

CURRICULUM VITAE

Charles Elliott

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Mathematics Institute
University of Warwick
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Date of Birth: June 9, 1951

Appointment:

Professor of Mathematics, University of Warwick, 1 August 2007—Current
Director of MASDOC Centre for Doctoral Training, 2010—Current

Academic Qualifications:

- B.Sc. (I) University of Birmingham 1972
- M.Sc. University of Oxford 1973
- D.Phil. University of Oxford 1976

Previous Appointments:

- Head of Department, Mathematics, University of Sussex 1 Aug 2003 - 30 June 2007
- Chair of Mathematics, University of Sussex 1 Jan 1987-31 July 2007
- Visiting Associate Professor Mathematics Department 1985-1986 Purdue University
- University Lecturer Mathematics Department 1978-1986 Imperial College of Science and Technology, London
- Postdoctoral Research Fellow Oxford University 1975-1978 Computing Laboratory

Humboldt Prize, 2010

MASDOC MSc Dissertation Supervision

- Charles Brett 2010/11
- Andrew Lam 2010/11 (Second supervisor)
- Michael Scott 2010/11 (Second supervisor)

PhD Supervision University of Warwick

- Thomas Ranner PhD Current 2009-
- Andrew Duncan PhD (Second supervisor) Current 2010-

PhD Supervision University of Sussex

- R.M. Barreira D.Phil 2009
- Y. Kashima D. Phil 2006
- A.Tomasi (with D. Kay) D.Phil 2008
- S.McBeth D.Phil 2005
- J. Claisse D.Phil. 2000
- A. Briggs D.Phil. 1999
- G. Bennett D.Phil 2000
- J. Juden D.Phil. 1998
- K. Sidi Baba D.Phil. 1998
- V. Styles (with Q. Tang) D.Phil. 1997
- T. Kuhn D.Phil. 1996
- M. Copetti D.Phil. 1991
- J.F. Blowey D.Phil. 1990

Imperial College of Science Technology, London

- R. Chakrabarti Ph.D. (J.W. Barrett) 1988
- R. Jones Ph.D. (J.W. Barrett) 1988
- C.J. Mason Ph.D. (M.J. Bernal) 1985

Post-doctoral supervision :

- Chandrashekar Venkataraman 2011/current EPSRC
- B. Stinner 2008/2010 EPSRC
- B. Stinner 2006/08 DFG
- V.M.Styles 2000/02 Leverhulme Senior Lecturer, Sussex
- G.Richardson 1995/96 Centre for Mathematical Analysis and its Applications (CMAIA) Reader, Southampton
- K.P.Deckelnick 1995/96 DFG C3, Magdeburg
- R.Schaetzle 1994/95 European Science Foundation/CMAIA C4, Tubingen
- H.Garcke 1993/94 European Science Foundation/CMAIA C4, Regensburg
- A.R.Gardiner 1992/96 EPSRC Finance, Italian Bank,London
- J.F.Blowey 1990/92 EPSRC Senior Lecturer, Durham

Research grants:

- Various travel grants from British Council, E.U.
- **(CI)** EPSRC EP/I019138/1 Warwick Mathematics Platform Grant 2011/2016 £518,575
- **(PI)** EPSRC EP/H023364/1 CDT MASDOC 2010/2017 £4.3 million.
- **(PI)** EPSRC EP/G010404/1 Numerical analysis and computation for partial differential equations on surfaces 2008/11 £347800
- **(CI)** EPSRC EP/F032323/1 2008/2011 Warwick Symposium 2008/09 Challenges in Scientific Computing £248810
- **(CI)** EPSRC Research Network Computation and numerical analysis for multiscale and multi-physics modelling April 2003 £62298
- EPSRC Fellowship Two Months Newton Institute 20 Jan -19 May 2003 £10,122
- **(CI)** EPSRC Conference Grant from Computational Engineering Maths Programme :Newton Institute(with Sir John Kingman, Mark Ainsworth,Endre Suli) Jan 2003 £10,000
- **(PI)** EU Marie Curie Training Site:- CMAIA Partial Differential Equations and Applications 2000 158400 EURO
- Royal Society Travel Grant to Japan Royal Soc. Nov. 1999 £1200
- EU INTAS-96-1158 Perturbations of invariant sets in infinite dimensional systems Oct 1997 3,600 Ecu
- Royal Society Travel grant to China June 1995 £750
- Human Capital and Mobility EU Phase transitions and surface tension Nov. 1994 14,000 Ecu
- **(PI)** ESF Mathematical Theory of Phase Transitions July 1994 £8,113 Sussex Workshop
- **(PI)** LMS Mathematical Theory of Phase Transitions July 1994 £1,500 Sussex Workshop
- **(PI)** Centre for Mathematical Analysis and Its Applications (CMAIA) July 1993 £76,000
- **(PI)** SERC Numerical analysis of phase transitions and free boundary problems 01/10/93 £85,523
- Royal Society Ex-Quota Visit from the former 01/10/93 £4,340 Soviet Union (Dr. I. Kostin)
- British Council Travel grant to Australia July 1993 1,045
- NATO Asymptotics and numerics of the phase July 1993 £3,230 field equations CRG 930203
- **(CI)** SERC Topics in partial differential equations 01/05/93 £2,250 (with D.E. Edmunds) Visiting Fellow: M.I. Vishik
- **(PI)** SERC GR/H61445 Numerical analysis of phase transitions 01/11/92 £22,912
- **(PI)** SERC GF/F85659 Numerical analysis of nonlinear partial differential equations 01/10/90 £48,382
- **(PI)** SERC GR/F10156 Visiting Fellow: Dr. S. Larsson, Sweden Finite element methods for nonlinear evolution equations 01/07/89 £1,180

External Examining

- BSc/MMath Mathematics Imperial College 2008
- BSc/MMath Mathematics University of Aberystwyth 2000-2003
- Habilitation H. Garcke University of Bonn Feb 2000
- B.Sc. Mathematics Open University 1995-2001
- B.Sc. Mathematics Imperial College 1991-1995
- M.Sc. Mathematics University of London 1991-1992
- M.Sc. Nonlinear Mathematics University of Bath 1988-1991
- Habilitation Morgan Pierre University of Poitiers 2011
- Ph.D. Thorsten Fischer University of Nottingham 2010
- Ph.D. Falcon University of Bath 1999
- Ph.D. B. Emamizadeh University of Bath May 1998
- Ph.D. R. Iqbal Newcastle upon Tyne May 1997
- D.Phil. G. Richardson University of Oxford Dec. 1995
- D.Phil. Ph. Balland University of Oxford Dec. 1994
- Dip.Doc. C. Dupaix Paris XI, Orsay Dec. 1994
- Ph.D. P.A. Wood Imperial College Mar. 1994
- Ph.D. A.R. Humphries University of Bath Feb. 1994
- D.Phil. A. Hill University of Oxford Nov. 1992
- Ph.D. Q. Sheng University of Cambridge 1989

Learned Journals:

- Associate editor: I.M.A. Journal of Numerical Analysis (Oxford) 1987- Current
- Editor: European Journal of Applied Mathematics (Cambridge) 1990-2000
- Founding editor : Interfaces and Free Boundary Problems: Modelling, Analysis and Computation (European Mathematics Society) 1999- Current
- Editor : Communications on Pure and Applied Analysis (AIMS Press) 2002- Current
- Editorial Board: Hokkaido Mathematics Journal 2004-Current
- Refereeing:
Articles for many journals:-Siam J Numerical Analysis,Siam J Mathematical Analysis,Archive Rational Mechanics and Analysis,Siam J Applied Mathematics,Communications in Partial Differential Equations,Proceedings Royal Society London,Proceedings Royal Society Edinburgh,Nonlinear Analysis,Nonlinearity,J.Computational Physics,IMA J Numerical Analysis,IMA J Applied Mathematics,Numerische Mathematik etc

Research Council Committees etc:

- EPSRC/SERC Mathematics Panel for Earmarked Studentships 1991, 1992, 1993
- EPSRC Mathematics College 1995, 1996, 2003-2005, 2006-
- EPSRC Mathematics Panel for Responsive Mode Grants
- EPSRC Chair Mathematics Panel for Responsive Mode Grants June 2007
EPSRC Mathematics Panel 2005 for Critical Mass
- Member of DRG(Germany) Review Panel (June 2004, 2008) for SFB Research Center 611:Singular Phenomena and Scaling in Mathematical Models
- Royal Society International Exchange Scheme Assessment 2010,2011,
- Reviewer of grants for NSF(USA), NSERC(Canada), Sweden TFR, Australian Research Council.

Scientific Committees:

- Steering Committee "New frontiers in the mathematics of solids" Oxford research programme funded by EPSRC. 2006-2010
- Member Scientific Steering Committee of Isaac Newton Institute. 1999 - 2002(EPSRC Nominee).
- National Advisory Board for Isaac Newton Institute (representative from Scientific Steering Committee). Term completed 2002.
- Fox Prize in Numerical Analysis Committee 1991,1993, 1995(Chairman)

Invited Lectures:

INVITED PLENARY LECTURES

- Computational Challenges in PDEs, 4–8 May 2011, University of Swansea in association with Newton Institute.
- MSRI Free Boundary Problems, Theory and Applications March 7, 2011 to March 11, 2011
- Alexander von Humboldt Lecture 18 October 2010, Berlin
(Humboldt Prize Lecture)
- GAMM 2010 (81st Annual Meeting of International Association of Applied Mathematics and Mechanics) 22-26 March 2010, Karlsruhe
- ENUMATH Uppsala, 29 June -3 July 2009
- EQUADIFF Bratislava July 25-29 2005
- Free Boundary Problems: Theory and Applications International Conference, Chiba, Japan 7 - 13 November 1999
- 18th Biennial Conference on Numerical Analysis Dundee 29 June - 2 July 1999
- ENUMATH 1997 (European Conference on Numerical 29 Sept - 4 Oct 1997 Mathematics and Advanced Applications) Heidelberg
- The State of the Art in Numerical Analysis IMA conference, York 1-4 April 1996
- CTAC 93, 6th Biennial Computational Techniques and Applications Conference Canberra (Australia) 5-9 July 1993
- 15th Biennial Dundee Numerical Analysis Conference 29 June-2 July 1993
- Symposium on Trends in Applications of Mathematics to Mechanics Lisbon (Portugal) 23-30 July 1994
- International Conference on Numerical Mathematics Singapore June 1988

INVITED CONFERENCE LECTURES

- “Inverse problems and optimal control for PDEs ” Mathematics Institute, University of Warwick, 23 –27 May 2011
- ”New directions in simulation, control and analysis for interfaces and free boundaries” Mathematisches Forschungsinstitut Oberwolfach 31 January –6 February 2010
- Numerical methods for partial differential equations on surfaces, Freiburg,(SFB/TR 71 Geometric Partial Differential Equations (Freiburg/Tubingen)) 14–17 September 2009
- Challenges and Advances in Computational Materials Simulations and Design, Institute for Mathematical Sciences, National University of Singapore, 20 – 24 Jul 2009
- International Workshop ”Phase Transitions and Optimal Control” Berlin, October 23 - October 25, 2008
- Advances in Shape Topology and Optimization: Theory, Numerics and New Applications, Graz, 25–27 September 2008
- International Conference on Free Boundary Problem, Chiba Japan, 26-30 November 2007
- Numerical Analysis: multiscale methods, adaptivity and complexity Bath Institute for Complex Systems (BICS) 4 - 7 September 2007
- PDEs in Image Processing ESF Cologne 7-10 October 2006
- Mathematical Challenges in Scientific and Engineering Computation Isaac Newton Institute ,Cambridge Jan 20-24 2003
- Interfaces in continuous media CMAF; Lisbon 1-4 March 1999
- Phase Segregation, Kinetics, Wetting and Quasi-Crystals 15 - 18 May 1998 (in honour of J. Cahn's 70th birthday) (79th Stat. Mech. Conf.) Rutgers University, U.S.A.
- Mathematical treatment of free boundary problems 23 - 26 January 1998 ESF, Funchal (Madeira, Portugal)
- Variations of domains and free boundary problems, 22 - 25 April 1997 IUTAM (International Union of Theoretical and Applied Mechanics) Symposium, Paris
- Mathematical issues in the dynamics of phase transitions 30 Oct - 4 Nov 1996 (conference associated with the Clifford lectures, 1996-97; given by P. Fife) Tulane, New Orleans
- Partial Differential Equations London Mathematical Society Symposium, Durham 25 June 1996
- Finite and Infinite Dimensional Dynamical Systems(Newton Institute Euroconference) Cambridge 4-15 September 1995
- The International Conference on Nonlinear Evolution Equations and Infinite-Dimensional Dynamical Systems Fudan, Shanghai (China) 12-16 June 1995
- Chaotic Numerics Deakin University, Geelong (Australia) 12-16 July 1993
- Kinetics of Phase Transitions ICMS Heriot-Watt 10-14 August 1992
- Surface Tension and Movement by Mean Curvature Trento 20-24 July 1992
- Evolutionary Problems L.M.S. Symposium Durham 4-14 July 1992
- Mathematics of Nonlinear Systems SERC Conference Bath 1-5 July 1991
- Degenerate Diffusion I.M.A. Workshop Minneapolis (USA) 13-18 May 1991

INVITED WORKSHOP LECTURES

- Geometric Partial Differential Equations (Opening Workshop SFB/TransRegio 71) 24–25 April 2009

- Optimization with interfaces and free boundaries , Regensburg, 23–27 March 2009
- Micro-macro Modelling and Simulation of Liquid Vapour Flows, (4th workshop DFG-CNRS research unit 563), Aachen,4-6 February 2009
- OXMOS/MULTIMAT workshop on Microstructure, University of Oxford, 2-5 September 2007
- Recent developments in computational methods and algorithms for geometric evolution equations MSRI Berkeley 16-17 March 2007
- Control of free boundaries MFI Oberwolfach 11 -17 February 2007
- Trends in Mathematical Imaging MFI Oberwolfach 21-27 January 2007
- Numerical Methods for Computations on Complex Domains Warwick 10-11 November 2006
- Anisotropic Motion Laws MFI Oberwolfach 13-19 August 2006
- Analytical and Numerical Methods in Image and Surface Processing MFI Oberwolfach Feb 2005
- Computational Physics of Interface and Transport Dynamics Max Planck Institute, Dresden March 4-8 2002
- Interphase 2001:- IX Workshop Numerical Analysis of Free Boundary Problems College Park,Maryland . January 2002
- Multiscale Problems and Phase Transitions Weierstrass Institute,Berlin 29-31 August 2001
- Interphase 2000:- VIII Workshop Numerical Analysis of Free Boundary Problems Berlin October 2000
- Viscosity solutions and applications Bressanone,Italy July 3-5 2000
- Dynamics of phase transitions: discrete and continuum models Oxford 6-7 Dec 1999
- Numerical solutions of interface problems Kobe Institute, Japan. 3 - 5 November 1999
- Interphase 99 VII Workshop on Numerical Methods for Free Boundary Problems Freiburg 14-16 October 1999
- Numerical methods for viscosity solutions and applications FORTH, Heraklion, Crete 15 -17 July 1999
- Anisotropic effects in a crystal growth problem and its mathematical analysis Hokkaido University, Sapporo, Japan 11-14 January 1999
- VI Workshop Numerical Solution of Free Boundary Problems Braga, Portugal November 1998
- Computation of free boundaries and optimal shapes (ESF workshop) Lamoura, France 24-29 September 1996
- Lower dimensional interfaces; Ginzburg-Landau equations and the Evolution of Point and Line Singularities (ESF workshop, Bonn) 26-30 May 1996
- Crystal growth (ESF workshop, Oberstauffen, Germany) March 1996
- Numerical and Computational Methods for Free Boundary Problems ESF Workshop, Freiburg, Germany 4-5 September 1995
- Generalised Stefan Problems: Models, Analysis and Numerical Methods E.S.F. Workshop, Pavia, Italy 31 Aug - 2 Sept 1995
- Accuracy and error control in ODE and PDE systems4-5 December 1995 (Newton Institute Workshop, Cambridge)
- Pattern Dynamics (Newton Institute Workshop, Cambridge) 23-27 October 1995
- Nichtkonvexe Probleme der Kontinuumsmechanik Bonn 7-10 April 1989
- Mathematical Models for Phase Change Problems E.C. Obidos 1-3 October 1988

- Models of Surface Tension Trento (Italy) 6-8 November 1987

INVITED RESEARCH TRAINING LECTURE COURSES

- Optimization with interfaces and free boundaries , Regensburg, 23–27 March 2009
- Berlin Mathematics Summer School: Mathematics of Multiscale Phenomena 1–12 September 2008
- Summer school : Topics in nonlinear PDEs Centro Internacional de Matemática (CIM), Coimbra, Portugal 22-27 July 2007
- Mini-course "Computational methods for surface PDEs" University of Tokyo 7-8 December 2006
- Nissan Lectures, Hokkaido University, Japan 9 - 11 September 1998
- EPSRC Summer School: Numerical Analysis, University of Leicester 17 - 24 July 1998
- Free Boundary Problems and Phase Transitions (DMV Seminar) Thurnau (Germany) 6-13 June 1993
- SERC Nonlinear Systems, Spring School Bath 13-16 April 1992

INVITED MISCELLANEOUS LECTURES

- Mathematical theory and numerical methods for computational materials simulation and design, INS National University of Singapore, 1 July–31 Aug 2009
- Minisymposium Geometric Evolution Equations, ENUMATH, Graz, Austria, 10-14 September 2007
- Computational PDEs Berlin Matheon 2 Feb 2006
- EPSRC International Review of UK Mathematics Presentation to Review Panel Imperial College Dec 2003
- Mathematics of Finite Elements and Applications Newton Minisymposium, Brunel June 21-24 2003
- Opening Colloquium of DFG Research Group "Nonlinear Partial Differential Equations: Theoretical and Numerical Analysis" Freiburg July 19 2002
- SIAM Annual Meeting: UK and Republic of Ireland Section Imperial College 8 Jan 1999
- Computation of free boundary and interface problems Inst. Comp. Fluid Dynamics, Oxford. 16 January 1998
- Mathematical Aspects of Numerical Analysis of Partial Differential Equations London Mathematical Society, London 17 - 18 October 1997
- Numerical Analysis and Dynamical Systems (L.M.S.) Cambridge 13-14 May 1993
- Northern Universities Numerical Analysis Colloquium Newcastle February 1992
- Professorial Lecture, University of Sussex 21 November 1991
- Advanced Topics in Applied Mathematics Inter-University Centre for Post-Graduate Studies Dubrovnik (Yugoslavia) 1-10 October 1987
- Mathematical Modelling and Numerical Analysis Banach Centre, Warsaw April 1987
- Recent Developments in Applicable Mathematics I.M.A. Dundee 18 May 1982

Colloquia/Seminars

United Kingdom:- Bath, Birmingham, Bristol, Brunel, Cambridge, Durham, East Anglia, Edinburgh, Exeter, Heriot-Watt, Imperial College, Kent, Leicester, Liverpool, Manchester, Newcastle, Nottingham, Oxford, Reading, Southampton, Warwick.

Europe:- Augsburg, Berlin, Bonn, Firenze, Freiburg, Goteborg, M.P.I. Leipzig , C.M.A.F. Lisbon, Pavia, Pisa, Mittag-Lefflar Institute Stockholm, I.C.M. Warsaw, Banach Centre Warsaw.

United States:- Chicago, Maryland (College Park), North Western, Pittsburgh, Purdue, Stanford, Knoxville (Tennessee), Salt Lake City (Utah).

Elsewhere:- University of South Australia Adelaide; A.N.U. Canberra; Brunei; Monash Univ. Melbourne; Hokkaido University, Sapporo; Tokyo University.

Recent:- Nanyang Technological University, Singapore 24 July 2009, University of Oxford 3 December 2009, MSRI, Berkeley May 2011, University of Bonn 14 June 2011

Informal Workshops

Augsburg, Brookhaven, Chicago, Lisbon, Madrid, Sussex, Trento, Telluride (Colorado), Sapporo. Extended Visits Augsburg, Cornell July-August 1986, Firenze, Pisa, Freiburg March 1997, July 2002, July 2003, Goteborg, Minneapolis (I.M.A.) September and November 1990, Pavia, Utah, Banach Centre (Warsaw), Mittag-Lefflar Institute (Stockholm) March 18 - April 3 1998, Hokkaido University (Sapporo, Japan) 6 - 23 September 1998, Stanford University October 1992, Hokkaido University November 1999, January 2001; Newton Institute (Cambridge) Jan-July 2003, IMA Minneapolis March 2005, Oberwolfach (R.I.P.) September 2005, March 2006; Tokyo University 5-15 December 2006.

Conferences: Organiser/Scientific Committee Member:

- Minisymposium: Computational Surface PDEs, ENUMATH Leicester 5–9 September 2011
- Inverse Problems and Optimal Control for PDEs Monday 23 May - Friday 27 May 2011, Warwick
- European Finite Element Fair, 20/21 June 2010, Warwick
- "New directions in simulation, control and analysis for interfaces and free boundaries" Mathematisches Forschungsinstitut Oberwolfach 31 January –6 February 2010
- Minisymposium: Computational methods for interfaces and surfaces. Capstone conference July 2009 Warwick Symposium Challenges in Scientific Computing 2008/09
- Biomembranes: Modelling and Computation MIR@W 11 May, Warwick
- "New directions in computational PDEs" January 2009 Warwick Symposium Challenges in Scientific Computing 2008/09
- Miniworkshop :-Control of free boundaries MF Oberwolfach February 11 – February 17 2007
- EFEF IV Zurich 2006
- Multiscale at Sussex EPSRC research network Organiser Sussex Jan 5-7 2006
- Multiscale at Sussex EPSRC research network Organiser Sussex July 13 15 2005
- Multiscale at Sussex EPSRC research network Organiser Sussex December 10 11 2004
- Free Boundary Problems; Theory and Applications Coimbra, Portugal June 7-11 2005
- EFEF III Pavia June 2005
- EFEF II Berlin June 2004
- Computational Challenges in PDEs 6 Month Programme Principal Organiser Newton Institute Cambridge Jan/July 2003
- Partial Differential Equations and Material Science L.M.S. Spitalfields Day Organiser Cambridge 13 May 2003
- The First European Finite Element Fair EFEF Organiser Cambridge 8-9 May 2003
- Interphase 2003: Numerical methods for free boundary problems Organiser Cambridge 14-18 April 2003
- Computational PDEs: Giving Industry the Edge A joint workshop of the Newton Institute and the Smith Institute. Organiser Cambridge 4-5 March 2003
- Computational Challenges in Micromagnetics and Superconductivity Newton Institute Organiser Cambridge 13-13 Feb 2003
- Mathematical Challenges in Scientific and Engineering Computation Newton Institute Organiser Cambridge 20-24 Jan 2003
- Grain Boundary Motion Focus Session Free Boundary Problems Conference Trento June 2002
- Computational Challenges in PDEs Minisynposium BAMC Warwick April 2002
- Interphase 2001 College Park, Maryland Jan 2002
- Interphase 2000 Berlin Oct 2000
- VII Workshop Numerical Analysis of Free Boundary Problems Freiburg Oct 1999
- VI Workshop Numerical Analysis of Free Boundary Problems Braga Portugal Nov 1998
- Free Boundary Problems and Hele-Shaw Flow(LMS) Oxford 24-26 Aug 1998

- Numerical solution of free boundary problems (ICFD)Oxford January 1998
- Vortices, Dislocations and Line Singularities in Partial Differential Equations Chairman of session. Royal Society-Ciba Foundation Discussion Meeting London 8-10 Oct 1996
- Lower Dimensional Interfaces; Ginzburg-Landau Equations and the Evolution of Point and Line Singularities ESF/FBP Workshop Bonn 26-30 May 1996
- Mathematical Theory of Phase Transitions E.S.F., L.M.S., CMAIA Workshop Organiser Sussex July 1994
- Evolutionary Equations L.M.S. Durham Symposium Durham July 1992
- Hele-Shaw Flow E.C. Workshop Organiser Sussex May 1992
- Dynamics of Numerics and Numerics of Dynamics IMA Bristol August 1990
- SERC Numerical Analysis Summer School Lancaster July 1990
- Nonlinear Diffusion E.C. Workshop Organiser Sussex May 1990
- I.M.A. Mathematics of Crystal Growth Oxford April 1985