

ROBERT ANTHONY AINSWORTH, MA DPhil FRS FEng FIMechE CEng

CURRENT ADDRESS:

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CAREER TO DATE

2011-Present: Professor of Structural Integrity, University of Manchester
2010-2011: Visiting Professor, University of Manchester
2005-2011: Research Co-ordinator, British Energy Generation, Barnwood, Gloucester.
2000-Present: Editor-in-Chief, International Journal of Pressure Vessels & Piping.
1996-Present: Visiting Professor, Imperial College of Science, Technology and Medicine.
1988-2005: Group Head in British Energy Generation (formerly Nuclear Electric).
1986-1988: Group Leader in the Central Electricity Generating Board (CEGB).
1976-1986: Research Officer at the CEGB's Berkeley Nuclear Laboratories.

CAREER SUMMARY

I am Professor of Structural Integrity within the School of Mechanical, Aerospace and Civil Engineering at The University of Manchester. Since joining Manchester, I have secured funding for research projects from TSB, EPSRC and BP in the broad area of structural integrity for the nuclear and petrochemical industries. I have also performed consultancy for the nuclear industry in the UK and in Belgium and for the International Atomic Energy Agency, for the power industry in the USA, for the petrochemical industry in the USA and for the pressure vessel industry in China.

Prior to joining Manchester, I held a senior industry management position as co-ordinator for the British Energy research programme, which had an annual expenditure of in excess of £10M. The research programme covered a wide range of disciplines including Chemistry, Physics, Engineering, Human Factors and Materials. My role involved wide-ranging interactions within British Energy to determine the size and balance of the programme and to ensure delivery of the programme and external interactions with others in the nuclear industry and with the Health & Safety Executive who monitor the programme. In this role I set up British Energy research alliances with four major universities (Manchester, Bristol, Strathclyde and Imperial College) to assist in delivery of the research programme and to ensure maintenance of key skills.

Previously, I was Head of the Assessment Technology Group, which comprised up to 25 technical staff. The group had responsibility for development of structural integrity software, provision of materials data for structural integrity assessments and development of structural integrity assessment procedures, in particular the defect assessment procedure R6 and the high temperature assessment procedure R5. This research was world-leading to the extent that these procedures are the UK nuclear industry standard for structural integrity assessment of components and are also used worldwide.

I have chaired a number of collaborative research groups during my career. For example, I was Chairman of the R6 Panel 1993 to 1999, finalising a major revision of the procedure; I was Chairman of the R5 Panel from 1990-1995; and I chaired the creep working group of a European network, FITNET, which developed European fitness-for-service guidelines from 2002 to 2006. Throughout my career, I have been active in research in high temperature deformation and failure, low temperature fracture mechanics and high temperature fracture mechanics. This work has involved both fundamental research and also development of the results of research work into practical engineering assessment procedures. Procedures incorporating my research include: the British Standards document BS7910; the American Petroleum Institute/ASME procedure API/ASME FFS-1; and the European procedures SINTAP in 1999 and FITNET in 2006. Although working mostly in industry, I have been highly active in publishing the results of my research, being the author or co-author of over 90 publications in scientific journals and 170 conference papers, and the co-author and co-editor of eight books.

UNIVERSITY

BA Class 1 degree in Engineering Science at Oxford University in 1973.
D Phil degree from Oxford University in May 1976.

AWARDS

2010 The Brooker Medal awarded by The Welding Institute
2009 Elected a Fellow of the Royal Society
2008 Honorary Membership of the European Structural Integrity Society
2006 Institution of Mechanical Engineers James Clayton Prize
2004 Elected a Fellow of the Royal Academy of Engineering
1992 The Leslie Lidstone ESAB Gold Medal awarded by The Welding Institute.
1973 The Institution of Civil Engineers Prize for project work at Oxford University.
1973 The Edgell Sheppee Prize for second best performance in final honour school of Engineering Science at Oxford University.
1971 The Metal Box Company Prize for joint best performance in Honour Moderations in Engineering Science at Oxford University.

OTHER

I was elected a Fellow of The Royal Society in 2009 and of The Royal Academy of Engineering in 2004. The citation for election to The Royal Society included "distinguished for outstanding research in structural integrity, and for applying this to methods now used worldwide for assessing the safety of nuclear power generation plants and other structures." I was a member of The Royal Society's Sectional Committee 4 (Engineering) from 2010 – 2013 and a member of the Mechanical Engineering membership committee of The Royal Academy of Engineering from 2006-2009. I am a member of the Energy Steering Panel of the European Academies Science Advisory Council (2013-present). I was a member of an international Review Panel put together by NPL in 2010/11, drawn from senior staff in National Measurement Institutes, industry and academia. This undertook a major review exercise, benchmarking NPL's science output against appropriate peer groups, making qualitative assessments of the wider economic and social impact of NPL's science. I am a Member of the Mechanical Engineering College of the Engineering and Physical Sciences Research Council. I am a Member of the TWI Research Board (1999 – present) and Chairman of the Engineering Research Committee (2009-present). The Research Board and its Committees assist TWI in the formulation, management and review of the TWI Core Research Programme. I represented EDF Energy on the UK Technical Advisory Group on the Structural Integrity of Nuclear Plant, (TAGSI) which is sponsored by EDF Energy and Ministry of Defence. TAGSI provides peer review and informed comment on the scientific principles used in structural integrity assessment methods and procedures in relation to plant problems and safety issues. On behalf of the sponsors, I acted as Lead Sponsor. Since leaving EDF Energy I have become an independent member and deputy chairman of TAGSI. I have been Editor-in-Chief of the International Journal of Pressure Vessels and Piping since January 2000. Member of the Editorial Boards of Engineering Fracture Mechanics (1997-present), Fatigue and Fracture of Engineering Materials and Structures (1999-2000) and Journal of Power and Energy (2007-2011) and peer reviewer of papers for many journals. I have been a PhD examiner in the UK, France, Switzerland, Ireland, Norway, Singapore and India.