

# Curriculum Vitae

*Robert Sinclair MacKay*

May 16, 2011

## 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: R.S.MacKay@warwick.ac.uk  
Website: [http://www2.warwick.ac.uk/fac/sci/maths/people/staff/Robert\\_MacKay](http://www2.warwick.ac.uk/fac/sci/maths/people/staff/Robert_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) (& MA, June 1981);  
June 1978, Part III Mathematics (Distinction) (& MMath, Apr 2011).  
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 94: 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 IC Percival, Applied Mathe-  
matics, Queen Mary College, London.  
Sept 83–Mar 84: Professeur Invité, Institut des Hautes Etudes Scientifiques, Bures-sur-  
Yvette, France.  
Apr 84–Sept 95: “New Blood” Lecturer in Mathematics, University of Warwick. Pro-  
moted to Lecturer grade B Oct 88, Reader Oct 90 & Professor Oct 93.  
Oct 94–Sept 95: On leave as Chercheur Associé au CNRS (6 months) & Professeur In-  
vité (6 months), Laboratoire de Topologie & 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)           |
| Jan–Jun 06      | Professeur invité, IHES, Bures-sur-Yvette, France                                    |
| 4 Jan 08        | Entered ISI Highly cited list under Mathematics                                      |
| Oct 10 – Sep 11 | Professeur visiteur, Département de Physique, Université Libre de Bruxelles, Belgium |
| Jan 12 – Dec 13 | President-designate of the IMA   |

## 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) and many visitors
- 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)
- Computational dynamics year 96/97, 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) (which led to Warwick Systems Biology Centre)
- 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
- Main organiser, Energy localisation and transfer, 17 Feb 03
- Co-organiser, ESRC Socio-Dynamics seminar series 2003-5, including: Socio-dynamics workshop, Warwick rooms in London, 24–25 May 04; Complexity in Social Dynamics, 24 Jan 05; and conference Socio-dynamics, Networks & Markets, Warwick in London, 9–11 May 05
- Co-organiser, Symposium on Mathematics of Quantum Systems, Warwick, Aug 04 – Apr 05, including workshop on Quantum Lattice Models, 16–17 Mar 05
- Main organiser, From Nonlinear dynamics to Systems biology, 1–2 Dec 08
- Advisory board, Centre for Research in Economic Theory & Applications, Warwick, Mar 09–
- Co-organiser, Towards new dynamic models for better economic policy, 26 Oct 09

**Chair** of the Warwick Complexity Complex, Oct 05–Apr 11, and **Director** of the Centre for Complexity Science, Nov 07–, including:

- Setting up the Complexity Complex, and organising annual strategy meeting Jan 2007-11
- Co-organiser, EPSRC training school and IMA conference on Mathematics in the Science of Complex Systems, Warwick, 11–15 & 18–21 Sep 2006
- Organiser, Connection day for the complexity complex, 22 Sept 06
- Coordinating a successful bid for a doctoral training centre in Complexity Science (started Oct 06), hiring 6 new staff for it, attending fortnightly staff meetings, assisting student recruitment and miniprojects, organising annual advisory board meeting, overseeing it
- Organiser, half-day workshop on Complexity Science at Warwick, 23 Oct 06
- Organiser, Complexity Science Forum (seminar series), Oct 06 – Feb 07
- Creation of the Centre for Complexity Science, Nov 07
- Co-organiser, EPSRC school, Maths of Evolutionary Dynamics, Warwick, 11–13 Dec 07
- Fostering collaborative exploration of Complexity & Public Policy (including health care delivery) with Boston University (meetings Torino, 9–10 Feb 07 and Warwick, 27–29 Jul 09), and organising short course by E.Kolaczyk from BU, 10–11 May 11.
- Coordinating successful bid for and running EPSRC Mathematics Symposium year 09/10 and follow-up year 10/11 on “The Mathematics of complexity science and systems biology”, including main organiser of workshop on “Space-time phases in spatially extended systems”, 6–8 Jan 2010, and co-organiser of “Mathematics in the Science of Complex Systems” 9–10 June 2011, “From Chaos to Complexity” 6–8 July 2011;
- Local organising committee, European Conf. on Complex Systems, Warwick, 21–25 Sep 09

- Coordinating successful bid to LMS for a network on Complex System Dynamics (CoSyDy), hosting first meeting at Warwick, 1 Feb 2010, and renewal for 10/11.
- Coordinator of a bid for an Erasmus Mundus Joint Doctorate on Technological and Social Complex Systems, submitted 28 Apr 11.
- Director of the Complexity Science DTC from 26 Apr 2011.

#### **Editorial Boards:**

Physica D, May 1986–June 1992;

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

Editor-in-charge of Advanced book series on Nonlinear Dynamics, World Scientific Publ. Co., created in 1989; 26 books published so far.

Ann IHP Physique Théorique, Jan 1997–Dec 1999.

Qualitative Theory of Dynamical Systems, Jun 1999–present.

Int J Nonlinear Sciences & Numerical Simulation, one of 3 founding chief editors, Jan 00–Dec 03.

J Nonlinear Science, Jan 2001 – present

Proc Roy Soc Lond A, Jan 2009–Dec 2014

Palestine Journal of Mathematics, Nov 2009–

Communications in Nonlinear Science & Numerical Simulation, 1 of 3 chief editors, Feb 10–Mar 11

#### **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

Minisymposium 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 05

Scientific committee, Dynamics Days Europe, Loughborough, 9–13 July 07

Scientific committee, Equadiff 07, Vienna, 6–10 Aug 07  
Scientific committee, Mathematics of model reduction, Leicester, 28–30 Aug 07  
Scientific committee, BICS & CANS, Tg. Mures, Romania, 5–10 Nov 08  
Co-organiser, PANDA day on Patterns in Complexity, Leeds, 27 April 09  
Programme committee, Model reduction & data analysis, Ambleside, 31 Aug – 4 Sep 09  
Scientific committee, Bountis60, Thessaloniki, 12–16 July 2010  
Co-organiser, Mathematics in the Science of Complex Systems, Venice, 17–19 Feb 2011  
Scientific comm., PhD school “Mathematical modeling of complex systems”, Patras, 18–29 Jul 11  
National committee, Equadiff 2011, Loughborough, 1–5 Aug 2011

### **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*, *Z.Physik*, *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, Banff IRS; ISF (Soros); Australia: ARC; NZ: Roy Soc NZ; Eire: IRCSET; EC; Israel: German-Israeli Foundation; Qatar: QNRF; Netherlands: NWO; France: ANR; Italy: PRIN);  
and *publishers* (e.g. Wiley, IOPP, Taylor & Francis, World Sci, OUP, Springer, Imperial College, Birkhäuser, de Gruyter).

### **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 Mathematics, 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 05-07.  
Nuffield Foundation: Newly appointed lecturer grants committee, Feb 01, Feb 02, Jan 03, Mar 04  
Comité d'évaluation du CNRS, Centre de Physique Théorique Marseille, 28-29 May 01  
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 – Oct 08)  
Coordinator of International node of Australian Research Council COSnet (teams in Brazil, Brunei, China, France, Israel, Netherlands, UK and USA), Aug 05-Aug 09  
UK Scientific advisor, ERAnet on Complexity Science, Jul 06 – Jun 09  
Conseil Scientifique du département MPPU (Mathématiques, Physique, Planète, Univers) du CNRS, France, Feb 08 –Dec 10  
Comité d'évaluation AERES, Laboratoire d'Analyse, Géométrie et Modélisation, Cergy-Pontoise, 27 Nov 08  
Scientific board member, ASSYST (Action for the science of complex systems and socially intelligent ICT), EC coordination action, 2008-11  
Advisory Board, Institute for Mathematical Sciences, Imperial College, London, 09-  
Panel member, NWO call on Complexity, 2009-10  
Moser prize committee, SIAM, 2010/11

Comité d'évaluation AERES, Laboratoire Dieudonné, Nice, 24–25 Jan 2011  
External assessor, Aberdeen, 26 Nov 2010  
Appointments panel, York, 3 May 2011

**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, inc. Int Conf Dyn Sys (Angra dos Reis) and Lagrangian systems wkshp  
 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, Professeur invité, 1 Jan - 29 Jun 06  
 Ondes non-linéaires, 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  
 High oscillation workshop, Newton Inst, Cambridge, 26 Mar 07  
 Applied dynamical systems, MSRI, Berkeley, 2–18 Apr 07  
 Mathematics of Complex Systems School, Institut des Systemes Complexes, Paris, 23-26 Apr 07  
 “Mathematics of model reduction” conference, Leicester, 28 Aug 07  
 Nonlinear dynamics and chaos, Aberdeen, 17–21 Sep 07  
 “Microscopic origins of dissipation and noise” workshop, Leipzig, 31 Oct – 2 Nov 07  
 Smooth ergodic theory, CIRM Luminy, France, 11–15 Feb 08

Complexity science and Energy, EPSRC workshop, Northampton, 28–29 Feb 08  
 Mathematics in the science of complex systems, Venice, 5–7 Mar 08  
 Physics of charged particles, Brussels, 6–8 Mar 08  
 Lattice models, Bath, 30 Jun - 2 Jul 08  
 Emergence in complex systems, Bath, 9–11 Sep 08  
 Stability and instability in mechanical systems, Barcelona, 24–28 Sep 08  
 MAGIC postgraduate student conference, Manchester, 13 Jan 09  
 Engaging with social science, Complexity-Net, Chantilly-Gouvieux, 14–15 Jan 09  
 Weak KAM methods, Nice, 2–7 Feb 09  
 Patterns in Complexity, Leeds, 27 Apr 09  
 Mathematical challenges of molecular dynamics, Bath, 13–15 July 09  
 Transition state theory, Bristol, 16–17 July 09  
 Algorithms for Approximation, Ambleside, 31 Aug – 4 Sep 09  
 Plenary, ECCS'09, Warwick, 21–25 Sep 09  
 Hamiltonian dynamics of ITER, Marseille, 2–5 Nov 09  
 New directions in dynamics, Leiden, 9–11 Dec 09  
 Colloque Dynamique et Controle des Ensembles Complexes, Rouen, 14–16 Dec 09  
 Plenary lecture, BAMC/BMC, Edinburgh, 6–9 April 2010  
 Workshop-School on Chaos and Dynamics of Biological networks, Cargèse, France, 3–7 May 2010  
 Hyperbolic dynamical systems in the sciences, Corinaldo, Italy, 31 May – 4 June 2010  
 Topology conference, Durham, 20–22 June 2010  
 Few body dynamics, Dresden, 28 June – 1 July 2010  
 Nonlinear dynamics and complexity, Thessaloniki, 12–16 July 2010  
 New directions in modern cosmology, Leiden, 27–29 Sep 2010  
 Minisymposium, Groningen, 30 Sep – 1 Oct 2010  
 Launch meeting, Center for Complex Systems, Namur, Belgium, 15 Oct 2010  
 Contagion and Stress, Bank of England, 26 Nov 2010  
 Mathematics and Counter-terrorism, Henley, 19–21 Jan 2011  
 Inhomogeneous random systems, IHP, Paris, 26 Jan 2011  
 Physics of mixing, Leiden, 27–28 Jan 2011  
 Mathematics in the Science of Complex Systems, Venice, 17–20 Feb 2011  
 School on Mathematics of Complexity Science, Patras, 18–29 July 2011  
 50 years of the Institute for information transmission problems, Moscow, 25–29 July 2011  
 School on Nonlinear dynamics and complexity, Yaoundé, Cameroon, 31 Oct – 12 Nov 2011

### 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), Sept 1994, £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), £3,982, Sep–Dec 03
- EPSRC, Mathematical architecture of biological regulation (PI: DA Rand), £1,260,990, 1.10.03–30.9.07
- EPSRC, Dynamics of complex systems and constructive biology (VF for Kaneko) (PI: H Jensen, Imperial College London), £3,598, 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 09, AU\$ 1.5M
- Royal Society, Synchronisation in networks of dynamical units, for visit of R.Yamapi, Sep–Dec 06, £3,982
- EPSRC, Localized modes in nonlinear lattices (VF for D.Pelinovsky to Bristol and Warwick, with A.Champneys), Oct 06 – Mar 07 (extended to Sep 07), £19,993 (Warwick’s part)
- EPSRC, Training course on Mathematics for the Science of Complex Systems, Mar 06 – Feb 07 (extended to Dec 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)
- LMS, From nonlinear dynamics to systems biology, 1-2 Dec 2008, £4,300
- Technology Strategy Board, Coordinate measuring robot, Sep 08 - Aug 10 (extended to Mar 2011), £614,232 (with Williams and Young)
- EPSRC, The mathematics of complexity science and systems biology, Sep 09 – Aug 11, £300,005
- LMS, ECCS’09, Sep–Dec 09, £2,000
- EPSRC, ECCS’09, Sep 09, £15,500
- LMS, CoSyDy (Complex System Dynamics network), Jan–Sep 2010, £1,050; renewal £1,050, Oct 10 – Sep 11.
- LMS, Travel grant to Cameroon, Nov 2011, £902.
- EPSRC, Complexity DTC renewal, £3,442,450 Oct 11 - Sep 17 (PI Ball).
- *plus* Royal Society travel grants to attend conferences in: Thessaloniki (Aug 86), Samos (Aug 88), Hong Kong (July 99), Rio (July 00), Rio (Aug 05), and to visit researchers in Moscow (June 91), Israel (Mar 93); Member of PYTHAGORAS research team, Thessaloniki, 04/05; member of EPSRC Mathematical challenges of Molecular Dynamics network (Apr 08–)

### 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; Jun-Aug 99, Trinity Coll. 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 Individ. Fellow
- A Berger, Sep 02 – Feb 03, EC network postdoc
- J Dorignac, Nov – Dec 02, EC network postdoc
- JR Pacha, Feb 03–Jan 04, Universitat Politecnica Catalunya funded postdoc
- M Mobilia, Oct – Dec 07, EPSRC RA, Complexity postgraduate training course manager; Jan 08, Maths dept PDRA; Feb 08 - Jan 09, Swiss NSF Advanced Fellow
- J Thornby, Oct 08 – Oct 10, TSB 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) 30 Jan – 25 Feb 07 and 4–8 July 07  
 G James (Toulouse) 2–14 Sept 07  
 A Kowalewski (Krakow) 6 Nov–9 Dec 08, 4 Nov–10 Dec 09  
 A Toom (Recife) 4 – 24 Jan 10  
 A Saito (Hakodate) Sep 11 – May 12

### 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 – Nov 07, PhD (with Gelfreich) “Drift in the slow dynamics of Hamiltonian systems with two time-scales”, awarded Dec 07
- S Gin, Oct 05–Sep 06, MSc (Nov 06) “Large deviations rate function for the distribution of finite-time shear rotation rates for H”; PhD Oct 06–
- G Stergianopoulos (with P Hammond), Oct 06–Sep 08, 2-yr MSc, awarded Nov 08, “Economic negligibility and strategic significance in non-atomic aggregative games”; PhD Oct 08–
- E Beauvais, MSc resubmission, Oct 07-Jul 08 (with M Richardson), “Modelling the propagation of activity in electrically coupled neural networks”; awarded Oct 08
- C-H Chen, MSc, “Computation on the configuration manifold of the triple linkage”, Oct 07 – Sep 08, awarded Nov 08
- J Luo, DTC miniproject, “Citation analysis”, Jun - Sep 08
- L-L Ru, PhD, Mixing flows, Oct 08 –
- O Datskova (with D Rumynin), 2-yr MSc, Oct 08–Jun 09 (withdrawn)
- M Diakonova (with R Ball), PhD, Oct 08–
- P Youdell (with S Ghosal), PhD, Oct 08–
- GP de Mendonça (with M Kirkilionis), DTC miniproject, “Self-enforcing climate change treaties”, Apr–Jun 09; DTC miniproject, Jul–Sep 09 (with Santos-Monteiro)
- S Brand, PhD, Oct 09– (with Keeling and House)

- D Strub, MSc/PhD, Oct 09–; MSc “Bifurcations of transition states”, awarded Oct 10
- G Stefanidis, 2-yr MSc, supervised Oct 09–Aug 10
- P O’Callaghan, PhD, taken over from Oct 09–
- C Oates, DTC miniproject “Quantifying complexity”, Apr–Jun 10
- S Mousavi, DTC miniproject, Financial contagion, Apr–Jul 11
- A Tucker, PhD, Apr 11–, Financial contagion

### **Undergraduate 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)  
 2006/7: Schramm (research training project for ENS Lyon)  
 2007/8: Sandford, Arthurs, Sawyer  
 2009/10: Prutton (3rd yr essay)

### **Teaching**

#### *Warwick 1984–95*

- 1984/85: MSc Area-preserving maps
- 1985/86: 1st year Nonlinear systems lab (new course created with Rand)  
 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–*

2000/1: MSc on Coherent Structures  
3rd yr on Qualitative Theory of ODEs

2001/2: 3rd yr Qualitative Theory of ODEs  
MSc on Coherent Structures  
Support classes for 1st yr Diff Eqns

2002/3: MSc on Topics in Dynamics  
2nd yr Applied Analysis

2003/4: Graduate lecture module on Dynamics and Applications  
2nd year Applied Analysis

2004/5: Graduate lecture module on Dynamics and Applications  
2nd year Applied Analysis

[2005/6: Study Leave]

2006/7: MSc on Complexity Science

2007/8: overseeing Complexity DTC modules

2008/9: Taught course centre module on Topics in Complexity Science

2009/10: Taught course centre module on Topics in Complexity Science

[2010/11: Terms 1&2 on Study Leave, taught a doctoral course (12 hours) on “Space-time phases and the mathematics of emergence” at Université Libre de Bruxelles]

**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. Cretegy (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  
B Fernandez (Marseille) (habilitation) 23 Apr 08  
U Janus (Warwick) 10 Feb 09  
Rabab Fadl Al-Bar (Cairo) July 09  
Alef Sterk (Groningen) 1 Oct 10

## Publications of R.S. MacKay

May 16, 2011

### 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
- B7 J Johnson, M Kirkilionis, RS MacKay (eds), Mathematics in the Science of Complex Systems, proceedings of Sept 2006 Warwick conference (2007)  
[http://phoenixweb.open.ac.uk/complexity/maths\\_complexity\\_2006.html](http://phoenixweb.open.ac.uk/complexity/maths_complexity_2006.html)

### 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]
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