CURRICULUM VITÆ[1]

Personal Record

Full name	JAMES FORD BLOWEY
Higher Education	B.Sc. (Hons.) in Mathematics (Special Option), First Class, University of Sussex, October 1984 to July 1987
	D.Phil., University of Sussex, October 1987 to September 1990
Membership of Bodies	London Mathematical Society Institute of Learning and Teaching
Present employment	Postdoctoral Research Assistant at the University of Sussex, October 1990 to September 1992
Current appointment	Reader in the Department of Mathematical Sciences, October 1992–Present

Research Impact

National excellence

Assessed member of the Applied Mathematics group graded 5* at the last RAE, recently regraded 6* by HEFCE.

Publications

C. Edited books.

1. Theory and Numerics of Differential Equations, eds. J.F. Blowey, A.W. Craig & J.P. Coleman (2001) Springer (ISBN: 3-540-41846-6), pages 280.

2. Frontiers in Numerical Analysis, eds. J.F. Blowey, A.W. Craig & T. Shardlow (2003) Springer (ISBN: 3-540-44319-3), pages 350.

E. Articles in Refereed Journals or Publications - joint authorship.

3. J.F. Blowey & C.M. Elliott (1991), *The Cahn-Hilliard gradient theory for phase separation with non-smooth free energy Part I: Mathematical analysis*, European Journal of Applied Mathematics, **2**, 233–279.

4. J.F. Blowey & C.M. Elliott (1992), *The Cahn-Hilliard gradient theory for phase separation with non-smooth free energy Part II: Numerical analysis*, European Journal of Applied Mathematics, **3**, 147–179.

5. J.W. Barrett and J.F. Blowey (1995), *An error bound for the finite element approximation of the Cahn-Hilliard equation with logarithmic free energy*, Numerische Mathematik, **72**, 1–20.

6. J.F. Blowey, M.I.M. Copetti and C.M. Elliott (1996). *The numerical analysis of a model for phase separation of a multi-component alloy*, IMA Journal of Numerical Analysis, **16**, 111–139.

7. J.W. Barrett and J.F. Blowey (1996), *An error bound for the finite element approximation of a model for phase separation of a multi-component alloy*, IMA Journal of Numerical Analysis, **16**, 257–287.

8. J.W. Barrett and J.F. Blowey (1997), *Finite element approximation of a model for phase separation of a multi-component alloy with non-smooth free energy*, Numerische Mathematik, **77**, 1-34.

9. J.W. Barrett and J.F. Blowey (1998), *Finite element approximation of a model for phase separation of a multi-component alloy with a concentration dependent mobility matrix*, IMA Journal of Numerical Analysis, **18** 287-328.

10. J.W. Barrett, J.F. Blowey and H. Garcke (1998), *Finite element approximation of a fourth order nonlinear degenerate parabolic equation*, Numerische Mathematik, **80**, 525-556.

[1] Compiled using guidelines at http://www.dur.ac.uk/Personnel/promoinfo.htm

11. J.W. Barrett and J.F. Blowey (1999), *An improved error bound for a finite element approximation of a model for phase separation of a multi-component alloy*, IMA Journal of Numerical Analysis, **19**, 147–168.

12. J.W. Barrett and J.F. Blowey (1999), *Finite element approximation of the Cahn-Hilliard equation with concentration dependent mobility*, Mathematics of Computation, **68**, 487–517.

13. J.W. Barrett and J.F. Blowey (1999), *Finite element approximation of a model for phase separation of a multi-component alloy with non-smooth free energy and a concentration dependent mobility matrix*, Mathematical Models and Methods in Applied Sciences, **9**, 627-663.

14. J.W. Barrett and J.F. Blowey (1999), *An improved error bound for a finite element approximation of a model for phase separation of a multi-component alloy with non-smooth free energy*, Modélisation Mathématique et Analyse Numérique, **33**, 971-987.

15. J.W. Barrett, J.F. Blowey and H. Garcke (1999), *Finite element approximation of the Cahn-Hilliard equation with degenerate mobility*, SIAM Journal of Numerical Analysis, **37**, 286—318.

16. J.W. Barrett and J.F. Blowey (2001), *An improved error bound for a finite element approximation of a model for phase separation of a multi-component alloy with a concentration dependent mobility matrix*, Numerische Mathematik, **88**, 255—297.

17. J.W. Barrett, J.F. Blowey and H. Garcke (2001), *Finite element approximation of a model for phase separation of a multi-component alloy with degenerate mobility matrix*, submitted to Modélisation Mathématique et Analyse Numérique, **35**, 713—748.

18. J.W. Barrett and J.F. Blowey (2001) *Finite element approximation of a degenerate Allen-Cahn/Cahn-Hilliard system*, SIAM Journal on Numerical Analysis, **39**, 1598—1624.

19. J.W. Barrett and J.F. Blowey (2002) *Finite element approximation of an Allen-Cahn/Cahn-Hilliard system*, IMA Journal of Numerical Analysis, **22**, 11—71.

20. J.F. Blowey and M.R. Garvie, *Global existence and uniqueness of weak solutions to a reaction-diffusion system of $\lambda - \omega$ type*, accepted by European Journal of Applied Mathematics.

G. Articles in Non-Refereed Journals or Publications - joint authorship.

21. J.F. Blowey & C.M. Elliott, (1993), *Curvature dependent phase boundary motion and parabolic double obstacle problems*, in the IMA volumes in mathematics and it applications series, Springer-Verlag, **47**, 19–60, editors Wei-Ming Ni, L.A. Peletier & J.L. Vazquez.

22. J.F. Blowey & C.M. Elliott (1994), *A phase field model with double obstacle potential*, in motion by mean curvature and related topics, ed. G. Buttazzo and A. Visintin, de Gruyter, New York, Chapter 1, 1-22.

23. J.W. Barrett and J.F. Blowey (2001), *Finite element approximation of a model for order-disorder and phase separation in binary alloys*, in Numerical Modelling in Continuum Mechanics, Feistauer, M. et al. eds. (Matfyzpress) 1–17.

Research Activity

Income generation

Nuffield Foundation: Newly Appointed Science Lecturers (1993).

Durham Research Committee: Special Equipment Grant (1995).

EPSRC: Postdoctoral Research Assistant under the EPSRC Computational Partial Differential Equations initiative (1998)

EPSRC: Ninth Numerical Analysis Summer School (2000).

LMS-EPSRC: Tenth Numerical Analysis Summer School (2002).

Durham Small Grants Scheme: Research Project in Teaching and Learning (2002).

SOCRATES Programme: Diffusion and Improvement of Mathematical Knowledge in Europe (2002).

LMS-EPSRC: Eleventh Numerical Analysis Summer School (2004).

Organisation of meetings

Northern Universities Numerical Analysis One Day Meeting (1994).

Ninth EPSRC Numerical Analysis Summer School (2000).

Tenth LMS-EPSRC Numerical Analysis Summer School (2002).

Eleventh LMS-EPSRC Numerical Analysis Summer School (2004).

Referee

Grant applications to the EPSRC Mathematics Programme.

Journals: Applied Numerical Mathematics; Communications in Pure and Applied Analysis; Continuum Mechanics and Thermodynamics; European Journal of Applied Mathematics; IMA Journal of Numerical Analysis; International Association for Mathematics and Computers in Simulation; Journal of Computational Physics; Journal of Interfaces and Free Boundaries; Journal of Mathematical Analysis and Applications; Journal of Mathematical Finance; Physica D; Reviews in Mathematical Physics; SIAM Journal on Applied Mathematics; SIAM Journal of Numerical Analysis; SIAM Journal on Scientific Computing; The Royal Society Proceedings: Mathematical, Physical and Engineering Sciences.

UK Editor of FBP News (http://fbpnews.org/)

Presentations at conferences and meetings/Academic invitations

Washington, USA, The Second International Congress on Industrial and Applied Mathematics (1991).

Augsburg, Germany, Filtration and Nonlinear Diffusion Processes, 1991.

Durham LMS Symposium, Continuous and Evolutionary Problems (1992).

Heriot-Watt, Kinetics of Phase Transitions (1992).

Toledo, Spain, International Colloquium on Free Boundary Problems: Theory and Applications (1993).

Dundee, Thirteenth Biennial Conference of Numerical Analysis (1993).

Sussex, The Mathematical Theory of Phase Transitions (1994).

Pavia, Italy, Generalized Stefan problems: Models, Analysis and Numerical Methods (1995).

Freiburg, Germany, Numerical and Computational Methods for Free Boundary Problems (1995).

Bonn, Germany, Lower Dimensional Interfaces: Ginzburg-Landau Equations and the Evolution of Point and Line Singularities (1996).

Lamoura, France, Computation of Free Boundaries and Optimal shapes (1996).

Dundee, Fifteenth Biennial Conference of Numerical Analysis (1997).

Oxford, One-day workshop on the comparison of Free Boundary and Interface problems (1998).

Oxford, Hele-Shaw and Related Free Boundary Problems (1998).

Braga, Portugal, Numerical Analysis of Free Boundary Problems (1998).

Edinburgh, The Fourth International Congress on Industrial and Applied Mathematics (1999).

Edinburgh, Scottish Computational Mathematics Symposium (1999).

Freiburg, Germany, Numerical Methods for Free Boundary Problems (1999).

Berlin, Germany, Applied Mathematics in our Changing World (2001).

Berlin, Germany, Workshop on Multiscale Problems and Phase Transition (2001).

Cambridge, participant in the Newton Institute theme “Computational Challenges in PDEs” (2003).

Cambridge, Workshop on Numerical Methods for Free Boundary Problems (2003).

Invited UK Seminars

Universities of Bath, Bristol, Brunel, Dundee, Heriot-Watt, Leicester, Newcastle, Oxford, Strathclyde, Sussex, UMIST and York.

Teaching

Volume and range of undergraduate and postgraduate teaching

Course		Year	Average Class	Lecture Load
3H Numerical Analysis		92/3-95/6,97/8	35	38,38,38,38,19
1H Numerical Analysis		93/4	160	16
M.Sc. in Particle Physics		93/4	20	4
2H Engineering Mathematics		94/5-98/9,00/1	117	8,8,32,24,21,10
Pure Mathematics	MATH1521	97/8	195	18
Data Analysis Modelling and Simulation	MATH1711	98/9,01/02-03/4	50	22
Natural Sciences Computational Maths	MATH7021	98/9	59	22
Maths for Engineers & Scientists	MATH1551	99/00–02/03	120	27
4H NLA&PDE's	MATH4041	00/01-03/4	5	19
3H Mathematics Teaching	MATH3121	03/04	30	42

Support teaching is given where required. For instance in the last three years this has ranged between tutorials (2H Numerical Analysis MATH2051, Single Mathematics A MATH1561, MATH1711, MATH1551) and computer practicals (MATH2051 and MATH1711). The volume of teaching is such that loads are balanced. The range of duties is broader than is typical.

External examiner of undergraduate and M.Sc. teaching

Heriot-Watt University (2003—2006).

Supervision of postgraduate students

M. Imran, Ph.D. (1997–2001).

Marcus Garvie, Ph.D. (2000–2003).

Pisuttawan Sripiriom, Ph.D. (2003–Present).

External examining of postgraduate degrees

Jackie Juden, D.Phil (1998), University of Sussex.

Nicoletta Del Buono, M.Phil (1998), University of Bath.

Mark Bowen, Ph.D. (1998), University of Nottingham.

Greg Bennett, D.Phil (2000), University of Sussex.

Internal examining of postgraduate degrees

Andrew Perella, Ph.D. (1997)

Suzanne Duxbury, Ph.D. (1999)

Paula Budu, Ph.D. (2002)

Magdelene Carr, Ph.D. (2003)

Introduction of innovative teaching methods

A symbolic manipulation package, MAPLE, to computer practicals and lectures in MATH1711.

"Active Learning In a Computing Environment" (ALICE) is used to assess students on-line (with immediate feedback) in MATH1711 and MATH1551 — each student is generated a "random" question which has a different solution.

Curriculum development

Co-designer of open module Data Analysis Modelling and Simulation MATH1711.

Liaison with Engineering on design of the Mathematics content for their modules modules ENGI2063, ENGI2013.

Brush Up Your Skills Committee (2002–Present) — supporting key mathematical skills for incoming students.

Course Director for all non-honours modules while lecturer and ex officio member of the associated Staff-Student Consultative Committee (1994–Present).

Third-Year Honours Mathematics Course Director and ex officio member of the Honours Mathematics Staff-Student Consultative Committee (Michaelmas 1996/7).

University staff development courses attended

Induction & survival skills 1/10-2/10/92	More effective use of lectures 25/11/92
Working with groups 27/1/93	Support learning 24/2/93
Survival skills 10/3/93	Projects 12/5/93
Presentation skills 4/5/94	Using ones voice 15/6/94
Recorded presentation 24/6/94	Supervising research students 22/9/94
Panel interviewing 15/11/99	Programme Specification Workshop 14/12/00

Feedback of teaching

Mathematics Department questionnaires are produced in consultation with the Staff-Student Committees. Averages are presented for four courses which are typical — measured on a scale of 1-5.

module	year	pace[1]	# examples[2]	lecturer clarity[3]	support[4]
MATH1551	(00/1)	3.7	2.7	3.0	3.9
MATH1711	(01/2)	3.4	2.8	3.3	3.8
		content & interest[5]	lecturer clarity[3]	marking[5]	
3H Numerical Analysis	(97/8)	3.4	3.6	3.8	
MATH4041	(02/3)	4.7	4.3	4	

[2]

In November 2002 one of my MATH1551 student wrote: "Having decided to take a foundations of physics (double) module I realised that I would also have to take MES. Whilst this was entirely expected it was equally unrelished as maths has never really been a point of interest to me, more a tool for other subjets. However, since the start of term my views have been somewhat changed and this is due, in my opinion, entirely to the quality of lectures we have recieved from Mr Blowey which have been of a consistantly high standard."

Academic leadership

Mentor for a new member of staff Dr. Tony Shardlow (2000–2002).

Co-opted onto Department Planning Committee to create a three-year Departmental plan (1998).

Presentations at staff development seminars

Durham (internal): "interactive WWW pages" (1998); "DUO and web-based learning" (2002) — organised by me and funded through Staff Development funds; "Integrating MAPLE & ALICE into our teaching programme" (2003) — organised by me and funded through grant my RPiTL (see page 2).

Newcastle: ALICE at LTSN workshop "VLE's — Potential and Pitfalls" (2003).

Durham (DUO Showcase): "ALICE" (2003).

[2]The pace of material in lectures: 1=slow, 5=fast.
[4]Lecturer clarity: 1=rarely, 5=always.
[6]Content & interest in course: 1=Very poor, 5=Excellent.

[2]The number of illustrative examples in lectures: 1=too few, 5=too many.
[4]Support teaching helpful: 1=rarely, 5=always.
[6]Quantity & relevance of set work: 1=Very poor, 5=Excellent.

Administration

University

Member of Library Users Committee (1998–Present), (Vice-Chairperson 2001-2003), (Chairperson 2003).

Member of the University SOCRATES-ERASMUS Working Group (2000).

Member of the University Nursery Project Implementation Team (2000).

Observer on the Appointing Committee for the Chair in Numerical Analysis (1999).

Faculty

Member of the Engineering Board of Examiners (1997–2003).

Chief examiner for Engineering Mathematics II ENGI2551 (1997).

Liaison with Engineering on the Mathematics modules for their TQA and Faculty Review (1997, 2000).

Boards of Faculty of Science and Arts (1995–8).

Faculty of Science representative at the Europe Day, Leeds (1997).

Sole organiser and developer of the Mathematical Sciences stand at the first Science, Engineering and Technology week held at County Hall (1995).

Department

Secretary of the Board of Studies (1995–8).

Member of Research Committee (1995–2000), (Secretary 1995-8).

Joint organiser of the Durham LMS Symposia (2001–Present) — discharging £100000 per annum.

Numerical Analysis and co-Mathematical Sciences Webmaster (1996–Present) with special responsibility for the implementation and development of the “Teaching” section.

SOCRATES-ERASMUS coordinator for the Mathematics (European Studies) degree (1993–2001).

Member of Computing Equipment Committee (2002–Present)

Personal harassment contact and joint staff training officer (1999).

Coordinator of the Student Academic Adviser Scheme (1995–9).

Numerical Analysis seminar series organiser (1995).

DUO representative (2002–Present)

Web pages for automated ordering of: departmental undergraduate and postgraduate brochures; main library book recommendations (1999–Present).

Maintainer of the “Seminars”, “Publications” and “Preprints” databases (2001–Present).

Voluntary activities with students

Member of the students Mathematical Society.

Within St. Chads College: Tutor (1992-2000); Secretary of the Senior Common Room (1996-8); Fire Office (1993/4); Senior Common Room House Committee Representative (1996).