

CURRICULUM VITA - Malcolm Neil JAMES

DSc(Eng), DTech (HonorisCausa), PhD, BSc(Eng), CEng, FIMMM



British Citizen

Married to Andrea Carolyn- two daughters; Sarah Claire and Fiona Rosalind

Home pages: <http://www.fatiguefracture.com>
<http://www.plymouth.ac.uk/si>

Part 1

Training, Skills and Experience

	<u>Page Number</u>
1. Career Summary	1
2. Education and Training	6
3. Professional Qualifications	7
4. Leadership and Management	7
5. Industry Experience	10

Part 2

Academic and Professional Activities

1. Activities	13
(i) Professional Engagement and CPD	13
(ii) Learning and Teaching	15
(iii) Research and Knowledge Exchange	18

Part 1

1. CAREER SUMMARY

EXPERIENCE

Jan 2010

Head of School of Marine Science & Engineering, University of Plymouth. The School has 84 academic staff and covers Mechanical & Marine Engineering, Civil & Coastal Engineering, Marine Sports, Marine Biology, Marine Science (e.g. Oceanography and Hydrography) and Marine Studies (e.g. Navigation and Merchant Shipping).

- Apr 2007-July 2008** Pro-Vice Chancellor at the University of Plymouth. Responsibilities included Research & Innovation Committee, Research Assessment Exercise 2008 and the Steering Group for the 4 Centres of Excellence in Teaching & Learning.
- Jan 2003-July 2009** Dean of the Faculty of Technology, University of Plymouth. The Faculty had 143 academic staff and included Mathematics & Statistics, Mechanical & Marine Engineering, Civil & Coastal Engineering, Computing, Communications & Electronics.
- Aug 1996** Professor of Mechanical Engineering, University of Plymouth.
- Jul 1993 - Jan 1994** Sabbatical leave in the Department of Mechanical and Process Engineering, University of Sheffield, working in the Structural Integrity Research Institute with Professor K J Miller and Dr E R de los Rios. During this period the British Council funded a study tour, involving visits to a number of Universities and Government bodies, to examine developments in teaching strategies and industrial-university links.
- Jan 1992-June 1996** Associate Professor (on the *Special List*) in the Department of Metallurgy and Materials Engineering, University of the Witwatersrand. *Ad hominen* merit salary increase in July 1992, November 1994 and November 1995. *Acting Head of Department* July 1992 - January 1993 and May 1994. *Head of Branch of Physical Metallurgy* within the School of Process and Materials Engineering from January 1995.
- Jun 1987-Dec 1991** Senior Lecturer in the Department of Metallurgy and Materials Engineering, University of the Witwatersrand. Advanced to the *Special List* as from January 1989. Awarded *ad hominen* merit salary increases in July 1990 and July 1991. Obtained *tenure* in 1990.
- Nov 1987-Jan 1988** Visiting Assistant Professor on special leave at the Johns Hopkins University, Baltimore with a joint appointment in the Departments of Mechanical Engineering and Materials Science and Engineering.
- May 1985-Jun 1987** 2 years working as a University Research Fellow in the Department of Metallurgy and Materials Engineering, University of the Witwatersrand. Duties included research, lecturing and consulting work.
- Oct 1983-May 1985** 20 months as a Research Associate in the Department of Metallurgy and Materials Science, University of Cambridge. Worked with Dr J F Knott on aspects of the growth of fatigue cracks in structural steels. Funded by the UK Ministry of Defence.
- Dec 1979-Aug 1980** 8 months working for the National Railways of Zimbabwe as an Assistant Mechanical Engineer (AME) with Southern Area Motive Power. Duties included two months acting as AME in charge of Steam Traction with responsibilities including disciplinary matters and breakdowns/derailments on the 400 km stretch of line from Bulawayo to Victoria Falls.
- Jul 1978-Nov 1979** 18 months working for the Rhodesian Ministry of Water Development as a Mechanical Engineer. Duties included some design of mechanical components for the outlet works of major dams and running the mechanical workshop which fabricated such items and maintained the fleet of percussion and diamond crown water boring drills.
- Jan 1977-Jun 1978** 18 months National Service with the Rhodesian Police Force as an armaments technician.

HONOURS AND AWARDS

- 2010** **Honorary Membership of the GruppoltalianoFrattura** in recognition of “outstanding achievements in the research fields of Material Science, Fracture Mechanics and Structural Integrity”.
- 2008** Invited to be the **John Orr Memorial Lecturer** for the South African Institution of Mechanical Engineering. The lecture is intended to celebrate the achievements and

contribution of Professor John Orr OBE, Hon. LLD (1870-1954) to engineering and engineering education in South Africa. This prestigious lecture is given by an engineer of international standing. My chosen topic was 'Reliable Products and Structures'.

- 2008** Appointed **Professore di chiara fama** and **Docente** at the Università degli Studi di Ferrara, Ferrara, Italy (founded 1391) in the Department of Engineering from January 2008.



- 2007** Appointed **Honorary Professor** of Nelson Mandela Metropolitan University, Port Elizabeth, South Africa in the Institute for Advanced Manufacturing and Engineering for 5 years from August 2007.



- 2005** Appointed **Advisory Professor** of the Southwest Jiaotong University, Chengdu, PR China in the State Key Laboratory of Traction Power, September 2005.



- 2003** Honorary award of title of **Visiting Professor** to the Materials and Engineering Research Institute (RAE 5-rated in 2001) at Sheffield-Hallam University for 3 years from June 2003. Extended for a further 3 years in September 2006. Invited to join the Advisory Board of the Regional Development Authority designated Centre for Industrial Collaboration and the MERI Policy Board for 3 years from March 2004. Re-appointed for a further 3 years until 31 August 2009 in the Faculty of Arts, Computing, Engineering and Sciences.



- 2003** **Doctor of Technology (HonorisCausa)** degree conferred by the Port Elizabeth Technikon (now the Nelson Mandela Metropolitan University), South Africa, in recognition of international standing in the field of mechanical properties of metals and of my contribution to FE/HE engagement through the development of nationally and internationally leading research at the Technikon.

- 2003** **LT Campbell-Pitt award** of the South African Institution of Mechanical Engineering for the most meritorious paper published in their *Research & Development Journal* during 2002 (*A Novel 8-Element Gauge for Residual Stress Assessment Using the High Speed Centre Hole Drilling Method*).

- 1995** **Ingham award** of the South African Institution of Mechanical Engineering for the best short technical paper published in their *Research & Development Journal* during 1994 (*Fatigue Strength of Shafts Reclaimed by Welding*).

- 1989** **Ingham award** of the South African Institution of Mechanical Engineers for the best short technical paper published in their journal during 1988 (*Designing Against Fatigue*).

- 1988** **Ingham award** of the South African Institution of Mechanical Engineers for the best short technical paper published in their journal during 1987 (*Fractography During Failure Analysis - What It Reveals*).

- 1986** **Silver Medal (Austin Whillier Research Medal)** of the South African Institution of Mechanical Engineers for a paper entitled *Some Aspects of Fatigue Crack Growth* published in their journal in 1985.

- 1984** **Research Fellowship** by the University of the Witwatersrand, tenable for two years. Three

of these Fellowships were awarded annually, on a competitive basis, for research into any field of study.

- 1981 **Overseas Research Students award** by the committee of Vice-Chancellors and Principals of the Universities of the United Kingdom, renewed in 1982. These awards are distributed annually on the basis of academic merit to a relatively small number of overseas postgraduate students and cover the difference in fees between students resident in the UK and those from overseas.
- 1980 **Beit Trust Fellowship**, held for three years. A small number of these fellowships are awarded annually, on a competitive basis, to Zimbabwe citizens contemplating postgraduate studies at any British or South African university. The awards cover all fees, air fares and a personal stipend. It is interesting to note that the Trust states on its website that it 'seldom sponsors PhDs'.
<http://www.beittrust.org.uk/index.htm>

DISTINCTIONS

- 2010 **Plenary Lecture** at the 18th Spanish National Conference on Mechanical Engineering, Ciudad Real, Spain, 305 November 2010. Only four invited plenary lectures were given at this conference.
- 2010 **Plenary Lecture** at the 10th International Fatigue Congress, Prague, Czech Republic, 6-11 June 2010. Only four plenary lectures were given at this conference which attracts 300-400 delegates and is the premier fatigue conference series.
- 2010 **Opening Keynote Lecture** at the *GruppoitalianoFrattura Workshop on Problems of Fracture in Engineering Materials*, Forni di Sopra, Italy, 7-9 January 2010.
- 2009 Author of one of the 20 **most cited articles** in the Elsevier Journal *Engineering Failure Analysis* in the period 2004-2008: *Residual stresses and fatigue performance*, *Engineering Failure Analysis* 14 pp.384-395, 2007.
- 2009 **Plenary Lecture** at the 3rd *International Conference on Fatigue Crack Paths*, Vicenza, Italy, 23-25 September 2009.
- 2009 **Plenary Lecture** at the *GruppoitalianoFrattura Workshop on Fatigue of Weldments*, Forni di Sopra, Italy, 9-10 March 2009.
http://www.gruppofrattura.it/index.php?option=com_frontpage&Itemid=1
- 2008 **Plenary Lecture** at the 1st *International Conference on Advances in Product Development and Reliability*, Chengdu, Sichuan, China 4-6 August 2008.
- 2007 **Keynote Lecture** at the 6th *International Conference on Fracture and Damage Mechanics*, Madeira, Portugal 17-19 July 2007.
- 2007 **Keynote Lecture** at the 10th *International Conference on the Mechanical Behaviour of Materials*, Busan, Korea, 27-31 May 2007.
- 2006 **Keynote Lecture** at the 2nd *International Conference on Crack Paths*, Parma, Italy, 14-16 September 2006.
- 2005 **Keynote lecture** at the 3rd *Conference on Stress Evaluation by Neutron and Synchrotron Radiation*, Santa Fe, NM, USA, 17-19 October 2005.
- 2005 **Plenary lecture** at the 22nd *Annual Conference of the Spanish Fracture Group*, Almagro, Spain, 9-11 March 2005.
- 2004 **Keynote lecture** at the 5th *International Conference on Fatigue Damage of Structural Materials*, Hyannis, MA, USA, 19-24 September 2004.
- 2004 **Keynote lecture** at the 1st *International Conference on Engineering Failure Analysis*, organised by Elsevier, Lisbon, Portugal, 12-14 July 2004.
- 2003 **Plenary lecture** at the *International Conference on Fatigue Crack Paths*, Parma, Italy, 18-20 September 2003.
- 2003 **Keynote paper** at a *Workshop on Friction Stir Welding* sponsored by the European Office of the US army Research Office, PE Technikon, Port Elizabeth, South Africa, 1-3 April 2003.
- 2003 **Plenary lecture** at *Fatigue 2003, the 6th Engineering Integrity Society International Conference on Durability and Fatigue*, Cambridge, UK, 9-11 April 2003.
- 2002 **Keynote lecture** at *Fatigue 2002, the 8th International Fatigue Congress*, Stockholm, Sweden, 3-7 June 2002.
- 2000 **Keynote lecture** at *Fracture 2000, the 5th International South African Conference on Fracture* held in Cape Town, South Africa, 5-7 December 2000.
- 1997 **Keynote lecture** at the 9th *International Conference on Fracture*, Sydney, Australia, 1-5 April 1997.

OTHER SIGNIFICANT RECOGNITION

- **2010** **Editorial Advisory Board** member of *Frattura ed Integrità Strutturale* - the International Journal of the Italian Fracture Group from August 2010. ISSN 1971-8993.



<http://www.gruppofrattura.it/>

- **2007** **Editorial Board** member for the *Open Mechanical Engineering Journal* (Bentham Science) from February 2007 (<http://www.bentham.org/open/tomej/>).

- **2004** **Editorial Advisory Board** member of the Elsevier publication *Engineering Failure Analysis* from September 2004.



http://www.elsevier.com/wps/find/journaldescription.cws_home/30190/description#description

- **1999** **Member of subject panel 30 Mechanical, Aeronautics and Manufacturing Engineering** in the 2001 Research Assessment Exercise, organised by the Higher Education Funding Council of England (HEFCE). This is a major exercise which assesses research in all universities in England on a 4-year cycle. Appointment to a panel is by invitation after HEFCE has invited nominations from a wide body of authoritative opinion.

- **1998** **Co-Editor** of the leading Elsevier publication the *International Journal of Fatigue* from January 2008 (previously Regional Editor (Europe, Middle East & Africa) from January 1999 and Acting Editor from July 1998-December 1998). Member of the editorial advisory board from April 1992; edited Special Issue in 1994. The Editorship generates annual funding of around £20,000. During my tenure as Editor, and reflecting my guidance, this journal has become a leading source of authoritative articles; **IJ Fatigue is ranked 14th out of 105 in Thomson Scientific category 'Engineering, Mechanical' © Journal Citation Reports 2009, published by Thomson Reuters.** Invited to attend the Elsevier Editors Conferences held in June 2003 in Barcelona, Spain and Berlin, Germany in March 2010.



http://www.elsevier.com/wps/find/journaldescription.cws_home/30433/description#description

2. EDUCATION AND TRAINING

1973-1976 **BSc(Eng)** (4 year degree) - Graduated *cum laude* in mechanical engineering from the University of the Witwatersrand, Johannesburg, South Africa.



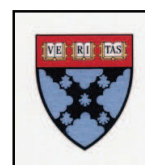
1980-1983 **PhD** in the Department of Metallurgy and Materials Science, University of Cambridge, England (Jesus College). Thesis entitled *The Growth of Small Surface Fatigue Cracks in Structural Steels*(Supervisor Mr G C Smith and external examiner Dr C J Beevers, University of Birmingham).



2005 **DSc(Eng)** from the University of the Witwatersrand, Johannesburg, South Africa. Awarded for a thesis entitled "*A contribution to knowledge and understanding of fatigue crack growth phenomena*". The work must constitute a distinguished contribution to the advancement of knowledge in the subject, and must be a record of original research work undertaken by the candidate.

LEADERSHIP DEVELOPMENT AND TRAINING

2004/05 **Executive Education Programme** at Harvard Business School, Cambridge MA, USA - **Leading Change and Organisational Renewal**, March 14-19, 2004, **Changing the Game: Negotiation and Competitive Decision-Making**, October 23-28, 2005.



2007 **Leadership Development Centre** through the Leadership Foundation for Higher Education at Warwick University, 13-14 December 2007.

2007/08 **Executive Coaching** with a Consultant Psychologist through OPAL Management Consultancy, regular sessions over 6 months identifying areas for leadership development and performance improvement.

OTHER COURSES

1987-1988 **'Toastmasters International, Communication and Leadership Program'**. Toastmasters International, based in Santa Ana, California, is the leading movement devoted to promoting effective oral communication. The initial programme consists of a series of ten speeches, each with specific objectives, and subject to feedback from trained listeners. The programme is extremely effective in promoting better communication and skills.

1994 2-day residential course on **'Exploiting Research - Routes for Academic Researchers'**, organised by the University of Edinburgh in collaboration with the UK Science and Engineering Research Council.

1996 2-day workshop on **'Effective Teaching'** organised by the University of the Witwatersrand in Johannesburg. The workshop was given by Professor Richard M Felder (Department of Chemical Engineering, North Carolina State University) and Professor Rebecca Brent (School of Education, East Carolina University). They are both highly respected in the USA for their innovative teaching and promotion of effective learning.

2002 ½-day course on **'Chairing of Recruitment and Selection Panels'**, given by the Staff Development Unit, University of Plymouth.

2002 1-day course on **'Appraiser Training'**, given by the Staff Development Unit, University of Plymouth.

- 2002 ½-day course on '**Teaching and Learning Using Outlook/Exchange**', given by the Staff Development Unit, University of Plymouth.
- 2000-2001 75 contact hour course leading to the certificate in '**Introduction to Counselling Skills and Self-Development**', given through Plym Adult Education and accredited by the Associated Examining Board.
- 2001-2002 120 contact hour course leading to the '**Certificate in Counselling Skills and Theory**', given through Plym Adult Education and accredited by the Associated Examining Board.
- 2003 3-day course on Supervising Health & Safety leading to a '**Certificate in Supervising Health & Safety**' from the Chartered Institute of Environmental Health.
- 2004 1-day course on '**Media Training**' aimed at providing senior staff with the skills, knowledge and confidence to handle press, radio and television interviews. This was facilitated by David Walter who has worked as political correspondent for ITN, Channel 4 and the BBC. He was also the BBC's Paris Correspondent and presenter of the Radio 4 programmes *Talking Politics*, *Europhile* and *Education Matters*. For the past five years he has worked for the Liberal Democrats as Director of Communications, Director of Party Broadcasting and speechwriter to Charles Kennedy.
- 2005 1-day workshop on '**Student Retention**' given by MantzYorke, Professor of Higher Education and Director of the Centre for Higher Education Development, Liverpool John Moores University and the author of the book *Leaving Early: Undergraduate Non-Completion in Higher Education*, Falmer Press.
- 2006 1-day personalised Executive workshop on '**Presentation Skills**' given by Jeremy Carrad, TV presenter, speaker and writer who owns Carrad Communications.

3. PROFESSIONAL QUALIFICATIONS

- 2007 **Fellow** of the Higher Education Academy (*Registered Practitioner* from 2004; *Professional Member* of the Institute for Learning and Teaching in Higher Education from 2002).
- 1997 **Fellow** of the Institute of Materials, Minerals & Mining, London. Elected Professional Member in 1988.
- 1994 **Fellow** of the South African Institution of Mechanical Engineers (Corporate Member in 1984).
- 1988 Registered as a **Chartered Engineer** with the Engineering Council, London.
- 1986 Registered with the Engineering Council of South Africa as a **Professional Engineer**.

4. LEADERSHIP AND MANAGEMENT: SKILLS AND EXPERIENCE

PERSONAL PROFILE

- International reputation in fatigue phenomena, residual stress measurement, fracture mechanics and failure analysis, particularly as applied to large structures and equipment.
- Developer of internationally recognised, research-informed, interactive web-based learning resources dealing with failure and fracture mechanics.
- Extensive experience of business engagement and knowledge exchange through CPD courses, research contracts, Knowledge Transfer Partnerships and professional consulting work.
- Academic leader and manager with good communication, diplomacy and negotiation skills.
- Innovative and strategic thinker who inspires commitment, trust and respect in colleagues.

- Excellent track record in leading and managing large and disparate academic units
- Demonstrable record of successful implementation of strategic planning.
- Extensive experience of leading successful change and organisational renewal.
- Experienced in leading and managing large multi-national research consortia.
- Effective management of multi-million pound budgets.
- Energetic, hard-working professional engineer.

My management style is strategic and mission-focussed, but also caring and facilitative of my colleagues. I combine leadership and vision, with humour and compassion. My commitment to equality and diversity, and to cross-cultural interaction, has been developed and demonstrated both in the Faculty of Technology (culminating in a successful application for an Athena SWAN Silver award – the Athena SWAN Charter recognises and celebrates good employment practice for women working in science, engineering and technology in higher education and research), and in my considerable experience and involvement in widening participation in education at the University of the Witwatersrand, Johannesburg, during the period 1985-1996. Over the last few years, I have transformed the profile of the Faculty of Technology and contributed strongly to that of the University of Plymouth in the national and international environment, through my personal research, teaching and professional activities. The success of these collaborations and interactions, over many years, is an indicator that I deliver what I have undertaken to do, am respected and liked by colleagues externally and am comfortable in dealing with people at all levels of academia, industry and at national and international research facilities.

I have very significant experience of leadership and management functions, across a broad range of academic and industrial activities. In particular, I have successfully led very significant change, merger and organisational renewal of Departments and Schools and of the Faculty of Technology. Latterly, I have played a significant role in the merger of the Faculties of Science & Technology. I am currently Head of the School of Marine Science & Engineering, newly formed from a merger between Mechanical and Marine Engineering, Civil and Coastal Engineering, Marine Sports, Marine Biology and Marine Science. The School has some 84 academic staff, around 1,540 students and a budget of around £9M.

Experience of academic leadership and management at the University of the Witwatersrand included being Director of the Fracture Research Group (1989-96), leader of the branch of Physical Metallurgy (1987-96) and its appointed Head 1995-96, and as Acting Head of the Department of Metallurgy and Materials Engineering (7 months). I have wide experience and strong academic credibility in research and knowledge exchange activities, including CPD, business and professional community engagement, and in innovative learning and teaching. I have contributed to widening participation activities over many years and to internationalisation of the curriculum.

I was appointed Dean of the Faculty of Technology at the University of Plymouth in January 2003 (initially on a 5-year contract, extended to 6.5 years) and the Faculty was widely regarded in the University as excellently led and managed during my term as Dean. Much of this recognises the quality of the management team and my academic colleagues, but a significant part of this was also due to my leadership, communication of a common strategic vision and a matrix management structure. On appointment I was responsible for reorganising the Faculty as part of a major review of the academic agenda and structures at Plymouth, moving the Faculty from 5 Departments to 3 Schools and involving a re-location of almost all Faculty staff. I also introduced a Faculty-focussed administrative and technical support structure, led a major £6M refurbishment of faculty Estate, and changed the budgetary structure and responsibilities.

These changes transformed the Faculty and successfully positioned it to capitalise on themed opportunities and strengths, with revitalised laboratories. Audit reports, budgetary control, University-Faculty interfaces, marketing and recruiting, administrative processes and forecasts (budgetary and student number) were acknowledged to be amongst the best in the University. The recurrent budget of the Faculty was some £17.1M with an associated ongoing research grant portfolio around £8.9M. The Faculty employed around 134 academic staff, 41 research staff, 33 technicians and 62 administrative staff and had some 2200 students studying on its programmes.

My experience of successful management of very significant change was extended in a second major strategic review exercise undertaken at Plymouth in 2008/09 when (amongst other changes) the Faculties of Science & Technology were merged, with the creation of new Schools and an associated redundancy programme involving some 200 staff across the institution. I contributed very significantly to the

development of the new Faculty structure and to the successful voluntary redundancy process in Technology. In a difficult period, the morale of the staff remained excellent and the Faculty dramatically improved its student recruitment and financial position. At least part of this was due to my personal qualities of leadership, communication and trustworthiness.

The Faculty achieved an excellent reputation for teaching innovation, for international links and for world class areas of research. Its profile in RAE 2008 was been very significantly enhanced under my leadership compared with 2001 as the result of focussed and aligned investment and decision making ("Quality Research" income up by some 125%). I was RAE Coordinator for the Mechanical and Manufacturing Engineering unit of assessment (RAE 2001 and RAE 2008) and successfully guided it from a 2-rating ("half the submission reaching attainable levels of national excellence") in the 1996 RAE to a 4-rating in the 2001 RAE ("virtually all the submission at attainable levels of national excellence with some evidence of international excellence" - beyond the University's expectations) and to a profile in the 2008 RAE of 25% 3*, 55% 2* and 20% 1*, whilst doubling the number of submitted staff. 3* equates to "Internationally Excellent", 2* to "Internationally Recognised" and 1* to "Nationally Recognised". I was a member of the RAE 2001 Assessment Panel (11 academics and 3 industrial members) for Mechanical, Aeronautical and Manufacturing Engineering (UoA 30 - one of the larger units) which considered the submissions of 47 Universities (1,172 staff).

I have also contributed strongly to cross-institutional initiatives and management structures and am recognised for innovative and strategic analysis and solutions. Areas of involvement as a member of task and focus groups include QAA Institutional Audit, University Strategic Planning, Developing Corporate Strategy, Information Technology and Information Technology Review, Transparency Review and Resource and Indirect Cost Allocation models. I have actively sought and supported cross-Faculty initiatives, in particular the Marine Institute (Science, Technology and Social Science & Business) and proposed a cross-Faculty Centre for Creative Design & Technology (Technology and Arts). I led the development of the new University Research & Innovation Strategy in 2008. During my term of office as Pro-Vice Chancellor my main responsibilities were with the University submission to RAE 2008, Chairing the Research and Innovation committee and Chairing the Steering Committee for the Centres of Excellence in Teaching & Learning. During this period, I was responsible for developing the new University Research & Innovation strategy.

I have led and managed large multi-partner research consortia using synchrotron and neutron radiation in engineering research, through FaME38 at the Grenoble site of the Institut Laue-Langevin (ILL) and the European Synchrotron Radiation Facility (ESRF). FaME38 is the Facility for Materials Engineering that was set up at the ILL in 2001 jointly between the ESRF-ILL and the EPSRC (through grant GR/R48070/01 for £1,656,961 from 1/12/2001-31/3/2005 with Professor PJ Webster as PI and 6 UK consortium universities). I took over leadership of the Facility in 2004 and its success led to a further grant submission to the EPSRC (grant EP/C008847/1 for £467,460 from 1/7/05-30/6/06 with Professor James as PI with a consortium of 9 UK universities) and to its full incorporation within the structures of the ILL-ESRF. It is widely acknowledged that FaME38 has had a major impact in maintaining and advancing the world-leading position of the UK strain scanning community and in extending use by UK engineering academics and industry of synchrotron and neutron radiation. Between July 2005 and June 2007, I was bought-out 20% from the University of Plymouth by the ILL-ESRF to manage this development. A Plymouth academic was permanently posted in Grenoble between July 2005 and February 2008 to provide day-to-day management of the Facility and bought out 80% by the ILL-ESRF for user support. This required the University to form a French Association (equivalent to a limited company) to employ French staff (administrator and technician) in Grenoble on the FaME38 project.

The University, through the Vice-Chancellor (then Professor Roland Levinsky), sponsored my trips to Harvard Business School as part of leadership development.

UNIVERSITY COMMITTEE MEMBERSHIP

Electron Microscope Management Board

Faculty Research Committee

Research Coordinator - Unit of Assessment 30 in RAE 2001 and Unit 28 in RAE 2008

University Research Policy Committee (1999-2002)

Member of the VC's task force to articulate a vision for the 'Joint Schools' of Computing and Engineering (1997-8)

Extranet Project Board (2001) - Convenor: Research Sub-Group

Web Editorial Board (2002-03)

Faculty of Technology –Chair of Space/Move Rationalisation task force for Architecture, Civil, Electronic and Mechanical Engineering (2001-2003)

This group developed the academic vision underlying a £6 million refurbishment of old estate into a flexible, multi-purpose teaching building for the new School of Engineering.

New Academic Agenda Steering Group convened by the VC (2003)

University Strategic Planning Development Group (2003)

Board of University of Plymouth Enterprise Ltd (2003)

Desktop Rollout Project Board (2003)

University Research Strategy Group (2003)

Information Strategy & Information Technology Review Board (2003)

Transparency Review (TRAC) Steering Group (2003-2004)

This group was instituted to support the implementation of full economic costing implementation, based on auditable costs of teaching and research provision, supported by accurate staff time allocation data.

Chair of Deans/Chancellery meetings (October 2003-May 2004)

Library Consultative Committee (2006)

Planning & Resources Committee (2006-2007)

Chair of University Human Ethics Research Committee (2007-2010)

Chair of the University Research and Innovation Committee (2007-2008)

Chair of the Marketing and Communications Strategy Group (2007-2008)

Chair of Steering Group for Centres of Excellence in Teaching and Learning (2007-2008)

Chair of the Phase 2 Intranet and Extranet Project Board (2007-2008)

External Examiners Committee (2006-)

Chair of Web Executive Board (2008-2009)

Teaching and Learning Action Plan Group (2008-2010)

Modernisation Programme Board (2010-)

5. INDUSTRY EXPERIENCE

I worked for 4 years as a mechanical engineer in industry, firstly with the Rhodesian Ministry of Water Development and then with the National Railways of Zimbabwe, although part of this time was taken up by National Service. The move to the railways was undertaken because of their wider career structure for mechanical engineers, with opportunities in manufacture and maintenance, running motive power and design of equipment. Service with them was terminated when I received the Beit Trust Fellowship to study at the University of Cambridge.

During this period I was exposed to a fairly wide range of activities. With the Ministry of Water Development these included design of such items as service gates, hydraulic winch systems and gantry cranes for the outlet works of major concrete arch dams, e.g. Palawan, and being engineer-in-charge of their mechanical maintenance and fabrication workshop. Within the workshop, I was responsible for costing jobs, purchasing stores, supervising fabrication or maintenance and personnel matters. Workshop activities included machining, welding fabrication and casting of white metal bearings.

Whilst employed by the National Railways of Zimbabwe, I was exposed to personnel management (footplate staff and locomotive inspectors) whilst acting as Assistant Mechanical Engineer in charge of steam traction with Southern Area Motive Power. Responsibilities included the Steam Running Shed, breakdowns on the 400 km stretch of permanent way from Bulawayo to Victoria Falls and providing motive power on time for the scheduled train service. I have attended locomotive and wagon derailments with a breakdown train and 200 ton steam crane as responsible engineer.

BUSINESS ENGAGEMENT AND KNOWLEDGE EXCHANGE

The application of engineering science and principles in industry has always been one of my priorities, and my interests in fracture and fatigue have been orientated, wherever possible, towards the needs of industry. Hence many of my research projects have been industrially funded and relate to problems experienced by particular companies. I have significant experience of acting as a failure analysis and metallurgical consultant, generating some 140 reports over the last 23 years. My work has ranged over advising on fatigue design, through determining mechanisms and causes of failure in mechanical equipment, plant and structures, to metallurgical assessment, fatigue life and fracture toughness testing.

Over the last 10 years, consulting and contract research projects held through the University of Plymouth Enterprises Limited (UPEL) have brought some £172k into the university.

In South Africa I established a *Close Corporation* (1991-96) to handle industrial consulting work on a professional basis; this was a successful and expanding venture generating some 60 technical reports in that period. This work has continued in the UK, through the University of Plymouth Enterprises Ltd. Clients have ranged from lawyers and advocates, through insurance loss adjusters to engineering and technical personnel. I have acted as an expert witness at fatal accident inquiries and in mediation and high court cases. I have been asked to provide technical expertise related to metallurgy, fatigue and failure analysis to companies in the USA, New Zealand, South Africa, the Netherlands and the UK.

I have considerable experience in fatigue, fracture and mechanical testing related to steels, aluminium alloys, hardmetals, ceramics and polymers, together with a good metallurgical knowledge of their microstructures and properties. I have significant expertise in fatigue design for machine components and welded structures (plus welding processes and metallurgy), fatigue life prediction, engineering defect assessment using PD6493 (BS 7910), failure analysis, stress analysis, fractography, corrosion and materials selection.

Work has been commissioned by such clients as:

Mining and Industrial

Bucyrus Africa (Pty) Ltd; Anglo Platinum Waterval; Pioneer Ready Mixed Concrete, South Africa; Hartebeestfontein Gold Mine, South Africa; Slagment (Pty) Ltd, South Africa; Nestle (South Africa) Pty Ltd; Lloyd Aviation (Pty) Ltd, South Africa; Blue Circle Cement (Pty) Ltd, South Africa; South African Breweries; Rossing Uranium Mine, Namibia; Anglo-Alpha Cement, South Africa; AECL, South Africa; Gencor Ltd, South Africa; Fraser Alexander Bulk Materials Handling (Pty) Ltd, South Africa; Warman Africa (Pty) Ltd; Imerys, Cornwall; Schlumberger Technology Centre, Gloucestershire.

Manufacturing and Services

Gyrus Medical Ltd, South Glamorgan; Galvanizers Association, West Midlands; Eaton Aerospace Ltd, Hampshire; Invensys Controls UK Ltd; ReedHycalog, Gloucestershire, Mayflower Marina, Plymouth.

Lawyers, Loss Adjusters and Insurance Companies

Cubberley & Associates, South Africa; VR Salvage & Associates, South Africa; TheunisJoubert Assessors, South Africa; IGI Insurance Company Ltd, South Africa; Webber Wentzel Bowens, South Africa; Deneys Reitz Attorneys, South Africa; Bell, Dewar Incorporated, South Africa; Foot & Bowden

Solicitors, Plymouth; Wolferstans Solicitors, Plymouth; Scott Bailey, Solicitors and Mediators, Hampshire.

I have also assisted industries to set up their own facilities, notably the development of a computer controlled laser-based interferometric strain measurement system and fracture toughness testing of PVC pipes, and acted as a subcontractor on industrial research programmes (e.g. European Coal and Steel Council programme of fatigue of thin steel plate for Hoogovens R & D - now part of the Corus Group).

Other aspects of my business engagement and knowledge transfer activities, such as CPD and papers in professional journals are dealt with in Part 2, section 3 (i) below.

Part 2

- 1. Activities**
 - (i) Professional Engagement and CPD**
 - (ii) Learning and Teaching**
 - (iii) Research and Knowledge Exchange**

1. ACTIVITIES

(i) PROFESSIONAL ENGAGEMENT AND CPD

I have been closely involved with the activities and strategic planning of the South African Institution of Mechanical Engineers (1987-96), at both the branch and Council level. I was *Vice-Chair* of Central Branch in 1991 and 1993, and *Chair* in 1994-96. The branch has some 1 700 members and is fully responsible for providing Institution service to the members.

Was *Chair* of the Devon & Cornwall Materials Group of the Institute of Materials from 1998 -2003.

In June 1990 I was asked by the Engineering Council of South Africa to join the team which reviewed the suitability for accreditation of the undergraduate engineering programmes at the University of Cape Town. I have also been a panel member in professional reviews for PrEng status.

I was a *Council member* of the Strain Society of South Africa and *Chair* of the subcommittee which organised their annual seminar (1990-96).

I believe that engineering academics have a responsibility for business/professional engagement and knowledge transfer and should, wherever possible, relate their research knowledge to the needs of industry. With this in mind, I have organised and lectured in a number of CPD short courses dealing with the application of engineering technology to industry. These courses have ranged across fracture mechanics, fatigue, strain measurement, materials selection and creep life prediction. Most of the courses have been run through the university as Continuing Professional Development activities, with some of them taking place under the auspices of professional or learned societies. I have also engaged strongly with Industrial Advisory Committees related to programme provision in Mechanical Engineering and Physical Metallurgy. The web pages on failure analysis that I developed for student and CPD teaching purposes have been widely used by engineering practitioners and academics, and I have received very positive comments from around the world, e.g. "As a long-time failure analyst, I find your posted examples an excellent learning tool. I have recommended (them) to some of my engineering supervisor colleagues dealing with reliability and durability issues in U.S. Army vehicles", Jim Faller, U.S. Army Aberdeen Test Centre.

I have given in-house seminars on fatigue and fracture to the oil-from-coal industry (SASOL, South Africa), a major manufacturer of passenger vehicles (Volkswagen, South Africa), and Hoogovens Research & development (Netherlands), written a design guide on fatigue and fracture for the Aluminium Federation of South Africa and given a course on fatigue design for the South African Stainless Steel Development Association. Other CPD courses are detailed below.

I was a co-applicant on an EPSRC-funded (£400k) South-West Regional Integrated Graduate Development Scheme (IGDS) MSc in Competitive Product Engineering (2001). This was a partnership of 10 universities in the South West of England, co-ordinated by the University of Bristol. It was part-time modular professional development programme that was intended to equip graduates, or their equivalent, working in the engineering and manufacturing industry of the South West with the management, business and technical skills and the vision to prepare them for the challenges of the new millennium. I developed and validated block release modules for this scheme.

I have also led the development through validation of an MSc in Design for Structural Integrity at Plymouth (1997) intended to be taken on a part-time modular basis (1 week block release). This had a strong industrial interaction built-in to the modules and certain of the modules have been run regularly as accredited CPD short courses.

Continuing Professional Development Courses

A: Through the University of the Witwatersrand

1. A two day course entitled *Introduction to Fracture Mechanics* held in July 1986 (147 delegates). Joint convenor and lecturer.
2. A one day seminar entitled *Fatigue and Fracture in Structures - Problems and Their Control* held in-house at SASTECH, Secunda in October 1988 (35 delegates). Joint convenor and lecturer.
3. Strain Society of SA short course on *Strain Monitoring* held in November 1988. Lecturer.
4. A series of six evening lectures on *Fracture and Fatigue - Approaches to Control Failure* held during March/April 1989 (41 delegates). Convenor and Lecturer.5. Strain Society of SA short course on *Transducers - Types and Applications* held in January 1990 (50 delegates). Convenor.
5. A one-day course on *Engineering Materials Selection* held in November 1990 (46 delegates). Convenor and lecturer.
6. Strain Society of SA short course on *Strain Gauges - Selection and Performance Characteristics* held in January 1991 (38 delegates). Convenor.
7. A one-day course on *Nondestructive Testing* held in July 1991 (40 delegates). Convenor.
8. A two-day seminar sponsored by the board of ActaMetallurgica Inc. on *Creep and Creep Fracture* held in November 1991 - speakers were Professor B Wilshire (University College, Swansea), Professor F R N Nabarro (Wits) and Dr R C Gifkins (ex CSIRO, Australia) (70 delegates). Convenor.
9. Strain Society of South Africa seminar on *Industrial Load Measurement* held in April 1992 (52 delegates). Convenor.
10. Strain Society of South Africa seminar on *Applied Strain Measurement* held in April 1993 (39 delegates). Convenor.
11. In-house seminar for SASTECH, Secunda on *Condition Assessment of Plant* given by Dr J D Parker of University College Swansea (30 delegates), held in April 1993. Convenor.
12. A one-day seminar on *Condition Assessment of Plant* given by Dr Parker, held in April 1993 (29 delegates). Co-sponsored by the Division of Materials Science and Technology, CSIR. Convenor.
13. Strain Society of SA short course on *Back to Basics* held in June 1994 (38 delegates).

B: Through the University of Plymouth

1. A one-day course on *Analysing Failures from Fatigue and Fracture* (SC516) held in November 1996 (15 delegates). Convenor and lecturer.
2. A three-day course on *Fatigue Design and Failure Analysis* (SC520) held in March 1997 (13 delegates), repeated in October 1997 (10 delegates). Convenor and lecturer.
3. MSc module in *Design and Analysis for Crack Growth* (SC538) held in March 1998 (10 delegates). Convenor and lecturer.

Other Courses

1. A one day seminar entitled *Cracks in Mining Equipment* held in August 1986 which was run in conjunction with a welding consultancy firm (97 delegates). Joint organiser and lecturer.
2. LECTURED for one day on *Fatigue Design in Stainless Steel* as part of a four day course run through the Southern Africa Stainless Steel Development Association. June 1993 (30 delegates).
3. LECTURED on *Design of Weldments* as part of course dealing with *The Welding of Aluminium Alloys* jointly organised by the Aluminium Federation of South Africa and the South African Institute of Welding. March 1996 (25 delegates).
4. Three day short course on *Fatigue Design and Failure Analysis* held in April 1998 at the Port Elizabeth Technikon, South Africa. Lecturer (15 delegates).Organiser and lecturer.
5. A two day short course on *Fatigue Design and Failure Analysis* for Hoogovens Research & Development, Amsterdam, Netherlands, September 1998 (20 delegates). Organiser and lecturer.
6. A 1½ day short course on *Industrial Case Studies in Failure Analysis*, University of the Witwatersrand, Johannesburg, May 1999 (7 delegates). Lecturer.
7. A one day short course on *Residual Stresses - Their Causes, Measurement and Industrial Impact*, PE Technikon, Port Elizabeth, October 2002 (15 delegates). Organiser and lecturer.

8. A two day short course on *Interactive Learning from Failure*, PE Technikon, Port Elizabeth, November 2003 (18 delegates). Organiser and lecturer.
9. A two day short course on *Interactive Learning from Failure*, Aluminium Federation of SA, Johannesburg, August 2004 (9 delegates). Organiser and lecturer.
10. A two day short course on *Residual stresses and Failure Analysis*, Nelson Mandela Metropolitan University, Port Elizabeth, November 2005 (38 delegates). Organiser and co-lecturer.
11. A two day short course on *Interactive Learning from Failure*, ESKOM, Johannesburg, April 2011 (25 delegates). Organiser and lecturer.

PAPERS IN PROFESSIONAL JOURNALS

- P.1 R E Garz and M N James (1986), *Development of fatigue crack closure in an aluminium alloy*, *Fulcrum*, 16 14-20.
- P.2 M N James (1993), *Developments in advanced materials and composites*, *Mechanical Technology*, January 1993 25-29.
- P.3 M N James (1994), *Developments in casting processes*, *Mechanical Technology*, May 1994 26-31.
- P.4 M N James (1994), *Common fusion welding processes - Part 1*, *Mechanical Technology*, June 1994 9-17.
- P.5 M N James (1994), *Common fusion welding processes - Part 2*, *Mechanical Technology*, July 1994 29-30.
- P.6 M N James (1995), *Ensuring structural reliability*, *Mechanical Technology*, February 1995 29-32.
- P.7 M N James (1995), *Fatigue and fracture toughness testing*, *Mechanical Technology*, April 1995 9-13.
- P.8 M N James (1995), *Typical examples of gear failure*, *Mechanical Technology*, August 1995 31-35.
- P.9 M N James (1995), *Materials selection in engineering design*, *Mechanical Technology*, November 1995 29-32.
- P.10 M N James (1996), *Design of weldments subject to dynamic loading*, *Mechanical Technology*, April 1996 31-34.
- P.11 M N James (1996), *Engineering units : a rugby players dream - accurate conversion*, *Mechanical Technology*, December 1996 29-31.
- P.12 C M Leavey, M N James, J Summerscales and R Sutton (2003), *An introduction to wavelet transforms: a tutorial approach*, *Insight* 45 No. 5 May 2003 344-353.
- P.13 M N James (2006), *Anatomy of a failure*, *Cranes Today*, November 2006 45-48.
- P.14 M N James, A Steuwer, D Hattingh, H Lombard, D Hughes and T Pirling (2007), *Advances in fatigue lifing of welds using neutron strain scanning*, **Scientific Highlights**, Annual Report 2006 of the Institut Laue-Langevin, Grenoble, pp.28-29.

(ii) TEACHING AND LEARNING ACTIVITIES

My teaching philosophy can be summed up quite simply as being driven by the desire to transmit my engineering experience in as complete a fashion as possible to students. The aim is to provide them with clearly structured stepping stones to facilitate assimilation of an effective engineering outlook. The experience to be transmitted is in reality a holistic view of the world, and its interaction with, and mutual enhancement by, design, technology and engineering. This necessarily incorporates high level skills in problem definition, analysis, synthesis and communication, which must, however, be soundly placed in the human context of social demands, ethical considerations, sustainability and personal responsibility.

To achieve this is not simple, but it is made possible by a strong circular linkage between teaching, research and industrial practice, and by rooting my teaching firmly in case studies derived from real engineering experience. Thus I use research expertise and consulting practice to bridge the perceived gap between undergraduate teaching, the practice of engineering, and its development through research (both fundamental and applied). I find this 'experiential' approach very powerful in stimulating interest and extending the commitment of undergraduates to the learning process and, with suitable adjustments and the use of appropriate e-learning resources, can work at all levels from early undergraduate through to PGT and PGR students.

I have been engaged in discussing teaching and learning issues with colleagues at other institutions for more than 12 years, and have implemented a variety of innovative learning and teaching concepts in my modules over the last decade. I have experience with student-centred learning, problem-based learning, experiential and authentic learning, on-line peer assessment of individual performance in groups and of

assignments, and e-learning. This is evidenced in the section on awards and development below.

I have initiated and led several teaching and learning initiatives in the Faculty of Technology, with strong support from Chris Ricketts and Paul Robinson. We were successful with a proposal to the Royal Academy of Engineering for funding (£60,000) of three Visiting Professors in Integrated Systems Design over a three year period. The main outcomes were a new first year experiential learning module, common to ALL accredited BEng programmes devoted to integrated system design, an interactive www site allowing the module and various case studies, including student group work, to be available to other UK universities and colleges, and a www resource to which all may contribute and/or use as appropriate.

I initiated a Pedagogic Research network in the Faculty aimed at breaking down the divide between research and teaching. I successfully applied for University funds (£165,000) from the HEFCE Research-Informed Teaching initiative to support the development of a Centre for Creative Design & Technology (jointly between the Faculties of Arts and Technology) and to further the development of a common experiential learning first year curriculum. The Centre for Creative Design & Technology formed part of the Corporate Strategy of the University of Plymouth in 2007-2009 and was subsequently re-badged as MANIFEST: a Centre for Visualisation, Simulation and Fabrication.

TEACHING AND LEARNING AWARDS AND DEVELOPMENT

- 1993** **British Council grant in 1993 of £1,700** to visit several UK universities and discuss teaching and learning developments relevant to widening participation at University. This led to implementation of concepts in self-assessment, learning strategies, mini-class seminars given by students, and resource-based learning.
- 1996** Attendance at **two-day course on Effective Teaching** given by Professor Richard M Felder (North Carolina State University) and Professor Rebecca Brent (East Carolina University) in 1996. Professor Felder was co-director of the National Effective Teaching Institute in the US under the auspices of the American Society for Engineering Education. Professor Brent organised and directed Teachers Learning Collaboratively, a group at East Carolina that promoted effective teaching and its growth and change.
- 1998** **£12,618 from the Centre for Innovation & External Developments**, University of Plymouth to lead the development of a package of industrially centred, intensive block release short course/MSc modules, in collaboration with academic colleagues.
- 2000** **£4,000 from the UK Centre for Materials Education** (part of the LTSN network) for a proposal put forwards in response to their first call for **Teaching Development Grants**. This work supported the development of a set of interactive case studies in failure analysis, which has been internationally acknowledged as equal to the best in the world in its particular area. See: http://www.tech.plym.ac.uk/sme/Interactive_Resources/index.html. Permission to link to these web pages has been requested by UK learning resource centres like LTSN, and by academics in universities in other countries. I have also been invited to give a presentation on these case studies at the University of Birmingham. One of my fracture mechanics examples was included in book on tutorial problems – *Problems of Fracture Mechanics and Fatigue – A Solution Guide*, E EGdoutos, C A Rodopoulos and J R Yates, Kluwer Academic Publishers, Dordrecht 2003, pp.427-430. Copyright permission to use a table on failures of the design process has also been requested by the publishers of *Design Process Improvement - A Review of Current Practice* by P J Clarkson and C Eckert (Eds.) Springer 2005, ISBN: 1-85233-701-X.
- 2003-2004** Support from the Pro Vice-Chancellor (Teaching & Learning) of **£20,000** over 2003/4 enabled Chris Ricketts and me to trial on-line peer assessment of project work and of individual performance in group work. This was a major project that led to a paper being presented at the 1st International Conference on Enhancing Teaching and Learning through Assessment, Hong Kong, June 2005. My presentation at this conference was referred to as 'inspirational' by the highly regarded education researcher Professor Lewis Elton.
- 2005** University of Plymouth **Teaching Fellowship Award of £5,000** for 2005-2006. These awards fund initiatives that contribute to innovation in teaching and learning in the

University. The proposal dealt with *Development and Implementation of Problem-Based Learning in First-Year Engineering* and led to the implementation of a new 20 credit experiential learning module common to several degree programmes (DSGN 143) with support from the Royal Academy of Engineering (£60,000 over 3 years for Visiting Professors in Integrated Systems Design).

WEB-BASED LEARNING RESOURCES

The web materials described below have been brought together as a coherent package of interactive multimedia resources aimed at transferring high level skills in failure analysis and its associated techniques of fractography and linear elastic fracture mechanics. The home page of these resources is:

<http://www.fatiguefracture.com>

FM Tutorial: This web-based tutorial allows structured learning of problem solving skills in the area of linear elastic fracture mechanics. It provides a complete, self-contained package (with 24/7 availability) of industrially focussed problems, applicable and directed theory, hints, and solutions, with interactive graph plotting and calculation. The hints are based on 15 years experience with the areas of difficulty students find in tackling imprecise, crack orientated, and open-ended fracture mechanics problems, from the standpoint of a conventional fully specified, stress orientated, continuum mechanics background. It provides an excellent practical introduction to applied linear elastic fracture mechanics. It supports a third year module MECH306 *Failure Mechanisms and Mechanics*.

Failure: These pages provide an interactive learning environment in the area of failure analysis and its associated techniques, e.g. fractography, metallography and simple fracture mechanics. It deals with industrially-derived case studies in forensic engineering and failure analysis, which are firmly grounded in the context of their legal, insurance and design consequences. The examples are presented in such a way to guide the learner through the sequence of analytical steps and thought processes involved in failure analysis. The learning package includes focussed and hyperlinked background theory and information, and its interpretation. The content also includes multi-choice interactive intermediate steps which allow the learner to explore other decisions in the analysis tree and their potential consequences. Development of this individual internet-based learning package in failure analysis through industrial case studies was supported by a grant of £4000 from the UK Centre for Materials Education. It is suitable for use in a CPD short course or a third year module.

Design: This resource provides a portal into a managed learning environment aimed at assisting in teaching the philosophy of generic design problem solution, and enabling innovative, thoughtful and ethical analysis of engineering systems and their impact on society and the environment. It supports a first year module DSGN119 *Design as a Generic Tool* which is interdisciplinary and project-based. This internet resource draws together structured information on: module administration; important diagrams; illustrative case studies of innovative design; techniques available to encourage inventive problem solving; ethics and sustainability. It also contains a major resource dealing with learning from case studies of engineering failure (either structural, technological, market assessment, or management) arising from inadequate consideration of one, or more, aspects of the overall multi-faceted design process. It has also trialled sophisticated Computer Aided Peer Assessment in individual and group assignments.

Permission to link to these web pages has been requested by UK learning resource centres like LTSN, and by academics in universities in other countries. I have also been invited to give a presentation on these case studies at the University of Birmingham. One of my fracture mechanics examples was included in book on tutorial problems – *Problems of Fracture Mechanics and Fatigue – A Solution Guide*, E EGdoutos, C A Rodopoulos and J R Yates, Kluwer Academic Publishers, Dordrecht 2003, pp.427-430. Copyright permission to use a table on failures of the design process has also been requested by the publishers of *Design Process Improvement - A Review of Current Practice* by P J Clarkson and C Eckert (Eds.) Springer 2005, ISBN: 1-85233-701-X.

UNDERGRADUATE EXTERNAL EXAMINATION

1997-1999 External Examiner to the Department of Mechanical Engineering in the University of

Nairobi, Kenya for the period 1997-1999.

1997-2002 *Subject and Award External Examiner* in Mechanical and Manufacturing Engineering in the Department of Mechanical & Design Engineering at the University of Portsmouth.

2003-2005 *Subject Examiner* in the Faculty of Engineering, Built Environment & Information Technology at the University of Pretoria, South Africa.

TEACHING AND LEARNING PAPERS

- T.1 M N James (2004), *Do students/staff get/give the teaching they deserve?*, Ethos, Issue 4, University of Plymouth, May 2004.
- T.2 M N James (2005), *Encouraging Holistic Understanding of Engineering Design Through Teaching 'Design as a Generic Tool'*, Educating Engineers in Design – Lessons learnt from the Visiting Professors Scheme, Royal Academy of Engineering, ed. K Wallace, pp.30-31 ISBN 1-903496-17-9.
- T.3 M N James and D J Grieve (2006), *Development of an Interactive Learning Package for Teaching Failure Analysis through Industrial Case Studies*, British Journal of Engineering Education, Vol. 5 No. 1, pp.19-28, British Engineering Education Society, Sheffield Hallam University Press ISSN 1470-4692.
- T.4 M Miles, C Ricketts, C Burton and M N James (2007), *Introducing Computer-Aided Peer Assessment in Engineering*, Frankland, Steve (Ed.), *Enhancing Teaching and Learning through Assessment: Deriving an Appropriate Model*, Vol.2, pp.34-41, The Assessment Resource Centre, The Hong Kong Polytechnic University, Springer, The Netherlands, (Proceedings of the 1st International Conference on Enhancing Teaching and Learning Through Assessment, Hong Kong, 13-15 June 2005) ISBN: 978-1-4020-6225-4.

(iii) RESEARCH AND KNOWLEDGE EXCHANGE ACTIVITIES

Much of my research work has been industrially funded at both undergraduate and postgraduate levels, and I have been active in Knowledge Transfer Partnership programmes. Many of the postgraduate degree students that I have supervised have worked on industrially supported projects. I have always sought to build productive national and international research partnerships and have led the consortium of 9 UK HEIs operating the Facility for Materials Engineering (FaME38) at the Institut Laue-Langevin, Grenoble, France. This facility acts as an 'intelligent interface' between radiation beam line physicists, materials scientists and the engineering research community. The FaME38 project was supported by the EPSRC, the Institut Laue-Langevin and the European Synchrotron Radiation Facility and has an international reputation for its achievements and impact in strain scanning. Between 1996 and 2007 I have been awarded research grants and peer reviewed access to neutron and synchrotron radiation facilities with a value amounting to some £1,866,771.

EVIDENCE OF ESTEEM

- Co-Instigator and Organiser of the 1st international workshop under the joint aegis of the *International Journal of Fatigue* (Elsevier) and *Fatigue and Fracture of Engineering Materials and Structures* (Wiley) on *Characterisation of Crack Tip Stress Fields*, Forni di Sopra, Italy, 7-9 March 2011.
- Member of the International Scientific Committee of the 9th *International Conference on Multiaxial Fatigue and Fracture*, Parma, Italy, 7-10 June 2010.
- Co-Chair and Plenary Lecturer for the 1st *International Conference on Advances in Product Development and Reliability (PDR'2008)*, organized by Southwest Jiaotong University, Chengdu, China, 4-6 August 2008 and for the 2nd *International Conference on Advances in Product Development and Reliability (PDR'2010)*, organized by Northeastern University, Shenyang, China, 28-30 July 2010.
- Session Chair at the 6th *International Conference on Fracture and Damage Mechanics*, Madeira, Portugal 17-19 July 2007.
- Session Chair at the 10th *International Conference on the Mechanical Behaviour of Materials*, Busan, Korea, 27-31 May 2007.
- Member of the *International Technical Committee* of the Engineering Integrity Society for their *International Fatigue Conference, Fatigue 2007*, Cambridge, March 2007.
- Chair of an Institute of Materials, Minerals & Mining Workshop on *Failure Analysis Techniques*, Qinetiq, Farnborough, 25 January 2007.
- Member of the *International Scientific Committee* series for the *International Conferences on Crack Paths*. Plenary Session Chair at the 2nd *Conference*, Parma, Italy, 14-16 September 2006; invited

- Plenary Lecturer and session Chair at the *1st Conference*, Parma, Italy, 18-20 September 2003.
- *Invited talk* on Engineering Use of Synchrotron X-Ray and Neutron Radiation, EU FP6 project A *Concurrent Approach to Manufacturing Induced Part Distortion in Aerospace Components* (COMPACT) Workshop at Airbus, Broughton 27 June 2006.
 - *International Expert* for Deakin University and Swinburne University of Technology, Victoria, Australia, in the Australian Government initiated Research Quality Framework assessment exercise held in 2007.
 - Member of the *Colloquium Program Committee* for the *XIIIth International Colloquium on Mechanical Fatigue Of Metals*, Ternopil, Ukraine, 25-28 September 2006.
 - Session Chair at the *IIW Regional Conference on Welding and Related Inspection Technologies*, Stellenbosch, South Africa, 8-10 March 2006.
 - *External Assessor for RAE 2008* for the Engineering Unit at Kingston University, Surrey (2006), for General Engineering at the University of Greenwich (2006), and for the Metallurgy and Materials Unit at Sheffield Hallam University (2007).
 - Session Chair on Industrial Aspects of Residual Stress at *Euromat 2005, the European Congress on Advanced Materials and Processes*, Prague, 5-8 September 2005.
 - Leader of Phase 2 of the development and exploitation of FaME38, the Facility for Materials Engineering at the Institute Laue-Langevin (ILL) and the European Synchrotron Radiation Facility (ESRF), Grenoble, France, on behalf of a UK consortium of 12 University partners (2005). Funded by EPSRC grant EP/C008847/1, £467 460 for 12 months, with €200 000 of matching support from the ILL and ESRF. Previously invited to join the Management Committee (2002).
 - Member of the *Organising Committee* for the *Conference on EPSRC-ILL Millennium Projects* to be held in Grenoble, France, May 2005.
 - Invited to lecture at the *20th Fatigue & Fracture Mechanics Symposium* in Bydgoszcz-Pieczyska, 27-30 April 2004.
 - Member of the *International Technical Committee* of the *International Conference Series on Engineering Failure Analysis*, Keynote Lecturer and Session Chair at the 1st conference in Lisbon, Portugal, 12-14 July 2004; Session Chair at the 3rd conference in Sitges, Spain, 13-16 July 2008. Conferences organised by Elsevier and the scientific journal *Engineering Failure Analysis* (conference series: ICEFA-I Lisbon, Portugal 12-14 July 2004; ICEFA-II Toronto, Canada 12-15 September 2006; ICEFA-III Sitges, Spain 13-16 July 2008).
 - *Co-Chair of the Technical Committee on Fatigue* for the *12th International Congress in Experimental Mechanics (ICEM12)*, Bari, Italy, 29 August - 2 September 2004.
 - Session Chair on *Process Control and Modelling of FSW at Aeromat 2003*, the 14th Advanced Aerospace Materials and Processes Conference organised by ASM International in Dayton, Ohio, 9-12 June 2003.
 - Invited to attend the Elsevier Editors' Conference in Barcelona, Spain, 21 June 2003.
 - EPSRC Peer Review College member for the period 2000-2002 and 2003-2005. Have acted as peer reviewer for EPSRC funding proposals, for NRF proposals (USA) and for NRF proposals (South Africa).
 - Keynote paper and member of the Organising Committee for a *Workshop on Friction Stir Welding* sponsored by the European Office of the US army Research Office, PE Technikon, Port Elizabeth, South Africa, 1-3 April 2003.
 - Plenary Lecture at *Fatigue 2003*, Cambridge, UK, 9-11 April 2003 and Session Chair. Conference organised by the Engineering Integrity Society.
 - Session Chair at the *14th European Conference on Fracture*, Krakow, Poland, September 2002.
 - Keynote Lecture at *Fatigue 2002, the 8th International Fatigue Congress*, Stockholm, Sweden in June 2002. This is the pre-eminent fatigue conference series in the world, which is held on a triennial basis. Member of the *International Advisory Board* for the 2002 conference and the *International Organising Committee* for the 2006 conference. Chaired two sessions at the 2002 conference.
 - Invited to lecture at the *7th Summer School on Fracture Mechanics*, Technical University of Opole, Poland, 18-22 June 2001.
 - Keynote Lecture at *Fracture 2000, the 5th International South African Conference on Fracture* held in Cape Town, South Africa in December 2000; also *Co-Chairman of the Organising Committee* and member of the International Scientific and Technical Board for this conference.
 - Invited in 1999 to serve on Panel 30, *Mechanical, Aeronautical and Manufacturing Engineering* in the 2001 Research Assessment Exercise organised by the Higher Education Funding Council of England (HEFCE).
 - Session Chair at the *12th European Conference on Fracture*, Sheffield, September 1998.

- Invited to attend a residential EPSRC Workshop which defined the *Structural Integrity Managed Programme* at Armathwaite Hall, Keswick, 23-25 November 1997.
- Keynote paper at the *9th International Conference on Fracture*, Sydney, Australia, April 1997.
- Invited to visit the *Marmara Research Institute* in Gebze, Turkey from 29 May - 2 June 1995 to lecture on fatigue and fracture toughness in WC-Co hardmetals.
- Member of the International Advisory Board of the *XIIth International Colloquium on Mechanical Fatigue of Metals*, held in Miskolc, Hungary in March 1994 and a Session Chair.
- Session Chair at *Fatigue 90*, the *4th International Conference on Fatigue and Fatigue Thresholds*, held in Honolulu, Hawaii in July 1990.
- Session Chair at the *2nd International Conference on Short Fatigue Cracks*, held at the University of Sheffield in December 1990.
- Consultant to the Division of Materials Science and Technology at the Council for Scientific and Industrial Research, South Africa (1986 - 1990) in the area of fatigue crack growth in metals.

EDITORSHIPS AND EDITORIAL BOARDS

- *Frattura ed Integrità Strutturale* - the International Journal of the Italian Fracture Group; member of the Editorial Board from August 2010.
- *Materials and Product Technologies, Proceedings of the 2nd International Conference on Advances in Product Development and Reliability*, Shenyang, China, 28-30 July 2010, Eds. L Y Xie, M N James, Y X Zhao and W X Qian, Trans Tech Publications, Zurich, Switzerland. ISBN 978-3-908452-30-9.
- *Materials and Product Technologies, Proceedings of the 1st International Conference on Advances in Product Development and Reliability*, Chengdu, China, 4-6 August 2009, Eds. Y Z Shen, M N James, W D Li and Y X Zhao, Trans Tech Publications, Zurich, Switzerland. ISBN 978-0-87849-376-0.
- *Open Mechanical Engineering Journal* – Bentham Science; Member of the Editorial Board from February 2007.
- *Engineering Failure Analysis* – Elsevier Science; Member of the Editorial Advisory Board of this Elsevier publication from September 2004.
- *International Journal of Fatigue* – Elsevier Science; Co-Editor from January 2008, Regional Editor (Europe, Middle East and Africa) from January 1999, Acting Editor from July 1998-December 1998, Member of the Editorial Advisory Board from April 1992.
- *Mechanical Technology* – Crown Publications, South Africa; Editorial consultant and monthly comment writer from January 1992 - December 1996.
<http://www.crown.co.za/mechanicaltechnology.htm>
- *Proceedings of the 3rd and 4th National Conferences on Fracture* – Johannesburg; Editor and Organising Committee Chair, July 1989 and November 1994. Selected papers from the 3rd National Conference were published internationally by Pergamon Press as a Special Issue (Vol. 3 No. 1) of the journal *Forensic Engineering*, with a guest editorial. Selected papers from the 4th National Conference were published by Butterworth-Heinemann as a special issue of the *International Journal of Fatigue* (Vol. 17 No. 7) with a guest editorial.
- *The Behaviour of Short Fatigue Cracks* - Mechanical Engineering Publications, London; Member of the editorial panel for this first publication of the European Group on Fracture, 1986.

SCIENTIFIC PAPER REVIEWING

- *Metallurgical and Materials Transactions A*, American Society for Materials
- *Science and Technology of Advanced Materials*, Elsevier
- *Journal of Strain Analysis for Engineering Design*, Institution of Mechanical Engineers
- *R&D Journal* of the South African Institution of Mechanical Engineering
- *Materials Science and Engineering*, Elsevier
- *International Journal of Computer Applications in Technology*, Elsevier
- *The Engineers Journal* of the Institution of Engineers of Ireland
- *International Journal of Fatigue*, Elsevier
- *Fatigue and Fracture of Engineering Materials and Structures*, Blackwell Publishing
- *Experimental Mechanics*, Society for Experimental Mechanics
- *Engineering Fracture Mechanics*, Elsevier
- *Journal of Materials Engineering and Performance*, American Society for Materials
- *Composites Part A: Applied Science and Manufacturing*, Elsevier

- International conference on *Fatigue Damage in Structural Materials* held in Hyannis, Massachusetts in September 1996.
- International conference on *Engineering Against Fatigue* held in Sheffield in March 1997.
- 17th International Conference on *Offshore Mechanics and Arctic Engineering (OMAE'98)* held in Lisbon in July 1998.

RESEARCH PROPOSAL REVIEWING

- *EPSRC Peer Review College* member for the period 2002-2010
- *National Research Foundation of South Africa* peer reviewer of research grant applications since 1998.
- *National Science Foundation in the USA* peer reviewer of research grant proposals
- *Netherlands Organisation for Scientific Research (NWO)* peer reviewer for national programme for investments in large scale research facilities
- *Leverhulme Trust*
- *Natural Sciences and Engineering Research Council of Canada*
- *Austrian Science Fund*

PROFESSORSHIP/ASSOCIATE PROFESSOR/READER REVIEW REQUESTS

University of Manchester, England
 University of Sheffield, England
 University of Portsmouth, England
 Sheffield-Hallam University, England
 Open University, England
 University of Cape Town, South Africa
 Michigan State University, MI, USA
 University of Utah, USA
 Royal Institute of Technology (KTH), Sweden
 University of the Witwatersrand, South Africa
 Kwame Nkrumah University of Science & Technology, Ghana (Senior Lecturer)
 Trinity College, Dublin, Ireland
 King Fahd University of Petroleum & Minerals, Saudi Arabia

RESEARCH CONTRACTS/GRANTS

- 1986-1989** Fracture and fatigue behaviour of a α -alumina ceramic (Council for Scientific and Industrial Research, South Africa)
- 1988-1990** Laser-based interferometric strain measurements on small cracks in nickel-base alloys at high temperatures (Council for Scientific and Industrial Research, South Africa)
- 1989-1990** Optimisation of the sinter-hipping process in terms of mechanical and physical properties of hardmetal grade V7 (Boart Research Centre, South Africa)
- 1990-1991** Life assessment of C-0.5Mo steel in hydrogen environments (SASOL Technology, South Africa)
- 1990-1994** Fatigue of welded 6261 aluminium I-beams (Aluminium Federation of South Africa).
- 1990** Effect of Fe content on the fracture toughness of 7075-T6 aluminium alloy (Hulett Aluminium, South Africa)
- 1990** Comparison of fracture toughness of WC-Co hardmetals determined in various ways (Boart Research Centre, South Africa)
- 1991-1992** Effect on fatigue life of reclaiming shafts by welding (Metalplus, South Africa)
- 1991-1993** Fatigue in drill rod steels (Boart Research Centre, South Africa)
- 1991** Fatigue in 7075-T6 aluminium alloys with various Fe contents (Hulett Aluminium, South Africa)
- 1992** Fatigue in 6061-T6 aluminium alloy with alumina additions (Hulett Aluminium, South Africa)
- 1994** Fracture toughness of uPVC and mPVC pipes (DPI Plastics, South Africa)
- 1994** Relation of tensile properties to fatigue life (Council for Scientific and Industrial Research, South Africa)
- 1996** Fatigue performance of joints in aluminium (Aluminium Federation of South Africa - £10,000)

- 1997** Royal Academy of Engineering - travel grant (£1,000)
- 1997-1999** Crack initiation and growth under asymmetric combined torsion/bending (EPSRC - £53,970 Grant GR/L56428)
- 1998-2001** Investigation of wake contact stresses developed during fatigue crack growth (Joint EPSRC/MOD/DERA - £124,216 Grant GR/L42391)
- 1998-2002** Fatigue performance of welded 5383 aluminium alloy (Hoogovens Research & Development, Netherlands - £63,362)
- 1998-2000** Contract fatigue testing of steel and aluminium (Hoogovens Research and Development, Netherlands - £7,500)
- 1998-2002** Numerical modelling of crack closure and welds (University of Plymouth - £106,000)
- 1998-2001** Subcontractor to Hoogovens R & D, Ijmuiden, Netherlands on a €1,331,950 research programme *Metallurgical aspects of fatigue resistance and cold work embrittlement of thin sheets* Project: 7210-PR/107 under the Research Fund for Coal and Steel, for the European Coal and Steel Community (£22,200)
- 2000** Royal Academy of Engineering - travel grant (£900)
- 2001** Residual stress field in friction stir welded marine grade aluminium alloy - European Synchrotron Radiation Facility, Grenoble, Experiment ME 197 - Beam line BM 16, allocation of 24 by 8 hour synchrotron beam shifts, accommodation and travel expenses (CCLRC facility costs for this experiment were £68,619).
- 2001** Residual stress field under fatigue loading in MIG welded marine grade aluminium alloy - European Synchrotron Radiation Facility, Grenoble, Experiment ME 282 - Beam line BM 16, allocation of 24 by 8 hour synchrotron beam shifts, accommodation and travel expenses (CCLRC facility costs for this experiment were £75,668).
- 2001-2002** Direct analysis of the stresses around a crack under the influence of a plastic enclave around tip and wake - UK Synchrotron Radiation Source, CCLRC Daresbury, Project 37131 - Station 16.3 - allocation of 10 days of beamtime, accommodation, travel and consumables (CCLRC facility costs for this experiment were £82,510).
- 2002** Royal Academy of Engineering - travel grant (£700)
- 2002-2005** Enhancing the fatigue strength of welded joints in higher strength steels (Corus research, Development & Technology, Rotherham - £18,000 CASE award over 3 years)
- 2003** Residual stresses in shot peened alloys and their incorporation into advanced life prediction - European Synchrotron Radiation Facility, Grenoble, Experiment ME 748 - Beam line ID 31, allocation of 27 by 8 hour synchrotron beam shifts, accommodation and travel expenses (CCLRC facility costs for this experiment were £ 80,060).
- 2003** Royal Academy of Engineering – travel grant (£500)
- 2004** Performance of galvanised high performance steels for the construction market (International Lead Zinc Research Organisation ILZRO, North Carolina, USA - \$24,400)
- 2004** Process performance optimisation for friction stir welds using the force footprint and strain scanning - European Synchrotron Radiation Facility, Grenoble, Experiment ME 992 – Beam line ID 31, allocation of 30 by 8 hour synchrotron beam shifts, accommodation and travel expenses (CCLRC facility costs for this experiment were £92,625).
- 2005** Residual strains in thick higher strength steel weld using SALSA - Institut Laue-Langevin, Grenoble, Experiment 7-01-167, SALSA strain imaging beamline, allocation of 4 days of neutron beam time, accommodation and travel expenses (CCLRC facility costs for this experiment were £96,103).
- 2005-2006** Exploitation and development of the joint support facility for materials engineering at the ILL-ESRF as a UK collaborative research group (EPSRC - £467,460, Grant EP/C008847/1; ILL-ESRF - €200,000).
- 2005-2006** New materials technology and manufacturing processes in the redesign and production of high quality critical flow tube fittings – Knowledge Transfer Partnership with Parker Hannifin plc (DTI - £92,232 Grant KTP000976).
- 2006** Performance of galvanised high performance steels for the construction market – Phase 2 (International Lead Zinc Research Organisation ILZRO, North Carolina, USA - \$49,998)
- 2006** Improving fatigue performance of higher strength steel welds – Institut Laue-Langevin, Grenoble, Experiment 7-01-196, SALSA strain imaging beamline, allocation of 4 days of beam time, accommodation and travel expenses (CCLRC facility costs for this experiment were £96,103).
- 2007** Optimising residual stresses in friction taper stud welds in creep resistance steel 10CrMo910 - Institut Laue-Langevin, Grenoble, Experiment 1-01-8, SALSA strain imaging beamline, allocation of 5 days of beam time, accommodation and travel expenses (CCLRC facility costs for this experiment were £85,606).
- 2007** Synchrotron diffraction investigation of residual stresses in 12Cr steel used in stationary steam turbine blades and their modification by shot peening and fatigue cycling - European Synchrotron Radiation Facility, Grenoble, Experiment MA-

326 – Beamline ID 31, allocation of 12 by 8 hour synchrotron beam shifts, accommodation and travel expenses (CCLRC facility costs for this experiment were £40,587).

- 2008** Characterisation of pre- and post-weld heat treatment on residual stresses in friction taper stud welds in 10CrMo910 steel - Institut Laue-Langevin, Grenoble, Experiment 1-01-58, SALSA strain imaging beamline, allocation of 4 days of beam time, accommodation and travel expenses (CCLRC facility costs for this experiment are around £80,000).
- 2008** Neutron diffraction investigation of residual stresses in 304L Residual stresses in austenitic stainless steel: comparison of weld techniques - Institut Laue-Langevin, Grenoble, Experiment 1-01-73, SALSA strain imaging beamline, allocation of 4 days of beam time, accommodation and travel expenses (CCLRC facility costs for this experiment are around £80,000).
- 2009** Characterisation of induction heat treatment effects on residual stress in friction taper stud welds –Rutherford Appleton Laboratories, Experiment RB910338, ISIS beamline, allocation of 3 days of beam time, accommodation and expenses.
- 2009** Neutron diffraction investigation of residual stresses in nickel-based austenitic weldments on creep resistant Cr-Mo-V material - Institut Laue-Langevin, Grenoble, Experiment 1-02-31, SALSA strain imaging beamline, allocation of 5 days of beam time, accommodation and travel expenses.
- 2010** Measurement and modelling of residual stresses at dissimilar welds in reactor steels - Institut Laue-Langevin, Grenoble, Experiment 1-02-44, SALSA strain imaging beamline, allocation of 5 days of beam time, accommodation and travel expenses.

RESEARCH DEGREE THESES SUPERVISED

MSc(Eng) - 2 year full-time research degree

- RE Garz, *Fatigue Crack Closure and Closure Development in a High Strength Aluminium Alloy*, 1988.
- DG Mech *Fracture and Fatigue of -Alumina*, 1989 (Council for Scientific and Industrial Research, South Africa).
- AM Human *The Production of WC-Ni-Cr/Mo Cemented Carbides and Their Properties*, 1991 (Boart Research Centre, South Africa).
- HOLambrecht *Fatigue Life Prediction For Aluminium 6261-T6 I-Beams Welded With Cover Plates*, 1991 (Aluminium Federation of South Africa).
- MB Mason *The Characterisation of the Properties of ASTM A302 Grade B steel When Tested Under the Influence of Hydrogen*, 1992 (SASOL Technology, South Africa).
- AR Jarvis *Environmentally Assisted Cracking of a Low Alloy Nickel Steel in a Sour Environment*, 1994 (SASOL Technology, South Africa).
- N Sutcliffe *Variable Amplitude Fatigue of 6261-T6 Aluminium Alloy I-Beams*, 1994 (Aluminium Federation, South Africa).
- AM Heyes *Variable Amplitude Fatigue and Corrosion Phenomena of Seamless Tube Steels*, 1996.
- Li Wenfong *Fatigue Crack Propagation and Closure of Grey and Austempered Ductile Cast Irons in Air and Mine Water Environment*, 1997.

PhD

- DP Spencer *The Rationalization of Fatigue Crack Propagation Behaviour in Biaxial Stress Fields*, 1988.
- OFRADamm *Friction and wear of selected metal-ceramic and polycrystalline diamond sliding couples*, 1996 Council for Scientific and Industrial Research, South Africa.
- SPNg'ang'a *Variable amplitude fatigue in En8 (080M40) steel*, 1997.
- PJ McGrath *An investigation of residual stresses induced by forming processes on the fatigue resistance of automotive wheels*, 2001.
- GR Bradley *Fatigue Properties of Metal Inert Gas and Friction Stir Welded Aluminium Alloy 5383-H321*, 2003 (Corus Research and Development).
- H Lombard *Optimized fatigue and fracture performance of friction stir welded aluminium plate: a study of inter-relationships between process parameters, TMAZ, microstructure, defect population and performance*, 2007.

MPhil (from a Knowledge Transfer Partnership with Smart Manufacturing)

- C A Yeo *The Development of a Methodology for a Dynamic Design Process*, 2004.

Theses Examined

MSc

2000 University of Bristol - 1

MEng

2002, 2005 University of Pretoria – 2

MSc(Eng)

1997, 1998 University of the Witwatersrand, South Africa – 2

MPhil

1998 University of Sheffield – 1

2000 University of Plymouth – 1

PhD

1994, 2001 University of Cape Town, South Africa – 2

2000 University of the Witwatersrand, South Africa – 1

1993, 1998, 2000, 2002, 2003, 2004, 2007, 2008 University of Sheffield – 8

2000, 2001 University of Plymouth – 2

1999, 2004 Trinity College, Dublin – 2

2001 University of Southampton – 1

2001 Sheffield Hallam University – 1

2005, 2011 Open University – 2

2006 Nanyang Technological University – 1

2006 University of Seville – 1

2007 University of Pretoria – 1

2008 University of Oxford – 1

2008 Cranfield University – 1

2009 Oxford Brookes University - 1

DTech

2005 Nelson Mandela Metropolitan University, South Africa - 1

RESEARCH PUBLICATIONS

A(1) Books

A.1 M N James (1989), *Designing Against Fatigue*, Design Guide for the Aluminium Federation of South Africa, 103 pages.

A.2 M N James (1995), *Structural Welding: An Introduction to Processes and Weldability of Structural Alloys*, unpublished undergraduate text.

A(2) Edited Books

A.3 Z Y Shen, M N James, W D Li and Y X Zhao (2008), *Materials and Product Technologies*, Trans Tech Publications, Switzerland, Proceedings of the 1st International Conference on Advances in Product Development and Reliability, Chengdu, China, 4-6 August 2008. ISBN: 0-87849-376-X

A.4 L Y Xie, M N James, Y X Zhao and W X Qian (2010), *Materials and Product Technologies*, Trans Tech Publications, Switzerland, Proceedings of the 2nd International Conference on Advances in Product Development and Reliability, Shenyang, China, 28-30 July 2010. ISBN: 978-3-908452-30-9

A(3) Guest Edited Journal Special Issues

A.4 Forensic Engineering Vol. 3 No. 1 1991 ISSN 0888-8817 (Pergamon Press), Selected papers from the 3rd National Conference on Fracture, Johannesburg, South Africa, June 1989.

A.5 International Journal of Fatigue Vol. 17 No. 7 1995 ISSN 0142-1123 (Elsevier), Selected papers from the 4th National Conference of Fracture, Johannesburg, South Africa, November 1994. [http://dx.doi.org/10.1016/0142-1123\(95\)90043-8](http://dx.doi.org/10.1016/0142-1123(95)90043-8)

A.6 International Journal of Fatigue Vol. X No. X 2011 ISSN 0142-1123 (Elsevier), Special Issue on Fatigue Life Assessment containing selected papers from the 2nd International Conference on Advances in Product Development and Reliability (PDR'2010), Shenyang, China, 28-30 July, 2010. <http://dx.doi.org/10.1016/j.ijfatigue.2011.05.010>

A.7 International Journal of Fatigue Vol. X No. X 2011 ISSN 0142-1123 (Elsevier), Special Issue on Characterisation of Crack Tip Stresses containing selected papers from the 1st International Conference on Characterisation of Crack Tip Stress Fields, Forni di Sopra, Udine, Italy, 7-9 March 2011.

A(4) Invited Book Chapters

- A.8 M N James, D G Hattingh, H Lombard, D L H Bulbring, A Els-Botes and A Steuwer (2010), *Failure mechanisms in friction stir welds*, Failure Mechanisms of Advanced Welding Processes, ed. X Sun, Woodhead Publishing, Great Abington, Chapter 7, pp.164-186 ISBN 978-1-84569-536-1.
- A.9 M N James, D G Hattingh and A Steuwer (2011), *Residual stresses at welds*, Fatigue and Fracture in Structural Welds, ed. K A McDonald, Woodhead Publishing, Great Abington, Chapter 10, pp.276-296 ISBN 978-1-84569-742-6.

B Papers in Academic Journals

- B.1 M N James and G C Smith (1983), *Surfacemicrocrack closure in fatigue: a comparison of compliance and crack sectioning data*, International Journal of Fracture, 22pp.R69-R75 ISSN 0376-9429. <http://dx.doi.org/10.1007/BF00942729>
- B.2 M N James and G C Smith (1983), *Crack closure and surface microcrack thresholds - some experimental observations*, International Journal of Fatigue, 5pp.75-79 ISSN 0142-1123. [http://dx.doi.org/10.1016/0142-1123\(83\)90057-9](http://dx.doi.org/10.1016/0142-1123(83)90057-9)
- B.3 M N James and G C Smith (1983), *A note on small semi-elliptic cracks in notched and plain specimens*, Res Mechanica, 9pp.129-136 ISSN 0143-0084.
- B.4 M N James and J F Knott (1985), *An assessment of crack closure and the extent of the short crack regime in Q1N (HY80) steel*, Fatigue and Fracture of Engineering Materials and Structures, 8pp.177-191 ISSN 0160-4112. <http://dx.doi.org/doi:10.1111/j.1460-2695.1985.tb01202.x>
- B.5 M N James and J F Knott (1985), *Near threshold fatigue crack closure and growth in air and vacuum*, ScriptaMetallurgica, 19pp.189-194 ISSN 1359-6462. [http://dx.doi.org/10.1016/0036-9748\(85\)90180-2](http://dx.doi.org/10.1016/0036-9748(85)90180-2)
- B.6 M N James and J F Knott (1985), *Critical aspects of the characterisation of crack tip closure by compliance techniques*, Materials Science and Engineering, 72 L1-L4 ISSN 0921-5093. [http://dx.doi.org/10.1016/0025-5416\(85\)90074-6](http://dx.doi.org/10.1016/0025-5416(85)90074-6)
- B.7 M N James (1985), *The effect of grain size on the location of crack wake closure during load shedding*, ScriptaMetallurgica, 19pp.1301-1306 ISSN 1359-6462. [http://dx.doi.org/10.1016/0036-9748\(85\)90055-9](http://dx.doi.org/10.1016/0036-9748(85)90055-9)
- B.8 M N James (1985), **Award Winning Paper:** *Some aspects of fatigue crack growth: 1. Growth rate characterisation and the defect tolerant approach*, The South African Mechanical Engineer, 35pp.444-449.
- B.9 M N James (1985), **Award Winning Paper:** *Some aspects of fatigue crack growth: 2. Short crack effects in fatigue*, The South African Mechanical Engineer, 35pp.496-499.
- B.10 M N James (1987), **Award Winning Paper:** *Fractography during failure analysis - what it reveals*, The South African Mechanical Engineer, 37pp.25-29.
- B.11 M N James (1987), *Some observations of the effect of microstructure, wake plasticity and fast cooling on fatigue crack closure*, International Journal of Fatigue, 9pp.179-183 ISSN 0142-1123. [http://dx.doi.org/10.1016/0142-1123\(87\)90075-2](http://dx.doi.org/10.1016/0142-1123(87)90075-2)
- B.12 M N James (1988), *Conference report on The Third International Conference on Fatigue and Fatigue Thresholds*, Charlottesville VA, International Journal of Fatigue, 10p.57 ISSN 0142-1123. [http://dx.doi.org/10.1016/0142-1123\(88\)90028-X](http://dx.doi.org/10.1016/0142-1123(88)90028-X)
- B.13 M N James (1988), *Fatigue threshold behaviour of small hydrogen-induced cracks*, ScriptaMetallurgica, 22pp.201-205 ISSN 1359-6462. [http://dx.doi.org/10.1016/S0036-9748\(88\)80334-X](http://dx.doi.org/10.1016/S0036-9748(88)80334-X)
- B.14 M N James (1988), *Designing against fatigue*, The South African Mechanical Engineer, 38pp.651-658.
- B.15 J F Bromley and M N James (1988), *High-resolution displacement measurements using automated laser interferometry*, South African Journal of Science, 84 No.11 pp.878-879 ISSN 0038-2353.
- B.16 M N James, C Dimitriou and H D Chandler (1989), *Low cycle fatigue lives of notched components*, Fatigue and Fracture of Engineering Materials and Structures, 12pp.213-225 ISSN 0160-4112. <http://dx.doi.org/doi:10.1111/j.1460-2695.1989.tb00528.x>
- B.17 M N James and W N Sharpe, Jr (1989), *Closure development and crack opening displacement in the short crack regime for fine and coarse grained A533B steel*, Fatigue and Fracture of Engineering Materials and Structures, 12pp.347-361 ISSN 0160-4112. <http://dx.doi.org/doi:10.1111/j.1460-2695.1989.tb00542.x>
- B.18 R E Garz and M N James (1989), *Observations on evaluating fatigue crack closure from compliance traces*, International Journal of Fatigue, 11pp.437-440 ISSN 0142-1123. [http://dx.doi.org/10.1016/0142-1123\(89\)90184-9](http://dx.doi.org/10.1016/0142-1123(89)90184-9)
- B.19 M N James, A M Human and S Luyckx (1990), *Fracture toughness testing of hardmetals using compression-compression precracking*, Journal of Materials Science, 25pp.4810-4814 ISSN 0022-2461. <http://dx.doi.org/10.1007/BF01129946>
- B.20 M N James, R B Tait and D G Mech (1991), *Compression fatigue in B₂O₃-alumina*, Fatigue and Fracture of Engineering Materials and Structures, 14pp.227-235 ISSN 0160-4112. <http://dx.doi.org/doi:10.1111/j.1460-2695.1991.tb00655.x>

- B.21 M N James (1991), *The role of the fracture expert in failure analysis*, Forensic Engineering, 3No. 1 pp.7-21. ISSN 0888-8817.
- B.22 M N James and R E Garz (1991), *Relating closure development in long cracks to the short crack regime*, International Journal of Fatigue, 13pp.169-173 ISSN 0142-1123.[http://dx.doi.org/10.1016/0142-1123\(91\)90010-V](http://dx.doi.org/10.1016/0142-1123(91)90010-V)
- B.23 M N James (1991), *A note on short crack generation techniques*, Materials Science and Engineering, A147 L13-L16 ISSN 0921-5093.[http://dx.doi.org/10.1016/0921-5093\(91\)90815-5](http://dx.doi.org/10.1016/0921-5093(91)90815-5)
- B.24 P V Kotvis, W T Tysøe and M N James (1992), *An investigation of film removal in extreme pressure lubrication using chlorinated hydrocarbon additives*, Wear, 153pp.305-314 ISSN 1068-3666.[http://dx.doi.org/10.1016/0043-1648\(92\)90171-4](http://dx.doi.org/10.1016/0043-1648(92)90171-4)
- B.25 A M Human, I T Northrop, S B Luyckx and M N James (1992), *A comparison between cemented carbides containing cobalt and nickel based binders*, Journal of Hard Materials, 2pp.245-256 ISSN 0263-4368.
- B.25 S B Luyckx, F R N Nabarro, S-W Wai and M N James (1992), *The anisotropic work-hardening of WC crystals*, Acta Metallurgica et Materialia, 40pp.1623-1627 ISSN 1359-6454.[http://dx.doi.org/10.1016/0956-7151\(92\)90104-M](http://dx.doi.org/10.1016/0956-7151(92)90104-M)
- B.27 M N James (1992), **Award Winning Paper:** *Optimising the fatigue resistance of metals*, Research & Development Journal, SAIMechE, 8pp.34-42 ISSN 0257-9669.
- B.28 M N James, H O Lambrecht and A E Paterson (1993), *Fatigue strength of welded cover plates on 6261 aluminium alloy I-beams*, International Journal of Fatigue, 15pp.519-524 ISSN 0142-1123.[http://dx.doi.org/10.1016/0142-1123\(93\)90266-S](http://dx.doi.org/10.1016/0142-1123(93)90266-S)
- B.29 M N James and K Bigham (1994), **Award Winning Paper:** *Fatigue strength of shafts reclaimed by welding*, Research & Development Journal, SAIMechE 10pp.7-11 ISSN 0257-9669.
- B.30 M N James (1995), *Some potential pitfalls in failure analysis*, International Journal of Fatigue, 17No. 7 pp.457-462 ISSN 0142-1123.[http://dx.doi.org/10.1016/0142-1123\(95\)00039-V](http://dx.doi.org/10.1016/0142-1123(95)00039-V)
- B.31 M N James (1995), *Fracture research at Wits: An overview of activities, results and directions*, Journal of the South African Institute of Mining and Metallurgy, 95 No. 7, November/December 1995 pp.309-317 ISSN 0038-223X.
- B.32 S P N'gang'a and M N James (1996), *Variable amplitude loading of EN 8 (080M40) steel : a detailed experimental study*, Fatigue and Fracture of Engineering Materials and Structures, 19 No. 2/3 pp.207-216 ISSN 0160-4112.
<http://dx.doi.org/doi:10.1111/j.1460-2695.1996.tb00960.x>
- B.33 M N James and E R de los Rios (1996), *Variable amplitude loading of small fatigue cracks in 6261-T6 aluminium alloy*, Fatigue and Fracture of Engineering Materials and Structures, 19No. 4 pp.413-426 ISSN 0160-4112.
<http://dx.doi.org/doi:10.1111/j.1460-2695.1996.tb00978.x>
- B.34 D O'Quigley, S B Luyckx and M N James (1996), *New results on the relationship between hardness and fracture toughness of WC-Co hardmetal*, Materials Science and Engineering, A209 No. 1/2 pp.228-230 ISSN 0921-5093.[http://dx.doi.org/10.1016/0921-5093\(95\)10112-8](http://dx.doi.org/10.1016/0921-5093(95)10112-8)
- B.35 D O'Quigley, S Luyckx and M N James (1997), *An empirical ranking of a wide range of WC-Co grades in terms of their abrasion resistance measured by the ASTM Standard B611-85 test*, International Journal of Refractory Metals and Hard Materials, 15pp.73-79 ISSN 0263-4368. [http://dx.doi.org/10.1016/S0263-4368\(96\)00032-7](http://dx.doi.org/10.1016/S0263-4368(96)00032-7)
- B.36 M N James, A E Paterson and N Sutcliffe (1997), *Constant and variable amplitude loading of 6261 aluminium alloy I-beams with welded cover plates - influence of weld quality and stress relief*, International Journal of Fatigue, 19 No. 2 pp.125-133 ISSN 0142-1123.[http://dx.doi.org/10.1016/S0142-1123\(97\)00062-5](http://dx.doi.org/10.1016/S0142-1123(97)00062-5)
- B.37 M N James and A E Paterson (1997), *Fatigue performance of 6261-T6 aluminium alloy - constant and variable amplitude loading of parent plate and welded specimens*, International Journal of Fatigue 19 Supp. No. 1 pp.109-118 ISSN 0142-1123.[http://dx.doi.org/10.1016/S0142-1123\(97\)00042-X](http://dx.doi.org/10.1016/S0142-1123(97)00042-X)
- B.38 M N James (1998), *Engineering materialism and structural reliability*, Journal of Engineering Design 9 No. 4 pp.329-342 ISSN 1456-1837.<http://dx.doi.org/10.1080/095448298261471>
- B.39 M N James and Li Wenfong (1999), *Fatigue crack growth in austempered ductile and grey cast irons - stress ratio effects in air and mine water*, Materials Science and Engineering A265pp.129-139 ISSN 0921-5093.
[http://dx.doi.org/10.1016/S0921-5093\(98\)01140-X](http://dx.doi.org/10.1016/S0921-5093(98)01140-X)
- B.40 L-W Wei and M N James (2000), *A study of fatigue crack closure in polycarbonate CT specimens*, Engineering Fracture Mechanics 66 No. 2 pp.223-242 ISSN 0013-7944.[http://dx.doi.org/10.1016/S0013-7944\(00\)00014-X](http://dx.doi.org/10.1016/S0013-7944(00)00014-X)
- B.41 J W Bull, C H Woodford, W C Christie, E Neau and M N James (2000) *Low stress design of welded plates using the self-designing structures approach*, Computers and Structures 78 No. 1 pp.487-496. ISSN: 00457949.
[http://dx.doi.org/10.1016/S0045-7949\(00\)00096-1](http://dx.doi.org/10.1016/S0045-7949(00)00096-1)
- B.42 M N James (2002), *Crashing aircraft, sinking ships - fractographic and SEM support for unusual failure hypotheses*, Engineering Failure Analysis 9 No. 3 pp.313-328 ISSN 1350-6307.[http://dx.doi.org/10.1016/S1350-6307\(01\)00016-4](http://dx.doi.org/10.1016/S1350-6307(01)00016-4)

- B.43 P J McGrath, D G Hattingh, and M N James (2002), **Award Winning Paper: A novel 8-element gauge for residual stress assessment using the high speed centre hole drilling method**, SAIMechE Research & Development Journal 18 No. 1 pp.1-6 ISSN 0257-9669.
- B.44 L-W Wei, E R de los Rios and M N James (2002), *Experimental study and modelling of short fatigue crack growth in aluminium alloy Al7010-T7451 under random loading*, International Journal of Fatigue, 24 pp.963-975 ISSN 0142-1123.[http://dx.doi.org/10.1016/S0142-1123\(02\)00006-3](http://dx.doi.org/10.1016/S0142-1123(02)00006-3)
- B.45 L-W Wei and M N James (2002), *Fatigue crack closure for inclined and kinked cracks*, International Journal of Fracture, 116 No. 1 pp.25-50 ISSN 0376-9429. <http://dx.doi.org/doi:10.1023/A:1020189817060>
- B.46 M N James, M N Pacey, L-W Wei and E A Patterson (2003), *Characterisation of plasticity-induced closure - crack flank contact force versus plastic enclave*, Engineering Fracture Mechanics, 70 pp.2473-2487 ISSN 0013-7944.[http://dx.doi.org/doi:10.1016/S0013-7944\(02\)00273-4](http://dx.doi.org/doi:10.1016/S0013-7944(02)00273-4)
- B.47 M N James, D G Hattingh and G R Bradley (2003), *Weld tool travel speed effects on fatigue life of friction stir welds in 5083 aluminium*, International Journal of Fatigue, 25 pp.1389-1398 ISSN 0142-1123.[http://dx.doi.org/doi:10.1016/S0142-1123\(03\)00061-6](http://dx.doi.org/doi:10.1016/S0142-1123(03)00061-6), **1,378 downloads as at 29/3/2011**
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- E.11 M N Pacey, M N James and E A Patterson (2000), *An introduction to photoelastic fatigue crack characterisation*, presented at Life Enhancement by Experiment: Using Experimental Stress Analysis to Improve Life Cycle Prediction, Institution of Mechanical Engineers, London, December 2000.
- E.12 M N James (2001), *Fatigue properties of SP and DP friction stir welds in 5383 aluminium alloys*, presented at Friction Stir Welds - What are the Properties? Structural Integrity Technical Group Meeting, TWI, Abington, November 2001.
- E.13 M N James (2003), *Residual stresses in friction stir butt welds in 5083/5383 aluminium alloy*, presented at the International Workshop on Friction Stir Welding, Port Elizabeth, South Africa, April 2003.
- E.14 M N James (2003), *Defects in friction stir welds and their influence on fatigue performance in 5083/5383 aluminium alloy*, presented at the International Workshop on Friction Stir Welding, Port Elizabeth, South Africa, April 2003.
- E.15 M N James, D J Hughes, D G Hattingh, G R Bradley, G Mills and P J Webster (2003), *Residual stresses in friction stir butt welds in 5083/5383 aluminium alloy*, presented at AeroMat 2003, the 14th Annual Advanced Aerospace Materials & Processes Conference, Dayton, Ohio, USA, 9-12 June 2003.
- E.16 D G Hattingh, T I van Niekerk, C Blignault, G Kruger and M N James (2003), *Multi-sensor analysis to control tool plunge-in and force footprint*, presented at AeroMat 2003, the 14th Annual Advanced Aerospace Materials & Processes Conference, Dayton, Ohio, USA, 9-12 June 2003.
- E.17 MN James, S-P Ting, H Lombard, DG Hattingh, DJ Hughes and PJ Webster (2004), *Residual Stresses, Process Optimisation and Fatigue – Insights From Neutron and Synchrotron Diffraction*, presented at a Symposium on Engineering Applications of Neutron and Synchrotron Radiation, ESRF-ILL, Grenoble, France, 13-14 September 2004.
- E.18 M N James, C J Christopher and E A Patterson (2004), **Keynote paper:** *New insights into the stresses associated with crack growth using a photoelastic model*, 5th International Conference on Fatigue Damage of Structural Materials, Hyannis, MA, 19-24 September 2004.
- E.19 M N James, S-P Ting, D G Hughes, N Ratel, and A Steuwer (2005), **Invited paper:** *The potential impact of FaME38 on engineering science: case study in optimising weld process control and life prediction*, EPSRC-ILL Spring conference on Millennium Projects, Grenoble, France, 25-27 May 2005.
- E.20 H Lombard, D G Hattingh and M N James (2005), *Synchrotron Residual Strain Scanning in Friction Stir Welds as a Function of Process Conditions*, Euromat 2005, European Conference on Advanced Materials and Processes, Prague, Czech Republic, 5-8 September 2005.

Research Conferences Attended

1. *Sixth International Conference on Fracture*, New Delhi, India, 4-10 December 1984.
2. *Damage Tolerance Concepts for Critical Engine Components*, 60th Meeting of the Structures and Materials Panel, NATO AGARD, San Antonio, Texas, USA 22-26 April 1985.
3. *1st International Conference on Short Fatigue Cracks*, Sheffield, England, October 1985.
4. *1st International Symposium on Materials Engineering*, Johannesburg, South Africa 18-19 November 1985.
5. *Fracture Mechanics: Perspectives and Directions*, 20th National Symposium on Fracture Mechanics, Bethlehem, Pennsylvania, USA 23-25 June 1987.
6. *Fatigue 87, 3rd International Conference on Fatigue and Fatigue Thresholds*, Charlottesville, Virginia, USA 28 June-3 July 1987.
7. *Fracture 89, 3rd National Conference on Fracture*, Johannesburg, South Africa, 29-30 June 1989.
8. *Fatigue 90, Fourth International Conference on Fatigue and Fatigue Thresholds*, Honolulu, Hawaii, 15-20 July 1990.
9. *2nd International Conference on Short Fatigue Cracks*, Sheffield, England, December 1990.
10. *4th International Conference on the Science of Hard Materials*, Funchal, Madeira, 11-15 November 1991.
11. *Fatigue Design 92, VTT Symposium 130*, Helsinki, Finland, 19-22 May 1992.
12. *Exploiting Research - Routes for Academic Researchers*, University of Edinburgh/EPSRC, 13-14 January 1994.
13. *XIIth International Colloquium on Mechanical Fatigue of Materials*, Miskolc, Hungary, 10-12 March 1994.
14. *ECF 10 - 10th European Conference on Fracture*, Berlin, Germany, 20-23 September 1994.
15. *Fracture 94, 4th National Conference on Fracture*, Johannesburg, South Africa, 23-24 November 1994.

16. *Sino-South African Symposium on Materials Processing Technology*, Tainan, Taiwan, 19 December 1994.
17. *Cumulative Damage Under Variable Amplitude Loading*, ESIS Conference, Sheffield, England, 3-7 April 1995.
18. *Fatigue 96, 6th International Fatigue Congress*, Berlin, Germany, 6-10 May 1996.
19. *1st International Conference on Fatigue Damage in Structural Materials*, Engineering Foundation Conference, Hyannis, Massachusetts, USA 22-27 September 1996.
20. *20 Years of R6*, Materials and Mechanics of Solids Group, Institution of Mechanical Engineers, London, England, 20 November 1996.
21. *ICF 9, 9th International Conference on Fracture*, Sydney, Australia, 1-5 April 1997.
22. *Remnant Life Assessment*, Materials and Mechanics of Solids Group, Institution of Mechanical Engineers, London, England, 26 November 1997.
23. *Materials Under Fatigue*, Fracture and Fatigue Committee, Institute of Materials, Birmingham, England, 9 July 1998.
24. *ECF 12 - 12th European Conference on Fracture*, Sheffield, England, 14-18 September 1998.
25. *Fatigue 99, 7th International Fatigue Congress*, Beijing, China, 8-12 June 1999.
26. *Case Histories on Integrity and Failures in Industry*, International Symposium, Milan, Italy, 28 Sept - 1 Oct 1999.
27. *2nd International Symposium on Friction Stir Welding*, Göteborg, Sweden, 26-28 June 2000.
28. *ECF 13 - 13th European Conference on Fracture*, San Sebastian, Spain, 6-9 September 2000.
29. *Fracture 2000 - 5th International South African Conference on Fracture*, Cape Town, South Africa, 5-7 December 2000.
30. *7th Summer School on Fracture Mechanics*, Opole, Poland, 18-22 June 2001.
31. *Fatigue in the Ultra-High Cycle Regime*, Vienna, Austria, 2-4 July 2001.
32. *Fatigue 2002, 8th International Fatigue Congress*, Stockholm, Sweden, 3-7 June 2002.
33. *ECF 14 - 14th European Conference on Fracture*, Krakow, Poland, 8-13 September 2002.
34. *International Workshop on Friction Stir Welding*, Port Elizabeth, South Africa, 1-3 April 2003.
35. *Fatigue 2003, Fatigue and Durability Assessment of Materials, Components & Structures*, Cambridge, England, 7-9 April 2003.
36. *Thermec 2003, International Conference on Processing and Manufacturing of Advanced Materials*, Madrid, Spain, 7-11 July 2003.
37. *1st International Conference on Crack Paths*, Parma, Italy, 17-20 September 2003.
38. *1st International Conference on Failure Analysis*, Lisbon, Portugal 12-14 July 2004.
39. *Symposium on Engineering Applications of Neutron and Synchrotron Radiation*, ESRF-ILL, Grenoble, France, 13-14 September 2004.
40. *5th International Conference on Fatigue Damage of Structural Materials*, Hyannis, MA, 19-24 September 2004.
41. *22nd Annual Conference of the Spanish Fracture Group*, Almagro, Spain, 9-11 March 2005.
42. *EPSRC-ILL Spring Conference – Millennium Projects*, Grenoble, France, 25-27 May 2005.
43. *Euromat 2005, European Conference on Advanced Materials and Processes*, Prague, Czech Republic, 5-8 September 2005.
44. *MECA-SENS III, 3rd International Conference on Stress Evaluation by Synchrotron and Neutron Radiation*, Santa Fe, New Mexico, 17-19 October 2005.
45. *IIW Regional Conference on Welding and Related Inspection Technologies*, Stellenbosch, South Africa, 8-10 March 2006.
46. *ESKOM High Temperature Plant Management Workshop*, Johannesburg, South Africa, 13-14 March 2006.
47. *2nd International Conference on Crack Paths*, Parma, Italy, 14-16 September 2006.
48. *Failure Analysis Techniques*, Qinetiq, Farnborough, UK, 25 January 2007.
49. *10th International Conference on the Mechanical Behaviour of Materials*, Busan, Korea, 27-31 May 2007.
50. *European General Galvanisers Association Assembly 2007*, Edinburgh, Scotland, 11-12 June 2007.
51. *6th International Conference on Fracture and Damage Mechanics*, Madeira, Portugal, 17-19 July 2007.
52. *ICEFA III, 3rd International Conference on Engineering Failure Analysis*, Sitges, Spain, 13-16 July 2008.
53. *1st International conference on Advances in Product Development and Reliability*, Chengdu, China, 4-6 August 2008.
54. *Workshop on Fatigue of Welded Structures, GruppotalianoFrattura*, Forni di Sopra, UD, Italy, 9-10 March 2009.
55. *3rd International Conference on Crack Paths*, Vicenza, Italy, 23-25 September 2009.
56. *GruppotalianoFrattura Workshop on Problems of Fracture in Engineering Materials*, Forni di Sopra, Italy, 7-9 January 2010.
57. *Fatigue 2010, the 10th International Fatigue Congress*, Prague, Czech Republic, June 6-10 2010.
58. *2nd International Conference on Advances in Product Development and Reliability*, Shenyang, China, 28-30 July 2010.
59. *18th Spanish Mechanical Engineering Congress*, Ciudad Real, 3-5 November 2010.
60. *1st International Workshop on Characterisation of Crack Tip Stress Fields*, Forni di Sopra, UD, Italy, 7-9 March 2011.

Other Developmental Conferences

1. *1st International Conference on Enhancing Teaching and Learning through Assessment*, Hong Kong, 13-15 June 2005.
2. *Competitiveness and the Role of Higher Education - Meeting International Business Demand*, Council for Industry and Higher Education, London, 4 May 2006.

3. *International Experience & Employability: Developing International Institutional Strategy*, UK Socrates-Erasmus Council, 21 November 2006.
4. *HEFCE Annual Conference 2007: Higher education, the economy and society: future challenges and opportunities*, University of Hertfordshire, 18-19 April 2007.
5. *CBI Skills Summit: Developing Education and Business Partnerships*, London, 12 September 2007
6. *Internationalising Higher Education*, Council for Industry and Higher Education, Royal Society, London, 4 October 2007.
7. *Engineering Higher Education and the Bologna Process*, Royal Academy of Engineering, Engineering Council UK and Institution of Engineering and Technology, IET, Savoy Place, London, 5 October 2007.
8. *The Business Facing University – Building the Profession*, Association for University Research and Industry Links, 11-12 October 2007, Cork, Ireland.
9. *Policy Workshop to Develop UK Approaches to Governance of Good research Conduct*, RC UK, UUK, UKRIO and the Wellcome Trust, Keele University, 15-16 April 2008.