with G.P. King, D.A. Rand, R.M. Roberts, D. Salamon and I.N. Stewart, £127,666 (technician, experimental equipment, SUN4, visitors, two 2 year RAs)
- SERC, NSL VI, 1.10.91–30.9.94, with G.P. King, D.A. Rand, R.M. Roberts and I.N. Stewart, £115,194 (3 year postdoc, programmer, experimental equipment, visitors)
- EC SCIENCE, Knot theory and dynamical systems, 15.3–15.9.92, £8,402 (visiting fellow: Casasayas)
- Nuffield Foundation, Solid-state physics, Hamiltonian dynamics and Renormalisation, 1.10.92–30.9.93, £21,054 (1 year temp lecturer + £3,000 research expenses)
- SERC, Topology from turbulent time series, 1.9.92–31.8.95, with D. Broomhead and T. Mullin, £112,125 (3 year postdoc + computing and travel)
- NATO, Chaotic transport in several degrees of freedom, 1.1.93–31.12.94, with J.D. Meiss, 208,000 BF (about £4,000) (travel)
- British Council, Dynamics on surfaces, 1.1.–31.12.93, £3,000 (travel to Nice)
- British Council, Solid-state physics, Hamiltonian dynamics and electron-electron interaction, 1.1.–31.12.93, £2,000 (travel to Saclay)

- EC HCM, Network on Nonlinear Phenomena and complex systems (coordinator: Nicolis), 1.10.93–31.3.96, 470,000 ECU (of which 43,000 to Warwick); plus money for 8 additional person-years of postdocs (though none allocated to Warwick)
- SERC, Behaviour of separatrices and invariant tori of Hamiltonian systems in the complex domain (Visiting fellow: Lazutkin), 1.11.93–31.10.94, £2,800
- EC HCM, Network on Nonlinear approach to coherent and fluctuating phenomena in condensed matter and optical physics (coordinator: Tsironis), 400,000 ECU (of which 37,533 to Warwick), 1.11.93–31.10.96
- EC HCM, Variational methods for random perturbations of discrete-time dynamical systems, 1.9.93–30.6.96 (2 year visiting fellowship: Hamm), 94,257 ECU
- SERC, Transport in Hamiltonian systems of more than two degrees of freedom (Visiting fellow: Meiss), with J. Stark, 1.9.93–31.8.94, £2,480
- SERC, Electron-phonon workshop (administered by J. Jones), £20,000
- SERC, Positive metric entropy for the standard map, 1.9.93–31.8.96 (postdoc), £85,573
- SERC, Breakup of invariant two-tori, 1.10.93–30.9.96 (IRIS workstation), £23,243
- LMS, Nonlinearity meeting, March 1994, £722 (+ £500 from IOPP)
- SERC, Nonlinear Computational Projects, 1.10.94–30.9.95 (programmer), with Rand, Stewart, Barkley, Sherratt, £38,568
- SERC, Computer Update for NSL, with Rand et al, £25,000, 1.10.94–30.9.97
- EC HCM, Dynamics of networks, 1.10.94–31.7.96 (Sepulchre), c. 100,000 ECU
- EC HCM, Stability and universality in classical mechanics (network coordinator: Jauslin), 1.2.95–31.12.98, Warwick's share: 37,037 ECU (transferred to Cambridge from Mar 97)
- British Council, Nonlinear phenomena in dynamics and physics, £3,000 (alliance with Dijon), 1.1.95–31.12.95 (transferred to Cambridge and extended to December 1997)
- INTAS, Hamiltonian dynamics and bifurcations (network coordinator: Simo), 1.5.95–30.4.96, Warwick's share: 2,000 ECU; extension to 5.98 at Cambridge: 2,000 ECU
- LMS, Nonlinearity 1996, £1,000, March 1996
- EPSRC, Global Bifurcations and Transitions to chaos in torus maps and networks of oscillators, Visiting Fellowship for S. Kim, with Baesens, 1.3.96–28.2.97, £38,344
- LMS, Visit of Bolotin, May 1996, £903
- LMS, Visit of Kuksin, June 1996, £903
- EC TMR network, “Statistical physics and dynamics of extended systems” (coordinator: Nicolis) (managed via Warwick), Sept 1996–Aug 1999; Cambridge share 32,375 ECU + 36 postdoc months (87,960 ECU)
- Trinity College, Cambridge, “Discrete breathers”, Jan–Aug 1997, £14,852 (salary for postdoc Sepulchre)
- Royal Society FSU postdoctoral fellowship (Tereshko), Oct 97 - Sept 98, £11,830
- LMS, TUXEDO (The UK spatially extended dynamics organisation), £750 Sep 97–Aug 98 + £750 renewal Oct 98–Jul 99 + £750 renewal Oct 99–Dec 01.
- Sainsbury's Innovation Centre, Time series analysis (per quarter: £750 for PhD student, £375 overheads) Jul 97 – Sep 98
- EPSRC, Visiting Fellowship for M. Bialy, Hamiltonian dynamics, variational calculus and symplectic geometry, 1 Aug 98 - 31 Aug 99, £40,714
- EC Individual fellowship for V. Rothos, Chaotic dynamics of multi-dimensional Hamiltonian systems, Oct 1998 - Sept 2000, 91724 ECU

- INTAS, Hyperbolicity and diffusion in Hamiltonian systems (coordinator Delshams), Warwick share 2850 ECU, Feb 1999 - Jan 2001.
- ISIS facility, Quantum breathers, 2 days' beam time, May99-Mar00 (nominal value £19,358)
- EPSRC, Dynamical Systems, £18,780, Conference 10-14 July 2000, with K Khanin and M Pollicott
- Trinity College, Cambridge, Stirring and mixing in fluid flows, Expenses for PL Boyland 4 May - 3 July 1999, £1,400
- Trinity College, Cambridge, Quantum breathers, 3 months salary for L Proville (about £5000) and £1,500 for synthesis of PtCl, Apr - Aug 1999
- EC RTNetwork "LOCNET", 1.5 MEuro, Mar 00 - Feb 04
- LMS, Singularities in Fluids, £3,675, with X He, S Nazarenko, R Pelz, 20-23 Oct 2000
- BT, Critical phenomena in communications networks, £19,800, towards a 3-year PhD studentship, Aug 00 (withdrawn by BT in 2001)
- INTAS, Chaotic motion and stability in conservative and near-conservative systems, 5000 Euro, July 01 - June 03.
- EC, Quantum tunnelling rotobreathers (Fellowship for Litvak-Hinenzon), 107772 Euro, 29.8.02 - 28.8.04
- LMS, Young Russian mathematicians scheme (for V.V.Ten), £1500, Oct-Nov 2002
- Royal Society, Developing nation grant (for Ghaffari), £3982, Sep-Dec 03
- EPSRC, Mathematical architecture of biological regulation (PI: DA Rand), £1260990, 1.10.03-30.9.07
- EPSRC, Dynamics of complex systems and constructive biology (VF for Kaneko) (PI: H Jensen, Imperial College London), £3598, 1-30 Sept 2004
- EC NEST, Unifying networks in science and society (Coordinator: Kirkilionis), 1.5 MEuro, Jun 05 - May 08
- Australian Research Council, Complex Open Systems Network (Coordinator: RL Dewar, Canberra), Sep 04 - Aug 07, AU\$ 1.5M
- Royal Society, Synchronisation in networks of dynamical units, for visit of R.Yamapi, Sep-Dec 06, £3982
- EPSRC, Localized modes in nonlinear lattices (VF for D.Pelinovsky to Bristol and Warwick, with A.Champneys), Oct 06 - Mar 07, £19,993 (Warwick's part)
- EPSRC, Training course on Mathematics for the Science of Complex Systems, Mar 06 - Feb 07, £62,351 (PI: JH Johnson, Open Univ)
- EPSRC, Doctoral training centre in Complexity Science, Oct 06 - Sep 14, £4,142,427 (joint PI with Robin Ball)
- *plus* Royal Society travel grants to attend conferences in Thessaloniki (August 1986), Samos (August 1988), Hong Kong (July 99), Rio (July 00), Rio (Aug 05), and to visit researchers in Moscow (June 1991) and Israel (March 1993); Member of PYTHAGORAS research team, Thessaloniki, 04/05

Postdoctoral Fellows hosted

- J. Stark, Oct 1986-Sept 1987, SERC RA (with Rand), "Breakup of invariant circles of arbitrary rotation number"
- C. Baesens, Jan 1988-Oct 1990, SERC RA (with Rand), "Bifurcations" and Jan-Aug 1992, SERC/MoD RA, "Cantori"

- C. Beck, Oct 1988–Sept 1989, Visiting NATO fellow, “Stochastic dynamical systems”
- B.D. Mestel, Oct 1988–Aug 1989, SERC RA (with Rand), “Structure of strange attractors”
- M.R. Muldoon, Sept 1989–Aug 1992, MoD RA, “Dynamics of large networks” and Sept 1992–Aug 1995, SERC RA, “Topology from turbulent time series”
- J. Casasayas, Mar–Sept 1992, EC fellow, “Knot theory and dynamical systems”
- P. Ashwin, May 1992–Mar 1995, SERC RA (with Stewart, Rand, King and Roberts)
- F. Moura Neto, Sept 1992–Aug 1993, Brazilian fellowship (Fluid Dynamics)
- X. He, May 1993–Apr 1994 & Aug–Oct 1994, self-funded visiting fellow, “Stochastic description of 2-D vortex dynamics”
- A. Hamm, Sept 1993–Sept 1995, EC fellow (dynamics and noise)
- S. Gaito, Oct 1993–May 1996, SERC RA, “Positive metric entropy for the standard map”
- J.-A. Sepulchre, Nov 1993–Sept 1994, EC network postdoc, “Dynamics of networks of oscillators”; Oct 1994–Sept 1996, EC fellow; Jan–Aug 1997, research fellow “Discrete breathers”
- S. Luzzatto, Aug–Sept 1995, EC network postdoc, “Strange attractors”
- G. Gomes, Sept–Oct 1995, EC network postdoc, “Pulse-coupled oscillators”
- J.L. Marin, Aug–Dec 1997, EC network postdoc, “Discrete breathers”
- V. Tereshko, Sept 1997–Nov 1998, FSU Royal Society postdoc
- B. Fernandez, Oct 1997–Dec 1998, EC network postdoc, “Coupled map lattices”
- D. Daems, April–November 1998, EC network postdoc
- T. Ahn, April 1998 – February 1999, Korean fellowship
- M. Spicci, May 1998–Aug 1999, EC network postdoc, “Discrete breathers”
- V. Rothos, Sept 1998 – July 2000, EC individual fellow “Chaotic dynamics of multi-dimensional Hamiltonian systems”
- L. Proville, Oct 98 - May 99, EC network postdoc, and Jun-Aug 99, Trinity college supported postdoc
- C. Chandre, Sep–Nov 99, Carnot fellow, “Renormalisation”
- G. James, Sep 00 – Jan 01, EC network postdoc
- A Litvak-Hinenzon, Oct 00–Aug 02, EC network postdoc; Aug 02–Aug 04, EC Individual Fellow
- A Berger, Sep 02 – Feb 03, EC network postdoc
- J Dorniac, Nov – Dec 02, EC network postdoc
- JR Pacha, Feb 03–Jan 04, Universitat Politecnica Catalunya funded postdoc

Visiting Researchers hosted in Cambridge for at least 2 weeks (Oct 95 – Feb 00)

S. Bolotin (Moscow) 15-30 May 96
 S. Kuksin (Moscow) 1-16 June 96
 S. Kim (Pohang) Mar 96 - Feb 97
 W. Choe (Pohang) 16 Mar - 20 May 96
 S. Slijepcevic (Zagreb) 8-27 April 96
 T. Ahn (Pohang) 19 Sept - 30 Nov 96
 Y. Jiang (New York) 17 Oct 96 - 14 Jan 97
 K. Rerikh (Dubna) 23 Nov - 8 Dec 96
 C. Bose (Victoria) Feb-Mar 97
 A. Haro (Barcelona) 10 Feb - 27 Mar 97

M.S. Watanabe (Tokyo) Apr 97 - Mar 98
 X. Fu (Wuhan) May - July 97
 K.F. Siburg (Freiburg) 15-29 Sept 97
 J.F.R. Archilla (Sevilla) 13 Oct - 20 Dec 97
 V. Mastropietro (Roma) 10-30 Nov 97
 M. Bialy (Tel Aviv) 23 Aug 98 - 22 Aug 99
 Y. Aizawa (Tokyo) 1 Apr - 31 May 99
 S. Bolotin (Moscow) 6-30 April 1999
 C. Holmes (Queensland) 13 April - 13 July 99
 P.L. Boyland (Florida) 5 May - 3 July 1999

Visiting Researchers hosted in Warwick for at least 2 weeks, starting Mar 00 (also many hosted from Apr 84 – Sep 94)

S Bolotin and D Treschev (Moscow) June 01
 VV Ten (Moscow) 24 Oct – 10 Nov 02
 M Ghaffari (Teheran) 21 Sept – 20 Dec 03
 S Bolotin (Moscow/Wisconsin) 27 Jun – 7 Jul 05
 R Yamapi (Douala, Cameroon) 3 Sept – 25 Nov 06
 T Ahn (Korea) 23 Nov 06 - Mar 07
 D Pelinovsky (McMaster, Canada) 28 Jan – 31 Mar 07

Research students

- J Stark, Oct 1983–Sept 1986, PhD, “Invariant circles for area-preserving maps”, PhD awarded Feb 1987 (Warwick)
- NTA Hoidn, April–Sept 1984 (during absence of P Walters), PhD, thesis (part for which I was responsible) on “Invariant curves under renormalisation”, PhD awarded Dec 1986 (Warwick)
- JB van Zeijts, Oct 1984–Oct 1986, visiting PhD student, “Invariant Cantor set for a renormalisation group for period doubling in bimodal maps”, PhD awarded Mar 1983 (Twente, The Netherlands)
- A von Arnim, Oct 1985–Sept 1986, MSc, “Aubry models and symplectic maps”, MSc awarded Oct 1986 (Warwick)
- J Ketoja, Oct 1987–Sept 1988, visiting PhD student, Fractal boundary for the existence of invariant circles for area-preserving maps, PhD awarded Sept 1990 (Helsinki)
- G Ott, Jan–Apr 1988, visiting MSc student, Quantum flux
- N Raza, Mar 1988–Sept 1989, MSc student, Mathematical models of the heart
- C Watts, Oct 1988–Sept 1989, PhD student (taken over from EC Zeeman), Stability of diffeomorphisms, PhD awarded June 1990 (Warwick)
- J Guaschi, Oct 1988–Sept 1991, PhD student, Dynamics of surface homeomorphisms, PhD awarded Jan 1992 (Warwick)
- A Oliveira, Oct 1989–withdrawn, PhD student, Hairpin maps
- K Banas, Oct 1989–Sept 1990, MSc student: “NANCY: a computer program for numerical analysis of the flow between rotating cylinders”, MSc awarded May 1991 (Warwick)
- R Regan, May–Sept 1990, MSc dissertation: Universality in period doubling and solution of the Feigenbaum–Cvitanovic functional equation, MSc awarded Nov 1990 (Warwick)
- J Denvir, Oct 1991–Sept 1994, PhD student, Adding machines in smooth dynamical systems, and consequences of contractible geodesics, PhD awarded Dec 94 (Warwick)
- S Umney, May–Sept 1993, MSc dissertation: Poincaré–Birkhoff theorem, MSc awarded Nov 1993 (Warwick)

- G Schindlmayr, Jan–Sept 1994, MSc “Melnikov method for elliptic PDEs” (Warwick)
- Z Bishnani, Jan 1994–Sept 1997, PhD “Safety criteria for aperiodic dynamical systems” (PhD awarded Nov 00, Warwick)
- S Slijepcevic, Oct 1996–Aug 99, PhD “Gradient dynamics of Frenkel-Kontorova models and twist maps” (PhD awarded, Cambridge, Nov 99)
- T Hunt, Oct 1996–Aug 2000, PhD “Low dimensional dynamics: Bifurcations of cantori and Realisations of uniform hyperbolicity”
- J Lopes Dias, Oct 1997–Feb 2002, PhD “Renormalisation of vector fields” (Cambridge, awarded July 2002)
- J Gog, Oct 1998–Aug 2002, PhD “Multiple strain dynamics” (initial secondary supervisor) PhD awarded Cambridge Nov 2002
- N Catarino, Mar 2000–Sep 04, PhD “Quantum statistical mechanics of Frenkel-Kontorova chains”, awarded Nov 04
- D Sanders, Oct 2000–Dec 04, PhD, “Deterministic diffusion in periodic environments”, awarded Dec 04
- J Bergamin (Patras) Jan – Jul 02 (Visiting PhD student on EC Training Site scheme)
- D Pinheiro, Oct 02 – Sep 06, PhD, Interaction of charges in a magnetic field, PhD awarded Sep 06 Warwick
- V Koukouloyannis (Thessaloniki) Sep – Dec 03 (Visiting PhD student on EC training site scheme) “Discrete breathers on a triangular lattice”
- A El-Shanawamy, Oct 03 – Sep 04, MSc awarded Nov 04, “Mathematics of the nerve impulse”
- C Deng, Oct 03 – Jan 04, MSc (not completed)
- N Brannstrom, Oct 04 –, PhD (with Gelfreich) “Damping from Hamiltonian dynamics”
- S Gin, Oct 05–, MSc/PhD
- G Stergianopoulos, Oct 06–, 2-yr MSc

Student research projects supervised

Warwick 3rd year Applied Maths project

1985/86: Leage

1986/87: Tomlinson

1987/88: Davison, Clarkson

1988/89: Lundie, Speed, Mills

1989/90: Ball, Bramhall, Dolan, Duquemin, Kapur, Tomlins

1991/92: Firkins, Henderson, Hughes, Perrett, Shardlow

1993/94: Hook, Painter

Cambridge Part III essay/project

1995/96: Hunt, Grover

1996/97: Quinn

1997/98: Wood, Sohal

1998/99: Bonanno

Warwick undergraduate projects

1999/00: Bolton

2000/01: Shah, Alexander

2001/02: Grubb, Wheeler

2002/03: Clelland, Ward

2003/04: Gray, Griffiths, Harland

2004/05: Gin (research experience project), Rittman (MOAC miniproject)

Teaching

Warwick 1984–95

- 1984/85: MSc Area-preserving maps
- 1985/86: 1st year Nonlinear systems lab (new course created by Rand and myself)
2nd year Applied Sources of Pure Mathematics
MSc reading course on Dynamical Systems
- 1986/87: 1st year Nonlinear Systems Lab (with Rand)
MSc Quasiperiodic orbits and renormalisation
- 1987/88: 1st year Differential and difference equations
2nd year Numerical Analysis (new course created by me)
- 1988/89: 1st year Differential and difference equations
2nd year Waves (new course created by me)
2nd year Applied Maths Seminar (new course created with Rand) (organiser)
MSc reading course on Integrable systems (with Salamon)
- 1989/90: 1st year Differential and difference equations
1st year Integration and Control
2nd year Applied Maths Seminar (organiser)
MSc Area-preserving maps
MSc reading course Dynamical Systems (with Roberts)
- [1990/91: Sabbatical leave]
- 1991/92: 1st year Life in 3-D (new course created with Micallef)
1st year Experimental Mathematics
MSc on Stability of Fluids and Plasmas (with Rowlands)
MSc reading course on Dynamical Systems (with Pinto)
- [1992/93: Nuffield Foundation Science Research Fellow]
- 1993/94: MSc on Dynamical Systems
3rd year Waves
- [1994/95: Leave of absence]

Cambridge

- 1995/96: Part III on Dynamical Systems
- 1996/97: Part III on Dynamical Systems
IB/IIA Dynamics of Differential Equations
- 1997/98: Graduate Lecture course on Research Problems in Dynamical Systems
IB/IIA Dynamics of Differential Equations
- 1998/99: Part III on Dynamical Systems
IB/IIA Dynamics of Differential Equations
- [Oct99–Feb00: Sabbatical Leave]

Warwick 2000–

- 2000/01: MSc on Coherent Structures
3rd yr on Qualitative Theory of ODEs

2001/02: 3rd yr Qualitative Theory of ODEs
MSc on Coherent Structures
Support classes for 1st yr Diff Eqns

2002/03: MSc on Topics in Dynamics
2nd yr Applied Analysis

2003/04: Graduate lecture module on Dynamics and Applications
2nd year Applied Analysis

2004/05: Graduate lecture module on Dynamics and Applications
2nd year Applied Analysis

[2005/06: Sabbatical Leave]

2006/07: MSc on Complexity Science

PhD theses examined:

B. Mestel (Warwick) 4 Dec 1985
D. Holton (Warwick) April 1988
A. Hill (Warwick) Dec 1988
P. Saha (Oxford) 12 July 1989
G. Abramovici (Saclay) May 1990
T. Hall (Cambridge) September 1991
P. Ashwin (Warwick) Nov 1991
G. Gomes (Warwick) 23 October 1992
J. van Zeijts (Enschede) 26 March 1993
L. Watt (Edinburgh) 28 June 1993
J. Barrow-Green (Open University) 26 July 1993
J-M. Tanga (Dijon) 14 November 1994
A. Jakobsen (Trondheim) 1 December 1994
S. Ben Miled (Nice) 15 December 1994
J. Ould Samori (Dijon) 16 March 1995
D. Benisti (Marseille) 23 October 1995
O. Courcelle (Nice) 8 January 1996
B. Fernandez (Marseille) 4 April 1997
M. Govin (Dijon) 20 June 1997
J-L. Marin (Zaragoza) 24 June 1997
M.E. Johnston (Cambridge) 23 September 1997
R. Murray (Cambridge) 30 October 1997
F. Wagener (Groningen) 23 January 1998
L. Proville (Orsay) 30 March 1998
A. Zanna (Cambridge) 23 April 1998
A. Haro (Barcelona) 1 October 1998
S. Flach (Dresden) (habilitation) 12 October 1998
T. Fischer (Warwick) 2 December 1998
T. Creteigny (Lyon) 10 December 1998
M. Argentina (Nice) 6 Jan 1999
C. Chandre (Dijon) 8 July 1999
J. Farago (Lyon) 14 Jan 2000
J. Theiss (Cambridge) 7 Mar 00
H. Mortveit (Trondheim) 22 May 00
R. Reid (Warwick) 5 Dec 00
H. Hulme (Liverpool) 7 Dec 00

E. Risler (Nice) (habilitation) 16 Dec 02
J-A Sepulchre (Nice) (habilitation) 1 Jul 03
W Tucker (Uppsala) (docent) June 04
H Hanssmann (Aachen) (habilitation) Oct 04
T Ekola (Stockholm) 22 Apr 05
V Naudot (Dijon) (habilitation) 27 May 05

Publications of R.S. MacKay

December 13, 2006

Books and Edited Volumes

- B1 R.S. MacKay and J.D. Meiss, eds, Hamiltonian Dynamical Systems: a reprint selection (Adam Hilger, Bristol, 1987), xii+784
- B2 R.S. MacKay, Renormalisation in area-preserving maps (corrected and annotated), World Sci. Publ. Co., 1993, xix+304
- B3 S.Flach, R.S.MacKay (eds), Special issue of Physica D on Localization in nonlinear lattices, Physica D 119 (1998) 1–238
- B4 L.Vazquez, RS MacKay, M-P Zorzano (eds), Localization and energy transfer in nonlinear systems (World Sci, 2003) x+351
- B5 T Dauxois, A Litvak-Hinenzon, RS MacKay, A Spanoudaki (eds), Energy localisation and transfer (World Sci, 2004) xvii+409
- B6 T Dauxois, RS MacKay, GP Tsironis (eds), Special issue of Physica D on Nonlinear physics: condensed matter, dynamical systems and biological physics, Physica D 216 (2006) 1–246

Journal Articles (all refereed)

- J1 E de Boer, R MacKay, Reflections on reflections, J Acoustic Soc Am **67** (1980) 882–890
- J2 J.M. Greene, R.S. MacKay, F. Vivaldi and M.J. Feigenbaum, Universal behaviour in families of area preserving maps, Physica D **3** (1981) 468–486; reprinted in [B1]
- J3 R.S. MacKay, Islets of stability beyond period doubling, Phys. Lett. A **87** (1982) 321–324
- J4 R.S. MacKay, A renormalisation approach to invariant circles in area preserving maps, Physica D **7** (1983) 283–300; reprinted in [B1]
- J5 R.S. MacKay and J.D. Meiss, Linear stability of periodic orbits in Lagrangian systems, Phys. Lett. A **98** (1983) 92–94; reprinted in [B1]
- J6 R.S. MacKay, J.D. Meiss and I.C. Percival, Stochasticity and Transport in Hamiltonian systems, Phys. Rev. Lett. **52** (1984) 697–700
- J7 R.S. MacKay and C. Tresser, Transition to chaos for two-frequency systems, J. de Physique Lett. **45** (1984) L741–L746
- J8 R.S. MacKay, J.D. Meiss and I.C. Percival, Transport in Hamiltonian systems, Physica D **13** (1984) 55–81; reprinted in [B1]
- J9 R.S. MacKay and C. Tresser, Badly ordered orbits of circle maps, Math. Proc. Camb. Phil. Soc. **96** (1984) 447–451
- J10 R.S. MacKay, Equivariant universality classes, Phys. Lett. A **106** (1984) 99–100
- J11 J.M. Greene and R.S. MacKay, An approximation to the critical commuting pair for breakup of noble tori, Phys. Lett. A **107** (1985) 1–4
- J12 R.S. MacKay and I.C. Percival, Converse KAM: theory and practice, Commun Math Phys **98** (1985) 469–512
- J13 R.S. MacKay and J.D. Meiss, Flux and differences of action for continuous time Hamiltonian systems, J Phys A **19** (1986) L225–L229
- J14 R.S. MacKay and C. Tresser, Transition to topological chaos for circle maps, Physica D **19** (1986) 206–237; Erratum, Physica D **29** (1988) 427
- J15 RS MacKay, PG Saffman, Stability of water waves, Proc Roy Soc Lond A **406** (1986) 115–125

- J16 J.M. Greene, R.S. MacKay and J. Stark, Boundary circles for area-preserving maps, *Physica D* **21** (1986) 267–295
- J17 I. Leage and R.S. MacKay, Badly ordered periodic orbits of the standard map, *Phys Lett A* **118** (1986) 274–278
- J18 R.S. MacKay, Rotation interval from a time series, *J Phys A* **20** (1987) 587–592
- J19 RS MacKay, JD Meiss, IC Percival, Resonances in Area-preserving Maps, *Physica D* **27** (1987) 1–20
- J20 R.S. MacKay and I.C. Percival, Universal small-scale structure near the boundary of Siegel disks of arbitrary rotation number, *Physica D* **26** (1987) 193–202
- J21 J.E. Howard and R.S. MacKay, Calculation of linear stability boundaries for equilibria of Hamiltonian systems, *Phys. Lett. A* **122** (1987) 331–334
- J22 R.S. MacKay, Hyperbolic cantori have dimension zero, *J. Phys. A* **20** (1987) L559–L561
- J23 R.S. MacKay and C. Tresser, Some flesh on the skeleton: the bifurcation structure of bimodal maps, *Physica D* **27** (1987) 412–422
- J24 JE Howard, RS MacKay, Linear stability of symplectic maps, *J Math Phys* **28** (1987) 1036–1051
- J25 R.S. MacKay, Instability of vortex streets, *Dyn Stab Sys* **2** (1987) 55–71
- J26 R.S. MacKay and J.B. van Zeijts, Period doubling for bimodal maps: a horseshoe for a renormalisation operator, *Nonlinearity* **1** (1988) 253–277
- J27 R.S. MacKay and C. Tresser, Boundary of topological chaos for bimodal maps of the interval, *J Lond Math Soc* **37** (1988) 164–181
- J28 RS MacKay, A simple proof of Denjoy’s theorem, *Math Proc Camb Phil Soc* **103** (1988) 299–303
- J29 R.S. MacKay and J.D. Meiss, The relation between quantum and classical thresholds for multiphoton ionisation, *Phys Rev A* **37** (1988) 4702–6
- J30 RS MacKay, Exact results for an approximate renormalisation scheme and some predictions for the breakup of invariant tori, *Physica D* **33** (1988) 240–265; Erratum, *Physica D* **36** (1989) 358
- J31 J Ketoja, RS MacKay, Fractal boundary for the existence of invariant circles for area-preserving maps: observations and renormalisation explanation, *Physica D* **35** (1989) 318–334
- J32 R.S. MacKay and J. Stark, Evaluation of an approximate renormalisation scheme, *Phys Lett A* **138** (1989) 113–122
- J33 R.S. MacKay, A criterion for non-existence of invariant tori for Hamiltonian systems, *Physica D* **36** (1989) 64–82
- J34 S. Kim, R.S. MacKay and J. Guckenheimer, Resonance regions for families of torus maps, *Nonlinearity* **2** (1989) 391–404
- J35 R.S. MacKay, J.D. Meiss and J. Stark, Converse KAM theory for symplectic twist maps, *Nonlinearity* **2** (1989) 555–570
- J36 R.S. MacKay, Flux over a saddle, *Phys Lett A* **145** (1990) 425–7
- J37 Q Chen, RS MacKay, JD Meiss, Cantori for symplectic maps, *J Phys A* **23** (1990) L1093–L1100
- J38 J. Llibre and R.S. MacKay, A classification of braid types for diffeomorphisms of surfaces of genus zero with topological entropy zero, *J London Math Soc* **42** (1990) 562–576
- J39 R.S. MacKay, A variational principle for odd-dimensional invariant submanifolds of an energy surface for Hamiltonian systems, *Nonlinearity* **4** (1991) 155–7

- J40 J. Llibre and R.S. MacKay, Rotation vectors and entropy for homeomorphisms of the torus isotopic to the identity, *Ergod Th. Dyn. Sys.* **11** (1991) 115–128
- J41 C. Baesens, J. Guckenheimer, S. Kim and R.S. MacKay, Three coupled oscillators: Mode-locking, global bifurcations and toroidal chaos, *Physica D* **49** (1991) 387–475
- J42 R.S. MacKay, Scaling exponents at the transition by breaking of analyticity for incommensurate structures, *Physica D* **50** (1991) 71–79
- J43 R.S. MacKay, Movement of eigenvalues of Hamiltonian equilibria under non-Hamiltonian perturbation, *Phys Lett A* **155** (1991) 266–8
- J44 MJ Davis, RS MacKay, A Sannami, Markov shifts in the Hénon family, *Physica D* **52** (1991) 171–8
- J45 R.S. MacKay, An extension of Zeeman’s notion of structural stability to non-invertible maps, *Physica D* **52** (1991) 246–253
- J46 R.S. MacKay, Transition of the phase-resetting map for kicked oscillators, *Physica D* **52** (1991) 254–266
- J47 J Guaschi, J Llibre, RS MacKay, A classification of braid types for diffeomorphisms of surfaces of genus one with topological entropy zero, *Pub Mat Univ Aut Barcelona* **35** (1991) 543–558
- J48 R.S. MacKay and J.D. Meiss, Cantori for symplectic maps near the anti-integrable limit, *Nonlinearity* **5** (1992) 149–160
- J49 R.S. MacKay, Greene’s residue criterion, *Nonlinearity* **5** (1992) 161–187
- J50 S. Aubry, R.S. MacKay and C. Baesens, Equivalence of uniform hyperbolicity for symplectic twist maps and phonon gap for Frenkel–Kontorova models, *Physica D* **56** (1992) 123–134
- J51 RS MacKay and J Stark, Locally most robust circles and boundary circles for area-preserving maps, *Nonlinearity* **5** (1992) 867–888
- J52 C Baesens, RS MacKay, Uniformly travelling water waves from a dynamical systems viewpoint: some insights into bifurcations from the Stokes family, *J Fluid Mech* **241** (1992) 333–347
- J53 J. Llibre and R.S. MacKay, Pseudo-Anosov maps on a sphere with four holes have all periods, *Math Proc Camb Phil Soc* **112** (1992) 539–549
- J54 M.R. Muldoon, R.S. MacKay, D.S. Broomhead, J. Huke, Topology from a time series, *Physica D* **65** (1993) 1–16
- J55 R.S. MacKay and M.R. Muldoon, Diffusing through spectres: ridge curves, ghost circles and a partition of phase space, *Phys Lett A* **178** (1993) 245–250
- J56 R.S. MacKay, Non-area-preserving directions from area-preserving fixed points of the renormalisation for invariant circles, *Nonlinearity* **6** (1993) 799–817
- J57 C. Baesens, R.S. MacKay, Cantori for multi-harmonic maps, *Physica D* **69** (1993) 59–76
- J58 C. Baesens, R.S. MacKay, Continuity of the phonon gap, *Phys Lett A* **183** (1993) 193–5
- J59 C. Baesens, R.S. MacKay, Improved proof of existence of chaotic polaronic and bipolaronic states for the adiabatic Holstein model and generalisations, *Nonlinearity* **7** (1994) 59–84
- J60 C Baesens, RS MacKay, The one-to-two hole transition for cantori, *Physica D* **71** (1994) 372–389
- J61 R.S. MacKay, Renormalisation of bicritical circle maps, *Phys Lett A* **187** (1994) 391–396
- J62 J. Ketoja and R.S. MacKay, Rotationally-ordered periodic orbits for multiharmonic area-preserving twist maps, *Physica D* **73** (1994) 388–398
- J63 R.S. MacKay, Mode-locking and rotational chaos for networks of oscillators: a mathematical framework, *J Nonlin Sci* **4** (1994) 301–314

- J64 R.S. MacKay, A.A. Pinto, J.B.J. van Zeijts, Coordinate change eigenvalues for bimodal period doubling renormalisation, *Phys Lett A* **190** (1994) 412–416
- J65 R.S. MacKay, J.D. Meiss, J. Stark, An approximate renormalisation for the breakup of invariant tori with three frequencies, *Phys Lett A* **190** (1994) 417–424
- J66 R.S. MacKay, Transport in 3D volume-preserving flows, *J Nonlin Sci* **4** (1994) 329–354
- J67 R.S. MacKay, S. Aubry, Proof of existence of breathers for time-reversible or Hamiltonian networks of weakly coupled oscillators, *Nonlinearity* **7** (1994) 1623–1643
- J68 R.S. MacKay, T. Shardlow, The Multiplicity of bifurcations for area-preserving maps, *Bull Lond Math Soc* **26** (1994) 382–394
- J69 R.S. MacKay, J.-A. Sepulchre, Multistability in networks of weakly coupled bistable units, *Physica D* **82** (1995) 243–254
- J70 R.S. MacKay, The classical statistical mechanics of Frenkel-Kontorova models, *J Stat Phys* **80** (1995) 45–67
- J71 R.S. MacKay, Recent progress and outstanding problems in Hamiltonian dynamics, *Physica D* **86** (1995) 122–133
- J72 C. Baesens, R.S. MacKay, Effect of temperature on polaronic and bipolaronic states of the adiabatic Holstein model, *J Stat Phys* **85** (1996) 471–488
- J73 C. Baesens, R.S. MacKay, Finite coherence length for equilibria of the adiabatic Holstein model, *J Math Phys* **38** (1997) 2104–14
- J74 S. Flach, K. Kladko, R.S. MacKay, Energy thresholds for discrete breathers in one-, two- and three-dimensional lattices, *Phys Rev Lett* **78** (1997) 1207–10
- J75 J.-A. Sepulchre, R.S. MacKay, Localised oscillations in conservative and dissipative networks of weakly coupled autonomous oscillators, *Nonlinearity* **10** (1997) 679–713
- J76 C. Baesens, R.S. MacKay, Exponential localization of linear response in networks with exponentially decaying coupling, *Nonlinearity* **10** (1997) 931–940
- J77 S. Bolotin, R.S. MacKay, Multibump orbits near the anti-integrable limit for Lagrangian systems, *Nonlinearity* **10** (1997) 1015–1029
- J78 R Livi, M Spicci, RS MacKay, Breathers on a diatomic FPU chain, *Nonlinearity* **10** (1997) 1421–34
- J79 S. Kim, C. Baesens, R.S. MacKay, Phonon scattering by localised equilibria of nearest neighbour chains, *Phys Rev E* **56** (1997) R4955–8
- J80 C. Baesens, S. Kim, R.S. MacKay, Localised modes on localised equilibria, *Physica D* **113** (1998) 242–7
- J81 J-A Sepulchre, RS MacKay, Discrete breathers in disordered media, *Physica D* **113** (1998) 342–5
- J82 RS MacKay, J-A Sepulchre, Stability of discrete breathers, *Physica D* **119** (1998) 148–162
- J83 C. Baesens, R.S. MacKay, Gradient dynamics of tilted Frenkel-Kontorova models, *Nonlinearity* **11** (1998) 949–964
- J84 J. Denvir, R.S. MacKay, Consequences of contractible geodesics, *Trans Am Math Soc* **350** (1998) 4553–4568
- J85 C. Baesens, R.S. MacKay, Excited states for the adiabatic Holstein model, *J Phys A* **31** (1998) 10065–85
- J86 RS MacKay, Solitary waves in a chain of beads under Hertz contact, *Phys Lett A* **251** (1999) 191–2

- J87 C. Baesens, R.S. MacKay, Algebraic localisation of linear response in a network with algebraically decaying interaction, and application to breathers in dipole-dipole networks, *Helv Phys Acta* **72** (1999) 23–32
- J88 JFR Archilla, RS MacKay, JL Marin, Discrete breathers and Anderson modes: two faces of the same phenomenon?, *Physica D* **134** (1999) 406–418
- J89 RS MacKay, S Slijepcevic, J Stark, Optimal scheduling in a periodic environment, *Nonlinearity* **13** (2000) 257–297
- J90 RS MacKay, Optic discrete breathers in Euclidean invariant systems, *Int J Nonlin Sci Num Sim* **1** (2000) 99–103.
- J91 ML Bialy, RS MacKay, Variational properties of a nonlinear elliptic equation and rigidity, *Duke Math J* **102** (2000) 391–401.
- J92 G Gielis, RS MacKay, Coupled map lattices with phase transition, *Nonlinearity* **13** (2000) 867–888.
- J93 RS MacKay, Defects in solids, large molecules and space-structures, *Proc Roy Soc Lond A* **456** (2000) 1883–95.
- J94 X-C Fu, Y Fu, J Duan, RS MacKay, Chaotic properties of subshifts generated by a non-periodic recurrent orbit, *Int J Bif Chaos* **10** (2000) 1067-73.
- J95 C Chandre, RS MacKay, Approximate renormalization with codimension-one fixed point for the breakup of some three-frequency tori, *Phys Lett A* **275** (2000) 394–400.
- J96 RS MacKay, Discrete Breathers: classical and quantum, *Physica A* **288** (2000) 174–198.
- J97 SV Bolotin, RS MacKay, Periodic and chaotic trajectories of the second species for the n -centre problem, *Cel Mech Dyn Astron* **77** (2000) 49–75.
- J98 RS MacKay, Complicated dynamics from simple topological hypotheses, *Phil Trans Roy Soc London A* 359 (2001) 1479–96.
- J99 T Ahn, RS MacKay, J-A Sepulchre, Dynamics of relative phases: generalised multibreathers, *Nonlinear Dynamics* 25 (2001) 157–182.
- J100 RS MacKay and J-A Sepulchre, Effective Hamiltonian for travelling discrete breathers, *J Phys A* 35 (2002) 3985–4002.
- J101 TJ Hunt, RS MacKay, Anosov parameter values for the triple linkage and a physical system with a uniformly chaotic attractor, *Nonlinearity* 16 (2003) 1499–1510.
- J102 Z Bishnani, RS MacKay, Safety criteria for aperiodically forced systems, *Dyn Sys* 18 (2003) 107–129.
- J103 C Baesens, RS MacKay, A novel preserved partial order for cooperative networks of overdamped second order units, and application to tilted Frenkel-Kontorova chains, *Nonlinearity* 17 (2004) 567–580.
- J104 M Bialy, RS MacKay, Symplectic twist maps without conjugate points, *Israel J Math* 141 (2004) 235–248.
- J105 A Berger, RS MacKay, VM Rothos, A criterion for non-persistence of travelling breathers for perturbations of the Ablowitz-Ladik lattice, *Discr Cont Dyn Sys B* 4 (2004) 911–920.
- J106 N Theodorakopoulos, M Peyrard, RS MacKay, Nonlinear structures and thermodynamic instabilities in a one-dimensional lattice system, *Phys Rev Lett* 93 (2004) 258101.
- J107 V Koukouloyannis, RS MacKay, Existence and stability of 3-site breathers in a triangular lattice, *J Phys A* 38 (2005) 1021–30.
- J108 NR Catarino, RS MacKay, Renormalization and quantum scaling of Frenkel-Kontorova models, *J Stat Phys* 121 (2005) 995–1014.

- J109 C Baesens, RS MacKay, Discommensuration theory for Frenkel-Kontorova models and shadowing, *Physica D* 216 (2006) 179–84.
- J110 RS MacKay, DJC MacKay, Ergodic pumping: a mechanism to drive biomolecular conformation changes, *Physica D* 216 (2006) 220–34.
- J111 S Bolotin, RS MacKay, Non-planar second species periodic and chaotic trajectories for the circular restricted three-body problem, *Cel Mech Dyn Astron* 94 (2006) 433–449.
- J112 D Pinheiro, RS MacKay, Interaction of two charges in a uniform magnetic field: I planar case, *Nonlinearity* 19 (2006) 1713–1745.
- J113 RS MacKay, Cerbelli and Giona’s map is pseudo-Anosov and nine consequences, *J Nonlin Sci* 16 (2006) 415–434.

Articles in Conference Proceedings, Lecture Notes and similar

- C1 R.S. MacKay, Period doubling as a universal route to stochasticity, in: *Longtime prediction in Conservative systems*, pp. 127–134, eds. W. Horton, L.E. Reichl and V. Szebehely (Wiley, 1983); reprinted in *Universality in Chaos*, ed. P. Cvitanovic (Adam Hilger, 1984)
- C2 R.H.G. Helleman, with appendix by R.S. MacKay, One mechanism for the onset of large-scale chaos in conservative and dissipative systems, in: *Longtime prediction in Conservative systems*, Appendix pp.120–122, eds. W. Horton, L.E. Reichl and V. Szebehely (Wiley, 1983)
- C3 J.-P. Eckmann, notes written by R.S. MacKay, Routes to chaos, with special emphasis on period doubling, in: *Chaotic behaviour in Deterministic systems*, Les Houches 1981, pp. 455–510, eds. G. Iooss, R.H.G. Helleman and R. Stora (N. Holland, 1983)
- C4 I.C. Percival, R.S. MacKay and J.D. Meiss, Transport in Hamiltonian systems, in *Nonlinear and Turbulent Processes in Physics*, vol. 3, ed. R.Z. Sagdeev (Harwood, 1984), 1557–1572
- C5 J.D. Meiss, J.R. Cary, D.F. Escande, R.S. MacKay, I.C. Percival and J.L. Tennyson, Dynamical theory of Anomalous transport, in: *Plasma Physics and Controlled Nuclear Fusion Research 1984 London*, vol. 3, 441–448 (IAEA Vienna, 1985)
- C6 R.S. MacKay, Transition to Chaos for area-preserving maps, in: *Nonlinear Dynamics Aspects of Particle Accelerators*, J.M. Jowett, M. Month and S. Turner, eds., Springer Lecture Notes in Physics **247** (1986) 390–454
- C7 R.S. MacKay, Stability of Equilibria of Hamiltonian systems, in: *Nonlinear phenomena and chaos*, ed. S. Sarkar (Adam Hilger, Bristol, 1986), 254–270; reprinted in [B1]
- C8 R.S. MacKay, Introduction to the dynamics of area-preserving maps, in: *Physics of Particle Accelerators*, eds M Month, M Dienes, *Am Inst Phys Conf Proc* **153** vol 1 (1987) 534–602
- C9 R.S. MacKay, A criterion for non-existence of invariant tori for Hamiltonian systems (abstract only), in: *Nonlinear Dynamics*, G. Turchetti (ed) (World Sci, 1989) 44
- C10 RS MacKay, Converse KAM theory (extended abstract), in: *Singular behaviour and Nonlinear dynamics*, Pnevmatikos St, Bountis T, Pnevmatikos Sp (eds) (World Sci, 1989) 109–113
- C11 R.S. MacKay, Postscript: Knot types for 3-D vector fields, in: *Topological Fluid Mechanics*, eds Moffatt HK, Tsinober A, *IUTAM Conf Proc*, Aug 89 (CUP, 1990), 787
- C12 G.P. King, K. Banas, R.S. MacKay, C.T. Shaw, Stability and chaotic advection in the eccentric Taylor problem (abstract only), *Phys Fluids A* **3** (1991) 1435
- C13 R.S. MacKay, An appraisal of the Ruelle-Takens route to turbulence, in: *The global geometry of turbulence*, ed. Jimenez J (Plenum, 1991), 233–246
- C14 C. Baesens, J. Guckenheimer, S. Kim and R.S. MacKay, Simple resonance regions of torus diffeomorphisms, in “Patterns and Dynamics in Reactive Media”, eds Swinney HL, Aris R, Aronson DG (Springer, 1991), 1–9

- C15 R.S. MacKay, Exponentially small residues near analytic invariant circles, in: *Asymptotics beyond all orders*, eds Segur H, Tanveer S, Levine H (Plenum, 1991), 365–373
- C16 R.S. MacKay, notes written with the assistance of A. Oliveira, *Torus Maps*, in: *Chaos, Order and Patterns*, eds R Artuso, P Cvitanovic and G Casati, June 90 (Plenum, 1991), 35–76
- C17 R.S. MacKay, *Some Aspects of the Dynamics and Numerics of Hamiltonian Systems*, in: *The Dynamics of Numerics and Numerics of Dynamics*, eds Broomhead DS, Iserles A, IMA conf proc (Oxford, 1992) 137–193
- C18 RS MacKay, *Hyperbolic structure in classical chaos*, in: *Quantum Chaos, Proc Inst Enrico Fermi, Varenna (Aug 1991)*, eds G Casati, I Guarneri, U Smilansky (N Holland, 1993) 1–50
- C19 RS MacKay, C Baesens, *A new paradigm in quantum chaos: Aubry’s theory of equilibrium states for the adiabatic Holstein model*, in: *Quantum Chaos, Proc Institute Enrico Fermi, Varenna (Aug 1991)*, eds G Casati, I Guarneri, U Smilansky (N Holland, 1993) pp 51–75
- C20 R.S. MacKay, *On transport in Hamiltonian systems*, in: *Transport, chaos and plasma physics*, eds Benkadda S, Doveil F, Elskens Y (World Sci, 1994) 30–38
- C21 R.S. MacKay, *On guiding centre motion*, in: *Transport, chaos and plasma physics*, eds Benkadda S, Doveil F, Elskens Y (World Sci, 1994) 96–101
- C22 R.S. MacKay, *Some thoughts on chaos in engineering*, in “*Towards the harnessing of chaos*”, ed Yamaguti S (Elsevier, 1994) 73–82
- C23 R.S. MacKay, *Three topics in Hamiltonian dynamics*, in: *Dynamical Systems and Chaos*, vol 2, eds Aizawa Y, Saito S, Shiraiwa K (World Sci, 1995) 34–43
- C24 T.J. Bridges, R.H. Cushman, R.S. MacKay, *Dynamics near an irrational collision of eigenvalues for symplectic maps*, in: *Normal forms and homoclinic chaos*, eds Langford WF, Nagata W, *Fields Inst Comm* 4 (1995) 61–79
- C25 RS MacKay, *Self-localised vibrations in Hamiltonian networks of weakly coupled oscillators*, XIth Int Congress Math Phys, Paris ’94, ed Iagolnitzer D (International Press, 1995) 278–9
- C26 RS MacKay, J-A Sepulchre, *Stationary states of coupled bistable elements*, in: *Fluctuation phenomena: disorder and nonlinearity*, eds AR Bishop, S Jimenez, L Vazquez (World Sci, 1995) 114
- C27 J-A. Sepulchre, R.S. MacKay, *Lattices of bistable Chua circuits with large coupling resistance*, in: *Proc NDES’95*, ed. P. Kennedy, (UC Dublin, 1995) 295–8
- C28 R.S. MacKay, *Dynamics of networks: features which persist from the uncoupled limit*, in: *Stochastic and spatial structures of dynamical systems*, eds. S.J. van Strien and S.M. Verduyn Lunel (N. Holland, 1996) 81–104
- C29 RS MacKay, *Quantum breathers*, in: *ISIS 2000 (CLRC Rutherford Appleton Laboratory, 2000)*, Experimental Report 10545 (on CD and at <http://www.isis.rl.ac.uk>)
- C30 RS MacKay, *Many-body quantum mechanics*, in: *Nonlinear dynamics and chaos: where do we go from here?*, eds J Hogan, A Champneys, B Krauskopf, M di Bernardo, M Homer, E Wilson and H Osinga (IOP, 2002) 21–54
- C31 S Bolotin, RS MacKay, *Isochronous potentials*, in [B4], 217–224.
- C32 NR Catarino, RS MacKay, *Quantum statistical mechanics of Frenkel-Kontorova models*, in [B4], 315–319.
- C33 RS MacKay, *Slow manifolds*, in [B5], 149–192.
- C34 RS MacKay, *Chaos in three physical systems*, in: *Equadiff 2003*, eds F Dumortier, H Broer, J Mawhin, A Vanderbauwhede, S Verduyn Lunel (World Sci, 2005) pp 59–72.
- C35 RS MacKay, *Indecomposable coupled map lattices with non-unique phase*, in: *Dynamics of Coupled map lattices and of related spatially extended systems*, eds J-R Chazottes, B Fernandez, *Lect Notes in Phys* 671 (Springer, 2005) 65–94.

plus two abstracts in Am Phys Soc, one in Danish Phys Soc., 3 in SIAM, 1 in Roy Soc Chem

Book reviews of:

- R1 Global bifurcations and chaos, by S. Wiggins, *Contemp Phys* **30**: 6 (1989)
- R2 Chaos in systems with noise, by T. Kapitaniak, *SIAM Review* **33** (1991) 666
- R3 Chaotic evolution and strange attractors, by D. Ruelle, *SIAM Review* **33** (1991) 328–9
- R4 Introduction to Hamiltonian dynamical systems and the N-body problem, by K.R. Meyer and G.R. Hall, *Contemp Phys* **33** (1992) 347
- R5 Chaos, Dynamics and Fractals: an algorithmic approach to deterministic chaos, by J.L. McCaulay, *Contemp Phys* **34** (1993) 59–60
- R6 Chaos in Dynamical Systems, by E. Ott, *Contemp Phys* **34** (1993) 281–294
- R7 KAM theory and semiclassical approximations to eigenfunctions, by V.F. Lazutkin, *Contemp Phys* **35** (1994) 56
- R8 Coping with Chaos, eds E. Ott, T. Sauer, J.A. Yorke, *Contemp Phys* **37** (1996) 330–1
- R9 Mathematical structures in continuous dynamical systems, by E. van Groesen and EM. de Jager, *J. Fluid Mech.* **326** (1996) 438–9
- R10 Introduction to the modern theory of dynamical systems, by A. Katok and B. Hasselblatt, *Bull Lond. Math. Soc.* **29** (1997) 124–6
- R11 Dynamical Systems and Numerical Analysis, by AM Stuart, AR Humphries, *J Fluid Mech* **343** (1997) 408
- R12 Level Set Methods, by J.A. Sethia, *J. Fluid Mech.* **345** (1997) 413
- R13 Nonlinear time-series analysis, by H Kantz, T Schreiber, *Trends in Biotech.* **15** (1997) 531
- R14 Nonlinear Dynamics, by HG Solari, MA Natiello, GB Mindlin, *Contemp Phys* **39** (1998) 87
- R15 Nonlinear Dynamics, chaotic and complex systems, eds E Infeld, R Zelazny and A Galkowski, *Contemp Phys* **39** (1998) 210–1
- R16 Introduction to the Qualitative theory of dynamical systems on surfaces, by S.Kh. Aranson, G.R. Belitsky, E.V. Zhuzhoma, *Bull Lond Math Soc* **30** (1998) 557
- R17 Thermodynamics of chaos and order, by VL Berdichevsky, *Bull Lond Math Soc* **31** (1999) 508–510.
- R18 The Unknowable, by G Chaitin, *Complexity* 5 (1999) 44.
- R19 Dynamical systems approach to turbulence, by T Bohr, MH Jensen, G Paladin and A Vulpi-ani, *Contemp Phys* 40 (1999) 285–6.
- R20 Renormalization methods, by A.Lesne, *Bull Lond Math Soc* **32** (2000) 116–7.
- R21 Nonlinear Science, by A Scott, *SIAM Review* 42 (2000) 352–4.
- R22 Linear Elastic Waves, by JG Harris, *Contemp Phys* 44 (2003) 172.
- R23 Classical mechanics: systems of particles and Hamiltonian dynamics, by W Greiner, *Contemp Phys* 45 (2004) 171–2.
- R24 Nonlinear Time Series Analysis, 2nd ed, by H Kantz and T Schreiber, *Contemp Phys* 46 (2005) 152–3.

Articles submitted for publication

- S1 review of Nonlinear dynamics and chaos (2nd ed), by JMT Thompson and HB Stewart, solicited by Erg Th Dyn Sys
- S2 R.S.MacKay, Mode conversion in the cochlea? linear analysis, subm to J Acoust Soc Am; to be revised
- S3 D Pinheiro, RS MacKay, Interaction of two charges in a uniform magnetic field: II spatial case, subm to J Nonlin Sci
- S4 R Yamapi, RS MacKay, Stability of synchronisation in a shift-invariant ring of mutually coupled oscillators, subm to Phys Rev E
- S5 C Baesens, RS MacKay, Resonances for weak coupling of the unfolding of a saddle-node periodic orbit with an oscillator, subm to Nonlinearity