

Curriculum Vitae

Personal Record

Name	Richard Ian Todd
Nationality	British
Education	1981-1984 Trinity Hall, Cambridge University Entrance Scholarship Cambridge University Instrumental Award 1986-1990 Lincoln (1986-1988) and Hertford (1988-1990) Colleges, Oxford University, in the Department of Materials Carreras Senior Scholarship at Hertford College
Qualifications	MA in Natural Science D. Phil.: Anelasticity in Superplastic Alloys
Previous Employment	1999-2025: University Lecturer (1999), Reader (2008), Full Professor (2010), University of Oxford.
Present	Professor Emeritus, University of Oxford. Emeritus Fellow, St Catherine's College, Oxford.

Awards and Fellowships

President, European Ceramic Society, (2025-present)

Fellow of the Institute of Materials, Mineral and Mining (IOM³) (2024)

Fellow of the American Ceramic Society (2022)

Full Member of the International Institute for the Science of Sintering (2022, election by anonymous vote)

Winner of the International Award of the German Ceramic Society (DKG), 2026. The award honours those who have made a valuable contribution to ceramics in practice, teaching, or research in a unique way.

Winner of the Ross Coffin Purdy Award of The American Ceramic Society, 2019, by unanimous approval of the ACerS Board of Directors, for the paper "Ultra-fast firing: Effect of heating rate on sintering of 3YSZ, with and without an electric field", W. Ji, B. Parker, S. Falco, J.Y. Zhang, Z.Y. Fu, R.I. Todd, J. Eur. Ceram. Soc. 37 (2017) 2547–2551. The award

recognizes the most valuable contribution to ceramic technical literature during the calendar year two years prior to selection.

Winner of the Award for Outstanding Papers Published in the Journal of the Ceramic Society of Japan in 2018, with M. Yoshida and S. Falco, for the paper “Measurement and Modelling of electrical resistivity by four-terminal method during flash sintering of 3YSZ”, JCS-Japan 126 (2018) 579-590.

Winner of the Stuijts Award of the European Ceramic Society 2019 in recognition of outstanding contributions to ceramic science. This is awarded every two years and is the premier award for ceramic scientists belonging to one of the 28 member countries of the Society.

Fellow of the European Ceramic Society (2013)

Winner of the Verulam Medal and Prize of the Institute of Materials, Minerals and Mining 2012 in recognition of distinguished contributions to ceramics

Winner of the Pfeil Award of the Institute of Materials 2001, for published work in ceramics

Winner of the Oxford University Materials Undergraduates prize for the best undergraduate lecturer, 2009-10 and 2018-19 (determined by student vote)

Winner of Best Poster Award – (with Jiawei Jiang) 1st place in the 2018 ICACC Best Poster competition (International Conference and Exposition on Advanced Ceramics and Composites, at Daytona Beach, United States). Poster: “Reliable Measurement of Fracture Toughness of Armour Ceramics at the Microstructural Scale”.

Winner of Best Poster Award (with T. Scott), De Beers Diamond Conference 2017, Warwick University 10-13 July 2017

Winner of Best Poster Award (with G.Otieno, N.A. Yahya and N. Grobert), Nanomaterials category, ECerS XII: The 12th International Conference of the European Ceramic Society, Stockholm, Sweden, June 19-23 2011.

Winner of Best Poster Award (with E.E. Clarke and A.J. Wilkinson), IoM3 Materials Congress, 5th April 2006.

Winner of Best Poster Award at conference on Microstructural Design and Stability in Engineering Ceramics, Manchester Conference Centre, 18 November 1997

Junior Research Fellowship, Wolfson College, Oxford 1990

Carreras Senior Scholarship, Hertford College Oxford, 1988

Entrance Scholarship, Trinity Hall Cambridge, 1981

Editorships

Permanent Editorships etc.

1. Editor-in-Chief (2011-2023), Editor (2010-2011), Editor (Electronic Submissions) (2009-2010) and Associate Editor (2007-9) of the *Journal of the European Ceramic Society (JECS)*, Elsevier/European Ceramic Society
2. 2020-present, Advisory Editor, *Open Ceramics*, Elsevier/European Ceramic Society
3. Member of the Editorial Board of *Advances in Applied Ceramics: Structural, Functional and Bioceramics (AAC)* (Maney Publishing/IOM³) 2007-2009
4. Member of the International Editorial Advisory Board, *Boletín de la Sociedad Española de Cerámica y Vidrio* (2011-2019)
5. Associate Editor-in-Chief and Member of the Editorial Board, *Journal of Wuhan University of Technology: Materials Science* (Springer) 2006-present
6. Member of the Advisory Board of *Interdisciplinary Materials* (Wiley) 2022-present

Individual Volumes Edited

1. ICSAM 2003 – Proceedings of the 8th International Conference on Superplasticity in Advanced Materials, Oxford, July 28-30, 2003, Trans Tech Publications, Zuerich, 2004. (*Materials Science Forum Vols.447-448*)
2. Guest Editor of Special Edition of Journal of Materials Science, Vol 43 (2008) issue 10 Proceedings from the Surface Science symposium – International conference on Surfaces, Coatings and Nanostructured Materials 2007 (NanoSMat).

Services to External Bodies

President-elect, The European Ceramic Society (2023-25)

Member of the Board of the JECS Trust (2008-present)

Chair of the Visiting Committee for the Department of Materials Science and Engineering, National University of Singapore, 2016.

External Examiner for Undergraduate Materials Science courses, University of Manchester, 2014-2018.

Invited to be External Examiner for Undergraduate Materials Science courses, Loughborough University, 2015. Declined because I was already serving for the University of Manchester.

Elected Member of EPSRC (UK Government) Peer Review College 2000-2003, 2003-2006, 2006-2010, 2010-2012

Referee for the European Research Council, 2009-2013

Referee for Civilian Research and Development Foundation (U.S.A.)

International technical assessor for the Advanced Technology Research Programme (ATRP) of the Irish Government

Referee for the Research Grants Council of Hong Kong

Referee for the German Academic Service

Referee for over 16 leading international research journals

Invited to be paid reviewer for The Danish Council for Independent Research (declined owing to time pressure) 2014

Invited to be paid reviewer for The Singapore National Research Foundation (declined owing to time pressure) 2015

Invited to be a paid member of the PhD programme review panel for *Fundação para a Ciência e a Tecnologia, I.P.* (FCT), the Portuguese Foundation for Science and Technology. 2013, 2014

Supervision of Research Students

I have supervised 57 successful Masters Theses and 32 successful PhD Theses, with a further PhD in progress.

Patents:

1. British (218622B), European (0233018) and U. S. (4767047) patents have been granted to me for a soldering device, designed to replace expensive components on printed circuit boards. All rights were assigned to GEC Research Ltd. The invention (and derivatives of it) is marketed by the Metcal division of OKInternational Ltd. (owned by Dover Corporation from 2024). Now marketed by the APR division of Desco Industries.

See: https://www.youtube.com/watch?v=EgTNbDdGJ_k
and: <https://apr-rework.descoindustries.com/APR-Scorpion-Rework-System.aspx>

2. United Kingdom Patent Application No. 0914816.4, “Method and Fabrication of aligned nanotube-containing composites” was filed on 25th August 2009. PCT filed 25/8/10
Co-inventors: Geoffrey Otieno, Nicole Grobert.

3. UK Patent Application No. 0920106.2, “Ceramic Composite Materials” was filed on 17th November 2009. PCT filed 17/11/10 Co-inventor: Amartya Mukhopadhyay. (Terminated before grant)

4. US Provisional Patent Application No. 61/261995 “Ceramic Composite Materials” was filed on 17th November 2009. Co-inventor: Amartya Mukhopadhyay.

5. UK Patent Application No. 1005457.5, “Ceramic Materials” filed 31/3/2010. Co-inventor: Noor Azlin Yahya. (Terminated before grant)
US Patent Application 13/638046 (pub’n no. US 2013/0090231 A1, published 11/4/13.)

6. US Patent Application No. US 17/686,601, “Flash Sintering” filed 4/3/22. Co-inventors: YS Li, S Falco, P Alotto, R Torchio

7. UK Patent Application No. 2210054.9, “Solid Electrolyte” filed 8/7/22. Co-inventor: L Tannesia

8. UK Patent Application No. 2210934.2, “Uniform Flash Sintering” filed 26/7/22. Co-inventor: SH Ding

Research Grants Awarded (Total £13.6M)

1995 Royal Society, £8 271, equipment

1995 Volvo Aero Corporation, £30 000, 2 years, MPhil student (with Prof. R. Taylor, UMIST)

1996 EPSRC (GR/K 71325) + Dynamic Ceramic Limited, £100 140, 2 years, 1 RA1A + 50% Technician, Principal Applicant (co-applicant Prof. F. R. Sale)

1996 EPSRC (GR/K 61548) + Dynamic Ceramic Limited, £200 172, 3 years, 1 RA1A + 50% Technician, Sole Applicant

1997 Volvo Aero Corporation, £46 851, 3 years, PhD student

1997 EPSRC+Alcan International, £68 750, 4 years, Eng.D. student, Sole Applicant

1998 EPSRC (GR/M43296/01) + Rolls-Royce and Associates, £114 091, 3 years, 1 RA1A + 50% Technician, Principal Applicant (co-applicant Dr. N. Ridley). “Diffusion Bonding of Zirconium Alloys”.

1999 EPSRC+NPL, c.£50 000, Industrial CASE Award, Sole Applicant

1999 British Aerospace MA&A+The Aluminium Corporation, £157 508, 2 years, 1 RA1A + 75% Technician, Principal Applicant (co-applicant Dr. N. Ridley) “Microstructure property relationships in the superplastic forming of commercial 7475 Al Alloys”

2000 EPSRC (GR/N06601/01) + Morgan Matroc, £296 569, 3 years, 1RA1A + PhD student + 60% technician, co-applicants Dr. S.G. Roberts, Dr. B.J. Inkson, Prof. J.M. Titchmarsh

2000 £30 000 towards Raman microscope, Oxford University Research & Equipment Committee

2004 £48 257 EPSRC + £21 000 CORUS, EPSRC Industrial CASE, Principal Applicant, co-applicant Dr. A.J. Wilkinson

2004 Royal Society Wolfson Laboratory Refurbishment Grant, £220 800, “Structural and Functional Ceramic Nanocomposites”, Principal Applicant, co-applicants Dr S.G. Roberts, Prof. C.R.M. Grovenor.

2006 AWE £5288 Residual Stresses in Functionally Graded Metal-Ceramic Joints

2008 EPSRC £1 060 000 Platform Grant, “Micromechanical Modelling and

Experimentation” co-applicants Prof. A.Cocks, Prof. S.G. Roberts, Dr A.J. Wilkinson, Prof. A. Korsunsky, Dr M.L. Jenkins, Dr N. Petrinic and Dr J. Huber

- 2008 EPSRC/MoD (EP/G042748/1) £1 046 800 (£570 487 Oxford, £476 313 Loughborough), “Understanding and Improving Ceramic Armour Materials”, Oxford PI, co-applicants Dr N. Petrinic (Eng. Sci. Oxford), Dr H. Wu, Dr. B. Vaidhyanathan, Prof. J. Binner (Loughborough).
- 2008 Dstl £1000 Production of nanocomposite powders
- 2009 TWI £100 000 Fabrication of Multicomponent Ceramic Tubes, sole applicant
- 2011 EPSRC £480 164 Micro-mechanical modelling techniques for forming texture, non-proportionality and failure in auto materials, Oxford Materials PI, co-applicants Dr A. Wilkinson, Prof. FPE Dunne (Eng. Sci.), Prof. ACE Cocks (Eng. Sci.)
- 2012 MoD/Dstl CDE Award DSTLX1000065524 £50 000 MAST STC: Flash sintering of UHTC and Armour Ceramics
- 2012 MoD/Dstl MAST STC core programme, Ceramic Composites, £728 000 (£75 000 Oxford), Oxford PI, co-applicants Nik Petrinic Eng. Sci. + others Uni’s and Industry.
- 2013 US Army Corps of Engineers, Engineering Research and Development Centre, “Bio-Inspired SiC/Carbon Composites: Fabrication of Bio-Inspired Structures”, \$80 000 (£51 600), co-investigator Prof. N. Grobert
- 2013 EPSRC CDT in Diamond Science and Technology EP/L015315/1, £7 076 715, Co-applicants Prof. M. Newton (Warwick), Dr J.M. Smith (Oxford) et al.
This led to the funding of 4 PhD students, equivalent of 2 by EPSRC, 1.5 by Element 6 Ltd., 0.5 by Oxford University
- 2015 Dstl Understanding and Improving Ceramic Armour Materials at Multiple Scales (UNICAM 2) Unicom II DSTLX - 1000096943. £757 284. Co-applicant Prof. N. Petrinic, Dept. of Engineering Science.
- 2017 EPSRC/Dstl iCASE Award EPSRC studentship EP/R512060/1, DSTLX-1000116626 Flash Sintering of Non-Oxide Ceramics for Armour £83300 (EPSRC) + £72800 (Dstl) = £156100
- 2017 ISIS beam time 2 days. Experiment RB1710430 Investigating the graphitisation behaviour of polycrystalline diamond at high temperature £38 160
- 2018 ISIS beam time 3 days. Experiment RB181057 Determination of residual stresses during the heat treatment of polycrystalline diamond £65 265k
- 2018 Diamond Light Source beam time 9 shifts. Experiment EE14316 Investigation of the kinetics of the graphitisation reaction in polycrystalline diamond at high temperature
- 2018 Flash Sintering and Electrodeformation of Ceramics. Nippon Steel. £112 860.

- 2018 Ceramic-polymer bonding. (Co-I. PI Prof. Clive Siviour) Dstl MSA_PhD_075_133148R c.£130 000
- 2019 Super Alumina Oxide Nanocomposites Dstl contract DSTLX-1000140073, £132 000
- 2019 ISIS beam time 3 days. Experiment RB1910157 Residual stress measurements in polycrystalline diamond cutters £65 265k
- 2019 Micromechanical properties of B6O with different grain boundary complexions. Dstl. £20 000.
- 2019 ISIS beam time 3 days. Experiment RB1920638 The effect of manufacturing conditions on residual stress in polycrystalline diamond cutters £65 265
- 2019 EPSRC Doctoral Prize for Koen Evers Ultra-strong Nanomaterials-modified Bioinspired Ceramics £27,504.87 (with Prof. N. Grobert)
- 2021 2021 EPSRC fees-only studentship EP/T517811/1, Flash Sintering of Non-Oxide Ceramics £29,275 (students subsistence etc. support by a separate scholarship from the Studienstiftung des deutschen Volkes).
- 2022 Dstl Grain boundary complexions and flash sintering of non-oxide ceramics £20 000 (added to UNICAM II grant above)
- 2023 EPSRC Impact Acceleration Account EP/X525777/1, £85,155.67. Next generation polycrystalline diamond.

Conferences Organised

1. "Progress Towards Higher Strain Rate Superplasticity", The Institute of Materials, Manchester, 10th April 1997
2. Nanoceramics session at the Sixth Conference of the European Ceramic Society, Brighton, UK, 20-24 June 1999
3. International Symposium on Metastable, Mechanically Alloyed and Nanocrystalline Materials, Oxford, 9-14 July 2000 (local organising committee)
4. Symposium on Superplasticity at ESAFORM 2001, Liège, Belgium, 23-25 April 2001 (with Prof. O.A. Kaibyshev, Russia)
5. Ceramic Composites Forum, Begbroke Science and Business Park, 10th May 2001
6. IoM Ceramic Convention 2003, Keele University, 7-8 April 2003
7. 8th International Conference on Superplasticity in Advanced Materials, ICSAM 2003, Oxford, 28-30 July 2003 (chairman and organiser)
8. 4th European Conference on Superplastic Forming – Euro SPF '05, p. 29, Manchester, 22-24 July 2005 (organising committee)
9. Various 1 DRACs (1 Day Research conferences in Advanced Ceramics) at Oxford
10. Young Ceramists' session at 11th International Conference and Exhibition of the European Ceramic Society, Krakow - Poland, Jun 23, 2009

11. Organiser (with Profs. Magnus Odén and Pavol Šajgalík) of Session 1: Composites, Coatings, and Engineering Ceramics, ECerS XII: The 12th International Conference of the European Ceramic Society, Stockholm, Sweden, June 19-23 2011.
12. Advanced Ceramic and Application II – New Frontiers in Multifunctional Materials Science and Processing, Sept. 30th – Oct. 1st 2013, Belgrade, Serbia (Scientific Committee).
13. Co-organiser of Topic 5 sessions on Advanced Structural Ceramics at the 14th International Conference of the European Ceramic Society, June 21-25 2015, Toledo, Spain.
14. Chair of Topic 3 “Advanced Structural Ceramics” ECerS 2017: 15th Conference & Exhibition of the European Ceramic Society July 9-13, 2017, Budapest, Hungary.
15. Member of the Scientific Committee of the symposium "Engineering Ceramics, Mechanical Behavior and Fractography", ICC7, 7th International Congress on Ceramics, Iguacu Falls Brazil, June 17-21 2018.
16. Co-organiser, Symposium 4: Advanced structural ceramics, composites and refractories at the 16th Conference of the European Ceramic Society, Torino, Italy, June 16-20 2019.
17. Member of the International Steering Committee of ICC8, the 8th International Conference on Ceramics, Busan, Korea, Aug 23-27 2020
18. Co-organiser Symposium T2S1: Novel, Green, and Strategic Processing and Manufacturing Technologies, 14th Pacific Rim Conference on Ceramic and Glass Technology - PACRIM 14, Vancouver, B.C., Canada, May 23-28, 2021
19. Co-organizer, Track 3: Cross-Cutting Technologies of Advanced Materials, 13th International Conference on Ceramic Materials and Components for Energy and Environmental Applications (CMCEE-13), Wuhan, PR China, 10-12 June 2022 (hybrid conference)
20. Co-organiser, Symposium D – Structural ceramics/Ceramic coatings/Porous ceramics, Ceramics in Europe (Incorporating ECerS XVII, ICC9 and Electroceramics XVIII) Krakow, Poland, 10-14 July 2022
21. Co-organiser, Symposium 2: “Thermal processes and advanced sintering”, The XVIIIth Conference of the European Ceramic Society, Lyon, France, 2-6 July 2023.

6. Professional Advisory or Consultancy Work

- 1997 Consultancy work for Rolls-Royce plc (Derby).
- 1997 Consultancy work (patents) for Linklaters & Paines.
- 1998 Consultancy contract for Rolls-Royce plc (Barnoldswick).
- 2000-2002 Consultancy contract for BAE Systems (Warton).
- 2002 Advisor to Municipal Government of Ningbo, China on state sponsorship of research.
- 2002 Consultancy work for Lingri Surface Engineering Ltd. (China).

2004 Consultancy work for Oxsensis Ltd
2006 Advisor to Municipal Government of Ningbo, China on materials for aerospace industry.
2008 Member of Asia Advisory Board of Deloro Stellite Ltd. Retainer + expenses.
2008 Dstl £1000 Production of nanocomposite powders
2009 Consultancy contract for TWI Ltd. £100 000
2010 Consultancy for Oxsensis Ltd. £580
2011 Consultancy for Oxford RF Systems Ltd.
2013 Consultancy for Thoratec Corporation (USA)
2014 Consultancy for Thoratec Corporation (USA)
2017 Consultancy for Partners Group (Switzerland)
2019 Consultancy for Wood plc

Responsibilities within Professional Bodies, Societies, Advisory Boards etc.

President-Elect, European Ceramic Society (2023-25)
Member: ACerS Ross Coffin Purdy Award Committee (Oct 2023 – Oct 2028)
Member: ACerS-ECerS Joint Award Committee (2019-present)
Member: Council of the European Ceramic Society (2008-present)
Member: Permanent Executive Committee, European Ceramic Society (2009-present)
Member: Board of the JECS Trust (Journal of the European Ceramic Society) (2008 – present)
Chairman of the International Advisory Board for the triennial series of International Conferences on Superplasticity in Advanced Materials (ICSAM) (2003-2009)
Member of the International Advisory Board for the Ceramics in Europe conference (Incorporating ECerS XVII, ICC9 and Electroceramics XVIII) Krakow, Poland, 10-14 July 2022
Member of the International Advisory Committee the 12th International Conference on High-Performance Ceramics (CICC-12), Suzhou, China, Nov 14-18, 2021
Member of the International Advisory Board for Sintering 2021, March 27 - 31, 2021, Gifu, Japan.
Member of the International Advisory Committee of CICC-9, Nov. 4-7 2015, Guilin, China.
Member of the International Advisory Committee of ICC5, Aug. 17-21, 2014, Beijing, China.
Member of the Scientific Reviewing Committee for ICSAM 2012, Albi, France
Member of the Advisory Board for the 7th China International Conference on High-Performance Ceramics (CICC-7), Xiamen, China, November 4th to 7th, 2011.
Member of the International Advisory Board for the 11th International Conference of Ceramic Processing Science and Technology in Zürich, 29. Aug. - 1. Sep. 2010.
Member of the International Advisory Board for the 2nd International Congress on Ceramics, Verona, Italy, 29th June – 4th July 2008

Member of the International Advisory Board for the triennial series of International Conferences on Superplasticity in Advanced Materials (ICSAM) (2000-2009)

Member of the International Advisory Board for ICCPS (International Conferences on Ceramic Processing Science) Conferences. 2010-

Member of the Advisory Board to the 'NENAMAT' EU nanomaterials network.

Member of the Superplasticity Committee of the Institute of Materials

Member of the Ceramic Science Committee of the Institute of Materials

Past Member of the Structure of Materials Committee of the Institute of Materials

Past Member of the University Books Committee of the Institute of Materials

Past Member of the Steering Committee for the Institute of Materials Ceramic Composites Forum

Past Member of the Composites Division Board of the Institute of Materials

International Advisory Board (IAB) of the 90th DKG (German Ceramic Society) Annual Meeting & Symposium on High-Performance Ceramics 2015, Mar 15-18, 2015, Bayreuth, Germany.

Scientific Committee. Advanced Ceramic and Application II – New Frontiers in Multifunctional Materials Science and Processing, Sept. 30th – Oct. 1st 2013, Belgrade, Serbia.

Scientific Committee. Advanced Ceramic and Application IV – New Frontiers in Multifunctional Materials Science and Processing, Sept. 21-23 2015, Belgrade, Serbia

International Advisory Committee, 6th International Conference on Shaping of Advanced Ceramics

International Advisory Committee (IAC) of Tenth International Conference on High-Performance Ceramics (CICC-10), Nanchang, China, November 4 to 7, 2017.

International Advisory Committee (IAC) of Eleventh International Conference on High-Performance Ceramics CICC-11, May 25 to 29 2019, Kunming, China.

Co-chair of the International Advisory Board, World University Forum on Materials Science & Engineering Leadership, Wuhan, China, October 9-11, 2019.

International Steering Committee ICC-8 Busan, Korea, August 23 to 27, 2020.

2023-present Member of the Strength in Places Fund Midlands Advanced Ceramics Advisory Board

Academic Invitations

1. R. I. Todd, "Toughness of Ceramics: Resistance Curves" in "The Encyclopedia of Advanced Materials", (D. Bloor et al, eds.) pp. 2887-2890, Pergamon, Oxford, UK, (1994)
2. Invited talk and paper entitled "Ceramic Nanocomposites: Big Things from Small Packages" at 21st Century Ceramics, Institute of Ceramics Easter Convention, University of Keele, 5-6 April 1995.
3. Invited lecture on "Residual Stress Measurements" at the Ceramic Composites Forum

Meeting on Nanocomposites, NPL, Teddington, UK, 17 November 1995.

4. Departmental Colloquium "Residual Stresses in Alumina Matrix Composites and Nanocomposites", Department of Engineering Materials, University of Sheffield, 11 December 1996.
5. Invited talk and paper entitled "Relating Grain Boundary Structure to Superplastic Deformation", International Conference on Superplasticity in Advanced Materials 1997, Indian Institute of Science, Bangalore, 29-31 January 1997.
6. Invited talk entitled "Diffraction Peak Broadening Analysis for Composite Materials" at the Summer Research Group Workshop on Residual Stresses, Los Alamos. NM, USA, 28-30 July 1997. All expenses paid.
7. Invited to speak at the UK Neutron and Muon User's Meeting held at RAL and Oxford on 24 & 25 September 1997 (declined owing to Departmental Commitments).
8. Invited talk at the Institute of Materials Ceramic Composites Forum on Particulate Composites, 9 January 1998, National Physical Laboratory, London.
9. Invited talk and paper entitled "Grain Boundary Dislocation Models for Grain Boundary Sliding and Superplastic Flow", at the symposium "Superplasticity and Superplastic Forming - 1998" at the TMS Annual Meeting, San Antonio, Texas, USA, February 14-19, 1998. Conference fees paid by organisers.
10. Invited talk entitled "Diffraction Peak Broadening Analysis for Composites" at the British Crystallographic Association Spring Meeting, St. Andrews, Scotland, April 5-7, 1998. Conference fees and expenses paid by the organisers.
11. Invited talk ("Microstructural Requirements for Wear Resistant Nanocomposites") and research visit to TU-Hamburg Harburg and GKSS Research Centre, Geesthacht, under SFB371 "Micromechanics of Multi-Phase Materials", 1-16 July 1998
12. Invited talk entitled "Measurement of Residual Stresses in Ceramics by Neutron Diffraction, Fluorescence Spectroscopy and Curvature Measurement" at the Institute of Physics Conference on Materials Evaluation in Ceramics, 15 September 1998. Conference fees paid by organisers.
13. Invited talk and paper entitled "Deformation and Microstructural Development in a 2124Al/SiC_p MMC during High Strain Rate Superplasticity", at the 2nd International Conference on "Towards Innovation in Superplasticity II", Kobe, Japan, 21-24 September 1998. Hotel paid for by organisers.
14. Departmental Colloquium "Thermal Residual Stresses in Alumina Based Composites and Nanocomposites, and their Influence on Mechanical Properties", Leeds University, 12 May 1999
15. Invited talk and paper entitled "Thermal Residual Stresses in Alumina-Based Ceramics, and their Influence on Mechanical Properties", at the Sixth Conference of the European Ceramic Society, Brighton, UK, 20-24 June 1999. Registration fees paid by organisers.
16. Book Chapter in "Analysis of Residual Stress by Diffraction using Neutron and Synchrotron Radiation", eds. M. Fitzpatrick and A. Lodini, Gordon and Breach Science Publishers, 1999.
17. Invited talk at British Crystallographic Association Industrial Crystallography Forum in Coventry, April 1999 (Declined owing to busy schedule)
18. Invited talk and paper in the symposium on "Superplasticity: Current Status and Future

Potential" at the Materials Research Society Fall Meeting in Boston, MA, on November 29-December 3, 1999 (conference fee paid by organisers)

19. Departmental Colloquium "Thermal Residual Stresses in Alumina Based Composites and Nanocomposites, and their Influence on Mechanical Properties", Surrey University, 14 September 1999
20. Departmental Colloquium "Thermal Residual Stresses in Alumina Based Composites and Nanocomposites, and their Influence on Mechanical Properties", Oxford University, 25 November 1999
21. Invited talk and paper "Alumina Matrix Nanocomposites for Wear Resistant Applications", Microscopy of Composite Materials V, Oxford, 3-4 April 2000 (conference fee paid by organisers)
22. Invited talk and paper "A Critical Review of the Mechanism of Superplastic Deformation in Fine-Grained Metallic Materials" Materials Congress 2000, Cirencester, 12-14 April 2000
23. Invited talk and paper "Superplasticity and Diffusion Bonding of Zircaloy-4 in the $\alpha+\beta$ Phase Field" ESAFORM 2001, Liège, Belgium, 23-25 April 2001 (payment made by organisers)
24. Invited talk and paper "Alumina/SiC Nanocomposites", Oxford-Kobe Nanomaterials Seminar, Kobe, Japan, 11-14 September 2001 (all expenses paid)
25. Invited talk and paper "Alumina/SiC nanocomposites for improved surface finish and wear resistance", American Society for Composites 17th Annual Technical Conference, University, West Lafayette IN, October 21-23, 2002.
26. 2 $\times$ keynote talks + 2 $\times$ invited talks, Progress in Advanced Materials, Khon Kaen, Thailand, September 18-20 2002. All expenses paid + fee.
27. Invited lecturer at Workshop on "Emerging Trends and Recent Developments in Ceramics and Ceramic Matrix Composites" Orange County Resorts, Coorg, Karnataka, India, April 5-7, 2004. All expenses paid.
28. Invited to organise a symposium on Superplasticity in Aluminium and Magnesium Alloys at the 8th ESAFORM Conference on Material Forming (ESAFORM 2005), Cluj-Napoca, Romania, April 27-29, 2005 (turned down owing to other commitments)
29. Keynote talk and paper "Quantitative Surface Fractography of Alumina and Alumina-SiC Composites during Diamond Grinding", Fractography of Advanced Ceramics 2004 (FAC2004), Stará Lesná, Slovakia, October 3-6, 2004. Registration and accommodation paid by organisers.
30. Gordon Seminar, University of Cambridge. "Polishing, Wear and Indentation of Alumina / SiC Nanocomposites", 21 January 2005
31. Departmental Colloquium "Alumina-SiC nanocomposites continued - the matrix reloaded", Oxford University, 3 February 2005.
32. Invited to speak at CICC-4, China International Conference on High-Performance

Ceramics, October 23 ~ 26, 2005, Chengdu, Sichuan, China. Registration waived (turned down owing to other commitments).

33. Invited lecture “Structural Ceramics at the Nanoscale: Nanocomposites and Stress Measurement” at 2005 China-UK Workshop on Nanoscale Stress Measurement and Modeling in Nanomaterials and Nanosystems, June 11-17 2005, Wuhan, P. R. China. All expenses paid.
34. Invited chapter, “Particulate Composites”, in, “Ceramic Matrix Composites”, J. Low (ed.), Woodhead Publishing Ltd., Cambridge, UK, 2006.
35. Invited article, “Gum Metal and Related Alloys”, in “Encyclopedia of Materials: Science and Technology”, K.H.J. Buschow, R.W. Cahn, M.C. Flemings, P. Veyssiere, E.J. Kramer and S. Mahajan (eds.), Elsevier, Oxford, UK, 2006.
36. Invited chapter, “Transformation toughening”, in, “CRC Materials Processing Handbook”, J. Groza (ed.), CRC Press/Taylor & Francis, Boca Raton, FL, 2006.
37. Invited talk, “Peak profile analysis for the investigation of microstresses using neutron time-of-flight diffractometers”, POLDI Workshop, Paul Scherrer Institut, Switzerland, 10th May 2006. (All expenses paid).
38. Invited talk, “Sintering, microstructure and properties of wear resistant alumina/SiC “nanocomposites”, CIMTEC 2006 – the 11th International Ceramics Congress, June 4-9 2006, Acireale, Sicily, Italy.
39. Invited talk and paper, “High Resolution Surface Studies of Superplastic Deformation”, ICSAM 2006, Chengdu, Sichuan, PR China, June 23-36, 2006.
40. Invited to speak at 2nd Annual Conference on Lightweight & Advanced Materials for Defense, 27-29th June, 2006, Washington, DC, USA. Conference fees waived. (Turned down owing to clash with invitation no. 40).
41. Invited talk and paper, “The Use of Focused Ion Beams (FIB) in surface studies and micromechanical testing of superplastic alloys”, Plasticity '06, Halifax, Nova Scotia, Canada, July 17-22, 2006 (given by M. Rust).
42. Invited talk and paper, “Wear resistant alumina/SiC “nanocomposites” – the importance of plastic deformation in ceramics.....”, MRS Fall Meeting, Boston MA, November 27 - December 1, 2006.
43. Invited to give keynote lecture at PLASTICITY 2008, Sheraton Keauhou Bay Resort, Kailua/Kona (Big Island of Hawaii), January 3-8, 2008. Turned down owing to invitation 45.
44. Visit to Ibaraki University, Hitachi Campus, Japan, to discuss research and give research lectures, Jan. 5 to Jan. 11, 2008. All travel and subsistence expenses paid + honorarium.
45. Colloquium, Tianjin University, Optical Luminescence Microscopy and some Applications in Structural Ceramics, 22nd September 2008, all expenses paid.
46. Colloquium, Wuhan University of Technology, Optical Luminescence Microscopy and

some Applications in Structural Ceramics, 24th September 2008, all expenses paid.

47. Invited talk, "Processing and properties of glass(-ceramic)/CNT and alumina/CNT composites", MS&T 2008 Materials Science and Technology Conference and Exhibition, Pittsburgh, USA, 5-9 October 2008. Fees paid by conference organisers.
48. Keynote talk, Production and properties of well-dispersed, low damage level CNT/glass/ceramic composites, NanoSMat 2008, Barcelona, Spain, 21-24 October 2008. £325 contribution from organisers.
49. Invited to speak at CICC-6, China International Conference on High-Performance Ceramics, August, 2009, Harbin, China. 2000 RMB contribution. (Turned down owing to other commitments.)
50. Advanced International Workshop on Nanoscience and Technology, 23-27, February, 2009, Chennai, India. (Turned down owing to other commitments.)
51. Invited talk at First International Conference on Nanostructured Materials and Nanocomposites (ICNM – 2009): April 6, 7 and 8, 2009, Kottayam, Kerala, India (Turned down owing to other commitments.)
52. Invited talk, Investigation of superplastic flow mechanisms in Al5083 and SnPb eutectic alloys using focused ion beam milled surface grids, ICSAM 2009, Seattle USA, June 29 – July 2, 2009
53. Invited talk, In situ processing for alumina matrix nanocomposites, Shaping 4: The Fourth International Conference on Shaping of Advanced Ceramics, Madrid, November 15-18, 2009.
54. Departmental Seminar, Ceramic Nanocomposites – Fact, Fiction and Future, Materials and Engineering Research Institute, Sheffield Hallam University, 15th February 2010.
55. Invited talk and paper, Diffusion, Neighbour Switching and Surface Effects in Superplastic Flow, International Symposium on Superplasticity and Related Areas, Research Center for Superplasticity, Ibaraki University, Hitachi, Japan, 5 March 2010. All expenses and honorarium paid by organisers.
56. Invited Talk, Fracture of alumina at the microscale, CAMTEC II Symposium on fine scale mechanical characterisation and behaviour, Cambridge 29-30th March 2010. Conference fees and food etc. paid for by conference organisers.
57. Talk as Visiting Professor, Dept. of Physics, University of Seville, Spain, "Diffusion, neighbour switching and surface artefacts in superplastic flow", 4th May 2010. All expenses + honorarium paid.
58. Talk as Visiting Professor, Dept. of Physics, University of Seville, Spain, "Ceramic nanocomposites, Fiction and Fact", 4th May 2010. All expenses + honorarium paid.
59. Departmental Colloquium, Dept. of Materials, Loughborough University, "Ceramic nanocomposites, Fiction and Fact", 19th May 2010.
60. Invited talk, "Processing and properties of glass-ceramic/carbon nanotube composites" ICCPS 11, International Conference on Ceramic Processing Science, Zürich, August 29 - September 1, 2010 (Registration fee waived)
61. Talk as Visitor, Dept. of Mechanical Engineering, University of Extremadura, Badajoz, Spain, "Ceramic nanocomposites, Fiction and Fact", 20th October 2010. All expenses + honorarium paid.

62. Invited talk, “Alumina Matrix Nanocomposites for Strength and Wear Resistance by Solid State Precipitation”, ICC3 3rd International Congress on Ceramics, Symposium 14, Advanced Engineering Ceramics and Composites, Osaka, Japan, November 14-18, 2010. (100 000 JPY cash contribution)
63. Invited talk, “Glass-Ceramic/Carbon Nanotube Composites: Processing, Properties and Influence of Nanotube Alignment”, ICC3 3rd International Congress on Ceramics, Symposium 5: Hybrid and Nano-Structured Materials, Osaka, Japan, November 14-18, 2010. (Registration + conference banquet fees waived).
64. Invited to speak at First International Conference on Composites and Nanocomposites (ICNC 2011): January 7, 8 and 9, 2011, Kottayam, Kerala, India (turned down owing to clashes with other activities)
65. Invited talk, ““Fracture of alumina at the microscale”,” Engineering Ceramics 2011 from Materials to Components Smolenice castle, May 8-12, 2011
66. Invited talk, “Alumina matrix nanocomposites by solid state precipitation: nanoscale structures from microscale powders”, The 12th International Conference of the European Ceramic Society, Stockholm, Sweden, June 19-23 2011.
67. Invited to speak at The 9th International Meeting of Pacific Rim Ceramic Societies (PacRim 9), 10-14 July 2011, Cairns, Queensland, Australia. (Turned down owing to symposium topic being marginal for my interests).
68. Plenary Lecture, Oxide Matrix Nanocomposites: Separating the Magic from the Mystery, 7th China International Conference on High-Performance Ceramics (CICC-7), Xiamen, China, November 4th to 7th, 2011.
69. Invited to organise a symposium on a topic of my choice at the 2nd International Conference on Competitive Materials and Technology Processes, Miskolc-Lillafüred, Hungary, October 8-12 2012 (Declined owing to excess of conferences and beginning of Oxford academic year).
70. Invited to give a Plenary presentation at the 15th International Conference on Advances in Materials and Processing Technologies (AMPT2012), Wollongong, Australia, 23-26 September 2012 (Declined owing to lack of time – proximity to invited talk at e-MRS conference, Warsaw).
71. Invited to give a talk at the 1st Annual World Congress of Advanced Materials(WCAM-2012), Beijing, 6-8 June 2012. (Declined owing to lack of time).
72. Invited talk at Plasticity '13, Sheraton, Nassau, Bahamas, Jan. 3-8 2013. Declined owing to lack of time and funding.
73. Invitation to join the Editorial Board of ISRN Nanomaterials – declined owing to conflict of time/interest with Senior Editorship of JECS.
74. Invited to Chair Session and give Invited Talk at Nano Science and Technology (Nano S&T) 2012, October 26-28, Qingdao, China. (Declined owing to lack of time and funding.)
75. Invited presentation “Multiwalled carbon nanotube-glass composites”, Joint U.K.-U.S. Meeting on Advanced Materials, 23-24 May 2012, U.S. Army Research and Development Center, Vicksburg, MS, USA. All expenses paid.
76. Invited presentation “The importance of inhomogeneity in superplastic deformation”, ICSAM 2012: 11th Conference on Superplasticity in Advanced Materials, Albi, France,

July 3-5 2012.

77. Invited plenary “Indentation and Impact Response of Ceramics: Connecting Theory with Experiment”, Gordon Research Conference on Solid State Studies in Ceramics, Mt. Holyoke College, Mass. USA, August 12-17 2012. All food, drink and accommodation paid for.
78. Invited presentation “Aligned and continuous MWCNT/glass-ceramic nanocomposites”, e-mrs Fall meeting, Warsaw, 17-21 September 2012. Fees and lunches paid by organisers.
79. Invited presentation: Multi-scale Experiments for Modelling the Deformation and Fracture of Ceramics, Predictive Multi-scale Modeling of Structural Materials, 3rd & 4th Dec 2012, Imperial College. All expenses paid.
80. Invited presentation: Measurement of grain boundary toughness in ceramics using microcantilevers. MACAN CapStone Conference: Israel April 20-23, 2013. All expenses paid.
81. Invited to give Invited talk at Collaborative Conference on Materials Research, CCMR 2013, Jeju Island, South Korea, June 24th to June 28th 2013. (Declined owing to proximity to ECerS 2013).
82. Lead presentation on “Flash Sintering” for workshop at the Oxford Centre for Industrial and Applied Mathematics the 24th May, 2013
83. Invited talk at CIMTEC 2014 - 13th International Ceramics Congress, June 8-13, 2014, Montecatini Terme. 50% reduction in fees and all social events offered. (Turned down owing to clash with examining duties.)
84. Keynote talk, Flash sintering of oxide and non-oxide ceramics and the influence of specimen geometry, ECerS XIII: The 13th International Conference of the European Ceramic Society, Limoges, France, June 23-27 2013
85. Feature Article: J. Binner, S. Ghosh, S. Huang, B. Vaidhyanathan, H. Wu, P. Brown, C.E.J. Dancer, S. Falco, R. Gerlach, E. Lopez Lopez, N. Petrinic and R.I. Todd, “Bullet Proof” Materials World 21(5) (2013) 26-29
86. Invited presentation at the Energy, Materials and Nanotechnology (EMN) Open Access Week meeting, Oct. 21st to 27th 2013, Chengdu, China. (Declined – no financial contribution, peripheral interest, lack of time.)
87. Keynote presentation, Fracture of aligned and continuous MWCNT/glass-ceramic nanocomposites, Fractography of Advanced Ceramics 2013, Sept. 29-Oct. 2 2013, Smolenice, Slovakia. Conference fee waived and accommodation and subsistence provided.
88. Invited Talk at the Collaborative Conference on Materials Research (CCMR) 2014, June 23rd to June 27th, 2014, Incheon/Seoul, South Korea (turned down owing to service as Chairman of Examiners).
89. Invited presentation, Measurement of mechanical properties of ceramics at the microstructural scale using microcantilevers, ISAC-5 (5th International Symposium on Advanced Ceramics), Wuhan, China, December 9th to 12nd, 2013. All expenses paid.
90. Invited talk and session chair at 4th Annual World Congress of Nanoscience & Technology (**NanoS&T-2014**), October 29 to 31, 2014 in Qingdao, China (Declined – policy of cutting down on number of conferences attended).
91. Keynote presentation, Measurement of mechanical properties of ceramics at the

microstructural scale using microcantilevers, IMEC-16, Haifa, Israel, 24-25 February 2014. All expenses paid.

92. Invited presentation, Measurement of interfacial properties in ceramics by microcantilever testing, CAMTEC III, Cambridge, April 7-8 2014. All expenses paid.
93. 3rd Global Conference on Materials Science and Engineering (CMSE 2014), which will be held on Oct. 20-23, 2014 Shanghai, PRC. Registration fee waived, honorarium paid, accommodation + meals, one or more days of tour in Shanghai (Declined – policy of cutting down on number of conferences attended).
94. Engineering Ceramics 2015, Smolenice Castle, Slovakia, May 10 - 14, 2015. (Declined – policy of cutting down on number of conferences attended).
95. Invited presentation at EMN Meeting/Ceramics, Orlando, USA, January 26 to 29, 2015. (Declined – policy of cutting down on number of conferences attended).
96. Plenary presentation, Advanced Ceramics and Application III Conference, Belgrade, Serbia, 29 Sept-01 Oct. 2014. (Declined – policy of cutting down on number of conferences attended).
97. Invited presentation, 11th Pacific Rim Conference of Ceramic Societies (PACRIM 11), Jeju, Korea, August 30~September 4, 2015. (Declined – policy of cutting down on number of conferences attended).
98. Talk as Visiting Professor, Dept. of Condensed Matter Physics, University of Seville, Spain. Measurement of mechanical properties of ceramics at the microstructural scale using microcantilevers. 16th May 2014.
99. Keynote presentation, To what extent can “flash sintering” can be explained in terms of Joule heating?, International Conference on Ceramics – 5 (ICC5), Symposium A - Novel Processing Technology, Aug. 17-21, 2014, Beijing, China.
100. Keynote presentation, Measurement of the mechanical properties of engineering ceramics at the microstructural scale using microcantilevers, International Conference on Ceramics – 5 (ICC5), Symposium B - Advanced Engineering Ceramics and Composites, Aug. 17-21, 2014, Beijing, China.
101. Keynote presentation, Flash sintering: runaway Joule heating and ultra-fast firing. The 14th International Conference of the European Ceramic Society, June 21-25 2015, Toledo, Spain.
102. Invited Speaker to the CC3DMR 2015 June 15-19 2015 Busan, South Korea. (Declined – policy of cutting down on number of conferences attended).
103. Invited talk at EMN Meeting on Ceramics 2016, January 25 to 28, Hong Kong, China. (Declined, clash with Invited Talk at ACerS Daytona Beach conference).
104. Invited talk at IXth Ceramic Congress of the Turkish Ceramic Society, Afyonkarahisar, Turkey, November 26-28 2015. All expenses paid. (Declined owing to teaching commitments.)
105. Keynote presentation, Flash sintering: runaway Joule heating and ultra-fast firing. Workshop on Mechanisms of Fast Sintering Technologies, Wuhan University of Technology, September 12-18 2015. All expenses paid for self and partner to attend.
106. Plenary lecture. Flash sintering: runaway Joule heating and ultra-fast firing. Advanced Ceramics and Applications IV. September 21-23 2015, Belgrade, Serbia. Accommodation

and food paid for.

107. Invitation to speak at 5th Annual World Congress of Nano Science & Technology-2015 (Nano S&T-2015), Xi'an, China, September 24-26, 2015. (Declined because of clash with no. 105 and no finance offered.)
108. Invited talk. Flash sintering. Dstl Dynamic Materials (DYMA) meeting. Wednesday September 30 – October 1 2015. UK Defence Academy, Shrivenham.
109. Invited talk at International Conference on Small Science (ICSS 2015) Phuket, Thailand November 4 to 7, 2015. (Declined owing to conference overload).
110. Invited talk at collaborative conference on 3D and Materials Research (CC3DMR) 2016, 20-24 June 2016 Incheon/Seoul, South Korea. (Declined owing to conference overload).
111. Session chair and invited talk at 5th Annual World Congress of Advanced Materials-2016 (WCAM-2016) June 6-8, 2016, Chongqing, China. (Declined owing to conference overload).
112. Invited talk at 2nd Annual World Congress of Smart Materials-2016 (WCSM-2016) March 4-6, 2016, Singapore. (Declined owing to conference overload).
113. Session chair and invited talk at 6th Annual World Congress of Nano Science & Technology-2016 (Nano S&T-2016) Singapore October 26-28, 2016. (Declined owing to conference overload).
114. Invited talk at 4th International Symposium on New Frontiers of Advanced Si-Based Ceramics and Composites (ISASC 2016) Busan, Korea, September 25 to 28 in 2016. \$600 offered. Declined because I had already accepted an Invited presentation in France during the same period.
115. Invited talk at EMN Meeting on Nanotubes, Hawaii, USA from Mar. 27 to 31, 2016. Declined owing to conference overload and lack of funding offered.
116. 6th International Conference and Exhibition on Materials Science and Engineering which is going to be held during September 12-14, 2016 at Atlanta, USA. Declined owing to conference overload and lack of funding.
117. Invited talk. How far can “classical” ideas explain the flash sintering of ceramics? 40th International Conference on Advanced Ceramics and Composites (ICACC 2016), Jan 24-29 2016, Daytona Beach Florida.
118. Plenary presentation, The 5th International Symposium on the Science of Engineering Ceramics, Niigata, Japan, May 10-12, 2016. Conference fee, hotel and subsistence paid for. (Declined owing to conference overload).
119. Keynote presentation, Fractography of Advanced Ceramics V, Smolenice Castle, Slovakia, October 9 - 12, 2016. (Declined owing to conference overload).
120. Invited presentation, 6th International Conference and Exhibition on Materials Science and Engineering which is going to be held during September 12-14, 2016 at Atlanta, USA. 25% off registration fee. (Declined owing to conference overload).
121. Invited presentation, Collaborative Conference on Crystal Growth (3CG 2016), September 4 to 8, 2016 at Donostia-San Sebastian, Spain. (Declined owing to conference overload).
122. Invited presentation. “Flash Sintering: Energy Reduction and Other Benefits from

Direct Electrical Heating of Ceramics”, Ceramic Innovation Conference on Energy Efficiency in Ceramic Processing, Stoke-on-Trent, 13th April 2016.

123. Invited presentation. 6th Annual World Congress of Nano Science & Technology-2016 (Nano S&T-2016), Singapore October 26-28, 2016. (Declined owing to conference overload).
124. Plenary presentation. 9th Nano Congress for Next Generation, August 01-02, 2016 Manchester, UK, “Exploring Advancements in Nanotechnology” (Declined owing to conference overload).
125. Plenary presentation. 2nd International Conference on Ceramics and Composite Materials July 25 - 26, 2016 at Berlin, Germany (Declined owing to conference overload).
126. Invited presentation EMN Meeting on Texture and Microstructure, December 18 to 22, 2016 Hong Kong (Declined owing to conference overload).
127. Invited presentation, 12th Pacific Rim Conference on Ceramic and Glass Technology (PACRIM 12), May 21-26, 2017, Waikoloa, Hawaii (Declined owing to family commitments).
128. Invited presentation. Flash Sintering of Ceramics: Thermal Runaway and Ultrafast Firing. 7th International Workshop on Advanced Ceramics (IWAC07), Limoges, September 26-28, 2016. Hotel, meals, registration, conference dinner provided.
129. Plenary presentation. Flash Sintering: Towards Faster, Cheaper, Greener, Better Ceramics. 15th National Congress of the Spanish Society of Ceramics and Glass, October 5th-7th 2016 in Seville, Spain. All expenses paid.
130. Invited presentation, Collaborative Conference on Materials Research (CCMR) 2017, 26-30 June, Jeju Island, South Korea. (Declined owing to family commitments).
131. Plenary presentation, 2nd International Conference on Alumina and Other Functional Ceramics (AOFC-2017), Kolkata, India, 15-17, February 2017. (Declined owing to lack of time). Registration, food and accommodation provided.
132. Invited presentation, International Conference on Solid State Ionics, Padua, Italy, 18-23 June 2017. (Declined due to conference overload).
133. Plenary presentation, International Conference & Exhibition on Materials & Engineering (Materials-2017), October 9-11, 2017, USA. (Declined owing to conference overload).
134. Invited presentation. 3rd International Conference on Smart Materials and Structures, March 20-22, 2017 at Orlando, USA, 50% reduction in registration fee. (Declined owing to conference overload).
135. Plenary presentation and member of Organising Committee. Materials-2017: International Conference and Exhibition on Materials & Engineering Oct 9-11, 2017, San Diego, USA (Declined owing to conference overload).
136. Invited talk, 2017 EMN Meeting on Lightweight Metallic Alloys, Nov 6 - 10, 2017 Phuket, Thailand. (Declined)
137. Presentation at Saint Gobin (Centre de Recherches et d'Etudes Européen), Cavaillon, France: Flash Sintering: Towards Faster, Cheaper, Greener, Better Ceramics. 7 March 2017. All expenses paid.
138. “The Spring Lecture”: Spanish Ceramic & Glass Society (SECV), Institute of Ceramics and Glass of Spanish National Research Council, Madrid. 25 April 2017. All expenses

paid.

139. Invited talk, EMN Meeting on Alloys and Compounds, Las Vegas, USA, October 10 to October 14, 2017 (declined owing to lack of time).
140. Guest presentation, ICC7, 7th International Congress on Ceramics, Iguacu Falls Brazil, June 17-21 2018 (reduced registration fee; declined because of Examiner appointment in Oxford).
141. Invited to be Adjunct Professor at Northwestern Polytechnic University, Xi'An, China, 2016-2019. Substantial salary offered. Declined owing to time commitment required.
142. Invited talk, CIMTEC 2018 - 14th International Ceramics Congress, Perugia, Italy, June 4-8, 2018. (Declined).
143. Keynote speech (reduced fee + free accommodation), 19th International Conference on Nanotechnology November 13-14, 2017, Atlanta, USA. (Declined).
144. ECerS Summer School 2017, 7-8 July, Budapest, Hungary. Flash sintering – new science for faster, greener densification. All expenses paid.
145. Invited presentation. Flash sintering: what does it do and how does it work? Workshop on Sustainable Manufacturing of Advanced Ceramics, Sheffield UK, September 12th 2017
146. Invited presentation at the 6th International Symposium on Advanced Ceramics (ISAC-6) ISAC-6, Tohoku University, Japan, 12-14 March 2018. 90 000 JPY offered. Declined owing to acceptance of too many other invitations in 2018.
147. Invited presentation. Flash sintering of ceramics: what it is, what we know and what we would like to know. Microstructural Functionality at the Nanoscale (miFuN 2017), Duisburg, Germany, October 4th to 6th, 2017. All expenses paid.
148. Plenary lecture at the 4th International Workshop on Spark Plasma Sintering, 23-25 May 2018, Cagliari, Sardinia. Declined owing to acceptance of too many other invitations in 2018.
149. Invited talk at Symposium on fine scale mechanical characterisation and behaviour (CAMTEC IV), Cambridge, 9-10 April 2018. Declined owing to acceptance of too many other invitations in 2018.
150. Keynote presentation, Plasticity, Damage & Fracture 2018, Jan. 3-9, InterContinental San Juan Beachfront Hotel, Puerto Rico, USA. Declined owing to attending 2 conferences in the USA at the end of Jan 18 already.
151. Keynote presentation, The 30th International Conference on Materials Chemistry and Science 2018, August 27-28, 2018, Toronto Canada. (Declined)
152. Invited presentation, EMN Meeting on Ceramics, 25 Feb-1 March 2018, Las Vegas, USA. (Declined)
153. Invited presentation, 12th International Conference on Ceramic Materials and Components for Energy and Environmental Applications (CMCEE 2018), at Singapore, July 22-28, 2018 (declined to free up time).
154. Invited presentation, 16th European Inter-regional Conference on Ceramics, CIEC16 September 9th to 11th, 2018, Valentino's Castle in Turin, Italy. Travel expenses offered. (Declined to free up time).
155. Invited presentation, Symposium on sintering and related phenomena, MS&T2018, Columbus, Ohio, October 14-18, 2018 (Declined to free up time).

156. Invited presentation, Symposium on 'Interfaces in microstructural evolution of functional materials: Structure, properties, anisotropy and modelling' MSE 2018 (Material Science and Engineering, September 26-28, 2018, Darmstadt, Germany. (Declined to free up time).
157. Invited presentation, The 10th International Symposium on Green and Sustainable Technologies for Materials Manufacturing and Processing" MS&T2018, Columbus, Ohio, October 14-18, 2018 (Declined to free up time).
158. Invited presentation. Flash sintering of ceramics: what is the role of the electric field? 89. 2018 Conference on Electronic and Advanced Materials (EAM2018), American Ceramic Society, Orlando, Florida, 17-19 January 2018. Conference fees waived and banquet paid for.
159. Seminar. Flash sintering for faster, greener densification. University of Trento. Dept. of Industrial Engineering. 17th May 2018.
160. Invited plenary speaker. How General Are the Mechanisms of Flash Sintering? A Survey of What We Know (and What We Don't). Gordon Research Conference (GRC) on Solid State Studies in Ceramics, August 12, 2018 - August 17, 2018, Mount Holyoke College, South Hadley, MA United States. All food, drink and accommodation paid for.
161. Keynote speaker. SERES'18 IV. International Ceramic, Glass, Porcelain Enamel, Glaze and Pigment Congress, Eskisehir, Turkey, 10-12 October 2018, all expenses paid (declined – 1st work of new academic year).
162. Seminar "How to Get Published In Scientific Journals", DOC-3D printing week, Egbaston Park, University of Birmingham, 29 November 2018.
163. Invited talk, World University Forum on Materials Science & Engineering Leadership, Wuhan China, October 9-11, 2019 (declined owing to duties as Vice-Master and Tutor, St Catherine's College, Oxford).
164. Invited talk, "Controlling factors in flash sintering of ceramics. Symposium on 'Sintering and Related Powder Processing Science and Technologies', Materials Science & Technology (MS&T) 2019, Sept 29 – Oct 3, Portland, Oregon, USA.
165. Invited talk, 2019 EMN Meeting on Ceramics (Ceramics 2019), taking place from May 20 to 24, 2019 in Jeju Island, Korea. (Declined)
166. Invited presentation. Flash Sintering of SiC. 16th Conference of the European Ceramic Society, Torino, Italy, June 16-20 2019.
167. Plenary. JECS 30th Anniversary. 16th Conference of the European Ceramic Society, Torino, Italy, June 16-20 2019.
168. Plenary. The 16th Stuijts Memorial Lecture: Flash Sintering – Where's the Magic? 16th Conference of the European Ceramic Society, Torino, Italy, June 16-20 2019. All expenses paid.
169. Invited presentation. Composites at Lake Louise 2019 (by invitation only). Fairmont Chateau Lake Louise, Alberta, Canada November 10-14, 2019. (Declined owing to teaching responsibilities).
170. Keynote presentation. International Conference on Plasticity, Damage, and Fracture 2020, Jan. 3-9, 2020, Riviera Maya, Mexico. (Declined, too close to ICACC 2020).
171. Invited presentation. CIMTEC 2020 - 15th International Ceramics Congress, Montecatini Terme, Italy, June 15 to 23, 2020. (Declined – last week of academic year).

172. Keynote presentation. 14th International Conference on Ceramic Processing Science, June 21-24, 2020, Luleå Sweden. Declined owing to undergraduate examining commitments in Oxford.
173. Feature Article: RI Todd, Y Kubota and M. Yoshida. Controlling Factors in Flash Sintering of Ceramics. *Ceramics Japan - Bulletin of the Ceramic Society of Japan* 55 (2020) 502-505
174. Invited talk, "Pressureless flash sintering of α -SiC using solid state sintering aids", The 44th International Conference on Advanced Ceramics and Composites (ICACC 20), Daytona Beach Florida, 26-31 January 2020. Conference fee waived.
175. Webinar: How to Get Published in Scientific Journals. ECerS Young Ceramists' Network, 19/11/20.
176. Invited talk (given remotely) "An update on flash sintering: progress in mechanisms, materials and properties", Ceramic Innovation Network, Lucideon, Stoke-on-Trent, 14 April 2021.
177. Invited talk (given remotely) "Flash sintering of engineering ceramics: process geometry, homogeneity and resulting properties in YSZ", ICC8, the 8th International Conference on Ceramics, Busan, Korea, April 25–30, 2021
178. Keynote speech "Flash sintering – towards faster, cheaper, greener, better ceramics", 2nd Manufacture using Advanced Powder Processes (MAPP) International Conference, 1st-2nd June 2020 at Milton Hill House, Oxford (postponed due to covid19). Travel and accommodation funded.
179. Keynote speech "Flash sintering – an interfacial process for energy-efficient production of improved ceramics", 10th International Workshop on Interfaces, Santiago de Compostela, Spain, 27-29 April 2020 (postponed due to covid19). Registration fee and meals waived, travel expenses paid.
180. Keynote speech and Advisory Chair, 2021 4th International Conference on Materials Design and Applications (ICMDA 21) April 16-19, 2021, Chiba, Japan. All expenses paid + honorarium. (Not attended as in person conference cancelled owing to Covid).
181. Invited presentation, "An Investigation of the Role of Interfaces in Flash Sintering", Symposium: Grain Boundaries, Interfaces, and Surfaces in Ceramics: Fundamental Structure—Property—Performance Relationships Materials Science and Technology 2021, Columbus, Ohio, USA, October 17-21 2021. Accepted but unable to attend because of Covid restrictions on entry to USA.
182. Invited presentation, "Towards Homogeneous Components with Improved Mechanical Properties", Symposium: Manufacturing and Processing of Advanced Ceramic Materials, Materials Science and Technology 2021, Columbus, Ohio, USA, October 17-21 2021. Accepted but unable to attend because of Covid restrictions on entry to USA.
183. Invited presentation: "Indirect investigations of the role of interfaces in ultra-rapid densification", 46th International Conference and Exposition on Advanced Ceramics and Composites conference (ICACC 2022), January 23 - 28, 2022 at the Hilton Daytona Beach Resort and Ocean Center in Daytona Beach, Florida, USA. Cancelled due to Covid.
184. Invited talk in Symposium S11 "Evolution of Structure and Chemistry of Grain Boundaries and Their Networks as a Function of Material Processing" at EMA 23 (Electronic Materials and Applications) held on January 17-20, 2023 in Orlando, Florida. Declined owing to teaching commitments.

185. Invited talk Symposium SF08: Advanced Ceramics and Glasses From Advanced Manufacturing to Data-Driven Methods for Synthesis and Mechanical Characterization. MRS Fall meeting 2022, Boston USA November 27th- December 2nd 2022 (Declined last week of term and just before Oxford admissions).
186. Invited Talk in the symposium, “Manufacturing and Processing of Advanced Ceramic Materials”, at Materials Science & Technology (MS&T) 2022, October 9-13, Pittsburgh, Pennsylvania, USA. Declined owing to clash with 1st week of new academic year at Oxford and associated responsibilities.
187. Invited talk, 13th International Conference on Ceramic Materials and Components for Energy and Environmental Applications (CMCEE-13), Wuhan, PR China, 10-12 June 2022 (hybrid conference). Declined to free up time.
188. Plenary presentation. “12th International Advances in Applied Physics & Materials Science Congress & Exhibition (APMAS)” October 13-19, 2022, Muğla, Turkey. Declined to free up time.
189. ECerS Summer School 2022, 8-9 July, Krakow, Poland. Flash Sintering – towards faster, cheaper, greener and better Ceramics. All expenses paid.
190. Keynote speech “On the role of interfaces in ultra-rapid densification of ceramics”, 10th International Workshop on Interfaces, Santiago de Compostela, Spain, 4-7 September 2022. Registration fee, meals and all travel expenses paid.
191. Invited Talk: Flash sintering of ceramics: towards homogeneous components with improved mechanical properties in the symposium, “Manufacturing and Processing of Advanced Ceramic Materials”, at Materials Science & Technology (MS&T) 2022, October 9-13, Pittsburgh, Pennsylvania, USA.
192. Senior Invited Speaker, special symposium “Non-equilibrium phenomena induced by electrical and magnetic fields” at the German Physical Society (DPG) Spring Meeting of the Condensed Matter Section, Regensburg, Germany, September 04-09, 2022 (declined because of clash with invited talk at Santiago de Compostela meeting above).
193. Invited presentation, ACerS Electronic Materials and Applications 23 (EMA 23) January 17-20, 2023, Orlando, Florida. (Declined owing to teaching responsibilities).
194. Invited presentation, 47th International Conference and Exposition on Advanced Ceramics and Composites (ICACC), January 2023, Daytona Beach, Florida. (Declined owing to teaching responsibilities).
195. Invited presentation, Engineering Ceramics 2023, Smolenice Castle, Slovakia, May 7 – 11, 2023 (declined owing to teaching responsibilities)
196. Invited presentation in symposium on “Manufacturing and Processing of Advanced Ceramic Materials”, in Materials Science & Technology (MS&T) 2023, October 1-4, Columbus, Ohio, USA (declined owing to it being start of new academic year).
197. Opening Plenary presentation, “Accelerated sintering through rapid heating: evidence, mechanisms and prospects”, Sintering 2023, August 27-31 2023, Gifu, Japan. 250 000 JPY (~£1400) paid + registration fee waiver (80 000 JPY, ~£450).
198. Invited presentation, Symposium 1: Mechanical Behavior and Performance of Advanced

Ceramics & Composites, 48th International Conference and Exposition on Advanced Ceramics and Composites (ICACC), January 28-February 2, 2024, Daytona Beach FL, USA (declined owing to teaching responsibilities).

199. Invited speaker, 2024 Solid State Studies in Ceramics Gordon Research Conference, August 4-9, 2024, Mt Holyoke College, South Hadley MA, USA (declined to free up time).
200. Invited presentation, XIII World Round Table of Conference of Sintering (WRTCS), September 2-6, 2024, Herceg Novi, Montenegro. (Declined – too many conference invitations already).
201. Invited talk. “Rapid sintering by local heating: mechanisms and prospects”. 10th International Conference on Materials Science and Smart Materials, MSSM 2024, Athens, May 15-17 2024 (given remotely)
202. Invited talk. “Fast Firing Rebooted: A Role for Complexions?” 6th International Workshop on Interfaces at Bear Creek - Contentious Issues in Grain Boundary Science, July 31, 2024-August 3, 2024, Bear Creek Mountain Resort, Macungie, PA, USA All travel, accommodation and subsistence paid.
203. Keynote talk. “Energy-efficient sintering of ceramics by rapid local heating”, 14th International Conference on Ceramic Materials and Components for Energy and Environmental Systems (CMCEE14), Budapest, Hungary, 18-22 August 2024. Reduced registration fee.
204. Keynote talk in the symposium on “Advanced Processing and Manufacturing Technologies for Ceramics”, 16th Pacific Rim Conference on Ceramic and Glass Technology, May 4 - 9, 2025, Vancouver, British Columbia, Canada (declined – too many conferences)
205. Invited talk in the symposium “International Symposium of Fundamental and Frontier Sciences of Ceramics”, 16th Pacific Rim Conference on Ceramic and Glass Technology, May 4 - 9, 2025, Vancouver, British Columbia, Canada (declined – too many conferences)
206. Invited talk. “Investigation of fracture toughness, slow crack growth and crack healing in sapphire using chevron notched microcantilevers”. 49th International Conference and Expo on Advanced Ceramics and Composites (ICACC2025), Daytona Beach, FL, USA. January 26 - 31, 2025. Registration fee waived.
207. Invited talk. “Uniform flash sintering of zirconia-based ceramics by compositional design”. MS&T 2025 and ACerS 127th Annual Meeting, Columbus, Ohio, September 28 - October 1, 2025. Registration paid by organisers (Withdrew at short notice owing to family bereavement)
208. Invited talk. “Evidence for accelerated grain boundary diffusion during ultrafast firing (UHS) of alumina”. MS&T 2025 and ACerS 127th Annual Meeting, Columbus, Ohio, September 28 - October 1, 2025. Registration paid by organisers (Withdrew at short notice owing to family bereavement)

209. Plenary talk. "Ultra-fast firing of ceramics: background, evidence and potential explanation". 16th ECerS Conference for Young Scientists in Ceramics (CYSC 2025), Novi Sad, Serbia, October 15-18 2025. All expenses paid.
210. Keynote talk. "Microstructural Development and Acceleration of Diffusion During Ultrafast High-Temperature Sintering (UHS) of Alumina". The 14th International Conference on High-Performance Ceramics (CICC-14), Haikou, China, November 30 – December 3 2025
211. Invited talk "Grain boundary development between nanoparticles: evidence from rapid sintering of alumina" in Symposium Nanoparticles and Nanomaterials in Venice, Italy June 4 to 5 2026. Conference fees, accommodation and partial travel expenses.
212. Seminar on "Fast firing rebooted: accelerated diffusion during Ultrafast High-Temperature Sintering (UHS) of alumina" at Institut de Recerca en Energia de Catalunya (IREC), June 8 2026. All expenses paid.
213. Invited to speak in the Symposium on Advanced Manufacturing and Processing of Ceramic Materials, ACerS Spring Meeting, April 12 – 16, 2026 Bellevue, WA, USA (Declined)
214. Invited to speak in the Symposium on Engineering Ceramics at the 11th International Congress on Ceramics; ICC'11, Sapporo, Japan, September 6 - 11 2026 (declined owing to too many conferences around that time)
215. Invited to speak at the Structural Integrity Conference and Exhibition, SICE-2026, December 8^h - 11, 2026, IISc Bangalore, India (declined)
216. Plenary presentation at Advanced Ceramics and Applications (ACA) XIV, Belgrade, Serbia, 21st-23rd September 2026. (Declined owing to numerous other conferences that month.)

Chaired Sessions at the Following Conferences:

1. Fourth International Conference on Residual Stresses, Baltimore, Maryland, USA, June 8-10 1994.
2. Superplasticity: 60 Years after Pearson, Manchester, 7-8 December 1994.
3. The 2nd International Conference on "Towards Innovation in Superplasticity II", Kobe, Japan, 21-24 September 1998 (also refereed papers in session)
4. Sixth Conference of the European Ceramic Society, Brighton, UK, 20-24 June 1999 (also selected and refereed papers in session)
5. Microscopy of Composite Materials V, Oxford, 3-4 April 2000
6. ICSAM 2000 International Conference on Superplasticity in Advanced Materials
7. ESAFORM 2001, Liège, Belgium, 23-25 April 2001
8. American Society for Composites 17th Annual Technical Conference, Purdue University, West Lafayette IN, October 21-23, 2002

9. IoM Ceramic Convention, Keele, 7-8 April 2003
10. ICSAM 2003, Oxford, 28-30 July 2003
11. Fractography of Advanced Ceramics 2004 (FAC2004), Stará Lesná, Slovakia, October 3-6, 2004
12. 2005 China-UK Workshop on Nanoscale Stress Measurement and Modeling in Nanomaterials and Nanosystems, June 11-17 2005, Wuhan, P. R. China.
13. 4th European Conference on Superplastic Forming Euro SPF'05, Manchester, 22-24 June 2005
14. ICSAM 2006, Chengdu, Sichuan, PR China, June 23-36, 2006.
15. MRS Fall Meeting, Boston MA, November 27 - December 1, 2006.
16. EuroSPF 2008. The 6th European Conference on Superplastic Forming, Carcassonne, France, 3-5 September 2008.
17. MS&T 2008 Materials Science and Technology Conference and Exhibition, Pittsburgh, USA, 5-9 October 2008.
18. NanoSMat 2008, Barcelona, Spain, 21-24 October 2008.
19. 11th International Conference and Exhibition of the European Ceramic Society, Krakow - Poland, Jun 21-25 2009
20. ICSAM 2009, Seattle USA, June 29 – July 2, 2009
21. ICCPS 11, International Conference on Ceramic Processing Science, Zürich, August 29 - September 1, 2010
22. ICC3 3rd International Congress on Ceramics, Symposium 14, Advanced Engineering Ceramics and Composites, Osaka, Japan, November 14-18, 2010.
23. ICC3 3rd International Congress on Ceramics, Symposium 5: Hybrid and Nano-Structured Materials, Osaka, Japan, November 14-18, 2010.
24. Engineering Ceramics 2011 from Materials to Components Smolenice castle, May 8-12, 2011
25. ECerS XII: The 12th International Conference of the European Ceramic Society, Stockholm, Sweden, June 19-23 2011.
26. ICSAM 2012: 11th Conference on Superplasticity in Advanced Materials, Albi, France, July 3-5 2012
27. e-mrs Fall meeting, Warsaw, 17-21 September 2012
28. ECerS XIII: The 13th International Conference of the European Ceramic Society, Limoges, France, June 23-27 2013
29. Fractography of Advanced Ceramics 2013, Sept. 29-Oct. 2 2013, Smolenice, Slovakia.
30. ISAC-5 (5th International Symposium on Advanced Ceramics), Wuhan, China, December 9th to 12nd, 2013.
31. International Conference on Ceramics – 5 (ICC5), Symposium A - Novel Processing Technology, Aug. 17-21, 2014, Beijing, China.
32. International Conference on Ceramics – 5 (ICC5), Symposium B - Advanced Engineering

Ceramics and Composites, Aug. 17-21, 2014, Beijing, China.

33. The 14th International Conference of the European Ceramic Society, June 21-25 2015, Toledo, Spain.

34. Advanced Ceramics and Applications IV. September 21-23 2015, Belgrade, Serbia.

35. 7th International Workshop on Advanced Ceramics (IWAC07), Limoges, September 26-28, 2016.

36. 15th Conference & Exhibition of the European Ceramic Society July 9-13, 2017, Budapest, Hungary.

37. The 42nd International Conference on Advanced Ceramics and Composites (ICACC 18), Daytona Beach Florida, 21-26 January 2018.

38. The 16th Conference of the European Ceramic Society, Torino, Italy, June 16-20 2019. (Session on Advanced Structural Ceramics, Composites and Refractories).

39. The 16th Conference of the European Ceramic Society, Torino, Italy, June 16-20 2019. (Session on High Temperature Processes and Advanced Sintering).

40. Materials Science & Technology (MS&T) 2019, Sept 29 – Oct 3, Portland, Oregon, USA.

41. The 44th International Conference on Advanced Ceramics and Composites (ICACC 20), Daytona Beach Florida, 26-31 January 2020.

42. The XVIIIth Conference of the European Ceramic Society, Lyon, France, 2-6 July 2023.

43. 16th ECerS Conference for Young Scientists in Ceramics (CYSC 2025), Novi Sad, Serbia, October 15-18 2025.

13. Major Visits and Collaborations, Visiting Professorships etc.

by RIT:

Produced specimens for the VAMAS round robin exercise on residual stresses in composites 1997

Visited TU-Hamburg Harburg and GKSS Research Centre, Geesthacht, by invitation under SFB371 "Micromechanics of Multi-Phase Materials", 1-16 July 1998

Collaboration on measurement of stress distributions in metals using synchrotron radiation and neutrons, with Prof. H. van Swygenhoven and research group, Paul Scherrer Institut, Switzerland, 2006.

Visit Prof. Y. Motohashi, Ibaraki University, Hitachi Campus, Japan, to discuss research and give research lectures, Jan. 5 to Jan. 11, 2008.

Visit to Prof. Cai Shu, Tianjin University, China, 21-23 September 2008 to give research lecture and discuss collaboration.

Visit to Prof. ZhengYi Fu, Wuhan University of Technology, China, 23-28th September 2008 to give research lecture and discuss collaboration.

Visiting Professor, Dept. of Physics, University of Seville, 1-8th May 2010.

Visiting Professor, Dept. of Mechanical Engineering, University of Extremadura, Badajoz, Spain, "Ceramic nanocomposites, Fiction and Fact", 20th October 2010. All expenses + honorarium paid.

Visiting Professor, Department of Condensed Matter Physics, University of Seville, 15-17 May 2014.

Invited to be University Vice-President, Nagaoka University of Technology University Japan, 2014-15. Substantial payment offered. Declined owing to time commitment required.

Visiting Professor, University of Warwick, October 2014-2019

Invited to be Visiting Professor at the Institute of Space and Astronautical Science, Japan Aerospace Exploration Agency, Japan, 2015 with full travel and salary. Declined owing to requirement for commitment of at least 2 months.

Collaboration with Prof. ZhengYi Fu, Wuhan University of Technology, China, 2014-15. Chinese government fund of c. £4k for travel and subsistence.

Invited to be Adjunct Professor at Northwestern Polytechnic University, Xi'An, China, 2016-2019. Substantial salary offered. Declined owing to time commitment required.

to RIT:

Dr Wenming Zeng (Shanghai Institute of Ceramics), 12 months, Royal Society Fellowship.

Dr Ji Sik Kim (Pohang University of Science and Technology), 12 Months, KOSEF Fellowship.

Prof. K. Chen (State Key Laboratory in Powder Metallurgy, Central South University of Technology, P.R. China), 12 months, Chinese Government Fellowship

Prof. H. Ohsawa (Hosei University, Tokyo, Japan), 9 months, Hosei University Funding

Prof. G. Wen (Harbin Institute of Technology, China), 3 months, 2003 Chinese Government Funding

Dr Jinyong Zhang (Wuhan University of Technology), 12 months, 2007-8 Chinese Government Funding

Prof. Cai Shu (Tianjin University), 6 months, 2007-8 Chinese Government Funding

Dr. Xiaoxiao Huang, (Harbin Institute of Technology), 2009-10 Chinese Government Funding

Dr Chiwon Moon, Kyoto University, 2010-11 Kyoto University funding.

Dr Goffredo De Portu, CNR-ISTEC Faenza, Italy, RAEng funding, April 2011

Dr Teresa Rodriguez Suarez, CSIC-CINN, Oviedo, Spain, Spanish Government funding, Jan. 2012-Jan2014

Dr Ana García Prieto, Instituto Cerámica y Vidrio Madrid, Spain, Spanish Government funding, April-October 2012

Dr Michiyuki Yoshida, Dept. of Chemistry and Biomolecular Science Faculty of Engineering, Gifu University, 1 March 2014-28 February 2015

Dr Vladimir Prajzler, Brno University of Technology, Central European Institute of Technology (CEITEC), funded by the Czech Science Foundation, 3 May 2022 to 2 May 2024

Publications

Volumes Edited

1. ICSAM 2003 – Proceedings of the 8th International Conference on Superplasticity in Advanced Materials, Oxford, July 28-30, 2003, Trans Tech Publications, Zuerich, 2004. (*Materials Science Forum Vols.447-448*)

2. Editor of Special Edition of Journal of Materials Science, “Nanosmat”, 2008, (with W. Kaplan and A. Jadoon).

Book Chapters etc.

3. R. I. Todd, "Toughness of Ceramics: Resistance Curves" in "The Encyclopedia of Advanced Materials", (D. Bloor et al, eds.) pp. 2887-2890, Pergamon, Oxford, UK, (1994)

4. R.I. Todd, “Residual Stresses in Ceramic Materials” in “Analysis of Residual Stress by Diffraction using Neutron and Synchrotron Radiation”, M.E. Fitzpatrick and A. Lodini (eds.), pp.334-348, Taylor and Francis, London, 2003.

5. R.I. Todd, “Alumina-SiC Nanocomposites” in “Nanomaterials”, B. Cantor (ed.), pp.220-232, Institute of Physics, Bristol, 2005.

6. R.I. Todd, “Particulate Composites” in “Ceramic Matrix Composites – Microstructure, Properties and Applications”, I.M. Low (ed.), pp.99-128, Woodhead Publishing Ltd., Cambridge, UK and CRC Press LLC, Boca Raton, USA, 2006.

7. R.I. Todd and D. Armstrong, “Gum Metal and Related Alloys”, in “Encyclopedia of Materials: Science and Technology, 2006 Online Update”, Jürgen Buschow, Merton Flemings, Robert Cahn, Patrick Veyssi re, Edward Kramer, Subhash Mahajan (eds.), Elsevier Ltd, Kidlington, UK, 2006. Available online at: www.sciencedirect.com

8. R.I. Todd and D. Armstrong, “Gum Metal”, in “Concise Encyclopedia of the Mechanical Properties of Materials”, J.W. Martin (Ed.), Elsevier 2007, pp.337-340

9. R.I. Todd and M.P.S. Saran, “Transformation Toughening”, in Materials Processing Handbook, CRC Press/Taylor & Francis, Boca Raton, Florida, USA, 2007, Chapter 20.

10. R.I. Todd, “Flash Sintering: a Short Review”, in Proceedings of the IV Advanced Ceramics and Applications Conference, W.E. Lee, R. Gadow, V. Mitic (Eds.), Springer, Berlin, 2017. DOI: 10.2991/978-94-6239-213-7_1

Research Publications

11. A. P. Moore, R. I. Todd and R. W. Elston, "Solder Modelling for Surface Mounted Technology", Proc. 5th VLSI Packaging Workshop, Paris, IEEE-CHMT, 1986.

12. R. I. Todd and P. M. Hazzledine, "The Mechanism of Superanelasticity and its Implications", in "Superplasticity and Superplastic Forming", C. H. Hamilton and N. E. Paton (eds.), TMS-AIME, 1988, pp.33-37.

13. R. I. Todd, "Anelasticity in Superplastic Alloys", D. Phil. Thesis 1990, University of Oxford.

14. R. I. Todd and B. Derby, "The Measurement of Internal Stresses in SiC_p/Al₂O₃ Ceramic Matrix Composites Using Neutron Diffraction", in "EUROMAT '91, Proceedings of the 2nd European Conference on Advanced Materials Processes", Eds T. W. Clyne & P. J. Withers, vol. 3 pp 426-432, Institute of Materials, London, 1992.
15. R. I. Todd and P. M. Hazzledine, "Large Anelastic Strains at Constant Volume in Superplastic Tin-Lead Eutectic Alloy", *Scripta Metall. Mater.* 27 (1992) 127-132
16. R. I. Todd, "Threshold Stress for the Superplastic Elastic After-Effect in the Sn-Pb Eutectic", *Scripta Metall. Mater.* 29 (1993) 407-409
17. R. I. Todd and B. Derby, "Internal Stresses and Fracture Toughness in a SiC_p/Al₂O₃ Ceramic Matrix Composite", in "Euro-Ceramics vol. II", G. Ziegler and H. Hausner (eds), pp. 1425-1429, Deutsche Keramische Gesellschaft e. V., Cologne, 1993
18. R. I. Todd and B. Derby, "Deconvolution of Measured Internal Strain Distribution Functions for Al₂O₃/SiC_p Composites from Neutron Diffraction Results", in "Residual Stresses in Composites", E. V. Barrera and I. Dutta (eds.), p. 147, TMS-AIME, Warrendale, PA, 1993.
19. M. A. M. Bourke, J. A. Goldstone, N. Shi, G. T. Gray III, M. R. James and R. I. Todd, "The Use of Pulsed Neutron Diffraction to Measure Strain in Composites", in "Proceedings of the Fourth International Conference on Residual Stresses", pp. 539-548, Society for Experimental Mechanics, Bethel CT, (1994)
20. R. I. Todd and B. Derby, "Measured Strain Distributions in Composites from Neutron Diffraction Peak Shape Changes", *ibid* pp. 716-723
21. C. N. Walker, C. E. Borsa, R. I. Todd, R. W. Davidge and R. J. Brook, "Fabrication, Characterisation and Properties of Alumina Matrix Nanocomposites", *British Ceramic Proc.* 53 (1994) 249-264
22. R. I. Todd, "Grain Boundary Tension Induced Strain Recovery Following Superplastic Flow", *Acta Metall. Mater.* 42 (1994) 2921-2928
23. R. I. Todd, C. E. Borsa, B. Derby and M. A. M. Bourke, "Analysis of Neutron Diffraction Peak Broadening Caused by Internal Stresses in Composite Materials", *Nuclear Instruments and Methods in Physics Research A* 354 (1995) 139-144
24. C. E. Borsa, S. Jiao, R. I. Todd and R. J. Brook, "Processing and Properties of Al₂O₃/SiC Nanocomposites", *Journal of Microscopy* 177 (1995) 305-312
25. R. I. Todd, "Grain Boundary Structure and Superplastic Behaviour", in "Superplasticity: 60 Years after Pearson", N. Ridley (ed.), pp 33-42, The Institute of Materials, London, 1995
26. R. I. Todd, M. A. M. Bourke, C. E. Borsa and R. J. Brook, "Measurement and Role of Residual Stresses in Alumina/SiC Nanocomposites" in "Fourth Euro-Ceramics vol. 4", A. Bellosi (ed.), pp. 217-224, Gruppo Editoriale Faenza Editrice, Faenza, Italy, 1995
27. C. N. Walker, C. E. Borsa and R. I. Todd, "Nanocomposites", *Ceramic Technology International* 1995 pp. 46-49, I. Birkby (ed.), Stirling Publications Ltd.

28. R. I. Todd, "Alumina/SiC Nanocomposites: Big Things from Small Packages", *British Ceramic Proc.* 55 (1996) 225-238 (Invited)
29. C. E. Borsa, N. M. R. Jones, R. J. Brook and R. I. Todd, "Influence of Processing on the Microstructural Development and Flexure Strength of $\text{Al}_2\text{O}_3/\text{SiC}$ Nanocomposites", *J. Eur. Ceram. Soc.* 17 (1997) 865-872
30. R.I. Todd, M.A.M.Bourke, C. E. Borsa and R. J. Brook, "Neutron Diffraction Measurements of Residual Stresses in Alumina/SiC Nanocomposites", *Acta Mater.* 45 (1997) 1791-1800
31. C. E. Borsa, R. I. Todd and R. J. Brook, "Flexure Strength of Alumina Reinforced by Nanosized SiC Particles", *Ceramica* 43/280 (1997) 84-87
32. R. I. Todd, "Relating Grain Boundary Structure to Superplastic Deformation", *Materials Science Forum* 243-245 (1997) 99-108 (Invited)
33. R. I. Todd, C. S. Hodges, Y. C. Wong, Z. C. Wang and N. Ridley, "Objective Modelling of Diffusion Bonding in Superplastic Duplex Stainless Steels", *Materials Science Forum* 243-245 (1997) 675-680
34. R. I. Todd, K. Morsi and B. Derby, "Neutron Diffraction Measurements of Thermal Residual Microstresses in Ceramic Particle Reinforced Alumina", *British Ceramic Proc.* 57 (1997) 87-101
35. C. E. Borsa, R. I. Todd and R. J. Brook, "Coating of the Reinforcement Phase for the Preparation of $\text{Al}_2\text{O}_3/\text{SiC}$ Composites", *Acta Microscopica* 5 supplement 13 (1996) 82-83
36. R. I. Todd, "Grain Boundary Dislocation Models for Grain Boundary Sliding and Superplastic Flow", in "Superplasticity and Superplastic Forming 1998", A. K. Ghosh and T. R. Bieler eds., p. 13, TMS, Warrendale, PA, 1998 (invited).
37. G. H. Zahid, R. I. Todd and P. B. Prangnell, "Cavitation Behaviour of a 2124Al/SiC_p Composite During High Strain Rate Superplasticity", in "Superplasticity and Superplastic Forming 1998", A. K. Ghosh and T. R. Bieler eds., p. 227, TMS, Warrendale, PA, 1998 (invited).
38. G. H. Zahid, R. I. Todd and P. B. Prangnell, "Superplasticity in an Aluminium Alloy 2124/SiC_p Composite", *Mat. Sci. and Tech.* 14 (1998) 901-905
39. A. J. Winn, Z. C. Wang, R. I. Todd and F. R. Sale, "Alumina-SiC Nanocomposites by Mixed Powder and Chemical Processing Routes: a Preliminary Examination of Microstructure and Response to Abrasion", *Silicates Industriels* 63 (1998) 147-152
40. G. J. Liu, H. B. Qiu, R. I. Todd, R. J. Brook, J. K. Guo, "Processing and mechanical behavior of $\text{Al}_2\text{O}_3/\text{ZrO}_2$ nanocomposites", *Materials Research Bulletin* 33 (1998) 281- 288

41. G. H. Zahid, R. I. Todd and P. B. Prangnell, "Deformation and Microstructural Development in a 2124Al/SiC_p MMC During High Strain Rate Superplasticity" Materials Science Forum 304-306 (1999) 233-240
42. A. Ahmed, R. I. Todd, L. Pejryd and J. Wigren, "*In Situ* Measurements of Residual Stresses in a Thermal Barrier Coating During Thermal Cycling", British Ceramic Proceedings 59 (1999) 83-94
43. A. J. Winn and R. I. Todd, "Microstructural Requirements for Alumina-SiC Nanocomposites", British Ceramic Proceedings 59 (1999) 153-164
44. A. R. Boccaccini, R. I. Todd, R. Sinclair, R. B. Yaltee, R. J. Young and H. Kern, "On the Toughening Effect of Residual Thermal Stresses in Glass Matrix Composites Reinforced with Al₂O₃-Platelets", in "Thermal Stresses '99", Proceedings of the Third International Conference on Thermal Stresses, J. J. Skrzypek and R. B. Hetnarski eds., pp. 405-408
45. J.L. Ortiz Merino, A.J. Winn and R.I. Todd, "Influence of reinforcement location and composition on abrasive wear of alumina matrix nanocomposites", British Ceramic Proceedings 60 vol. 1 (1999) 21-22
46. R.I. Todd, "Thermal residual stresses in alumina-based ceramics and their influence on mechanical properties", British Ceramic Proceedings 60 vol. 2 (1999) 411-412
47. R. I. Todd, A. R. Boccaccini, R. Sinclair, R. B. Yaltee, and R. J. Young, "Thermal Residual Stresses and their Toughening Effect in Al₂O₃ Platelet Reinforced Glass", Acta Mater. 47 (1999) 3233-3240
48. A. J. Winn and R. I. Todd, "Microstructural Requirements for Alumina-SiC Nanocomposites", British Ceramic Transactions 98 (1999) 219-224 (*Winner of the Pfeil Award of the Institute of Materials, 2001*)
49. R. I. Todd, "Critical Review of Mechanism of Superplastic Deformation in Fine Grained Metallic Materials", Mat. Sci. & Tech. 16 (2000) 1287-1294
50. R. I. Todd, J. S. Kim, G. H. Zahid and P. B. Prangnell, "High Strain Rate Superplasticity in Three Contrasting Fine Grained Aluminium Alloys", Mat. Res. Soc. Symp. Proc. Vol. 601 (2000) 273-281
51. R. I. Todd and B. Derby, "Neutron Diffraction Study of Correlation Between Reinforcement Size, Residual Stress and Microcracking in Alumina/SiC_p Composites", Proceedings of the Sixth International Conference on Residual Stresses, pp. 57-63, IOM, London, 2000.
52. R. O. Howells, R. I. Todd, J. Wigren and P. Bengtsson, "Measurement of Thermal Stresses in a Plasma Sprayed NiCoCrAlY Coating During Thermal Cycling", Proceedings of the Sixth International Conference on Residual Stresses, pp. 1425-1432, IOM, London, 2000.
53. P.S. Hill, N. Ridley and R.I. Todd, "Investigation of Superplastic Behaviour and Solid State Bonding of Zircaloy-4", Materials Science Forum 357-359 (2001) 99-104

54. P.S. Hill, N. Ridley and R.I. Todd, "Superplasticity and Diffusion Bonding of Zircaloy-4 in the $\alpha+\beta$ Phase Field", Proceedings of the 4th International ESAFORM Conference on Materials Forming, A.M. Habraken (ed.), pp 733-736, University of Liège, Belgium, 2001.
55. J.L. Ortiz Merino and R.I. Todd, "Alumina/SiC nanocomposites for improved surface finish and wear resistance", Proceedings of the American Society for Composites 17th Technical Conference, C.T. Sun and H. Kim (Eds.), p.172, CRC Press/American Society for Composites, 2003.
56. P.S. Hill, R.I. Todd and N. Ridley, "Mechanism of the HIP bonding of Zircaloy-4 in the α -phase field", Journal of Materials Processing Technology 135 (2003) 131-136
57. J. L. Ortiz Merino and R. I. Todd, "Thermal microstress measurements in Al₂O₃/SiC nanocomposites by Cr³⁺ fluorescence microscopy", Journal of the European Ceramic Society 23 (2003) 1779-1783
58. K. Chen, H.Liu, Z. Zhang, S. Li and R.I. Todd, "The improvement of constituent dissolution and mechanical properties of 7055 aluminium alloy by stepped heat treatments", Journal of Materials Processing Technology 142 (2003) 190-196
59. S. Griffiths, D. Whittle, N. Ridley and R.I. Todd, "Superplasticity in Commercial Al 7475", Materials Science Forum 447-448 (2004) 283-288.
60. R.I. Todd and B. Derby, "Thermal stress induced microcracking in alumina-20% SiC composites", Acta Materialia 52 (2004) 1621-1629
61. P.H. Holme, M.A. Rust, Y. Huang and R.I. Todd, "Surface studies in superplastic materials using focused ion beams (FIB)," Proc. 4th European Conference on Superplastic Forming – Euro SPF '05, pp. 29, IoMMMM, London, (2005).
62. J. Robinson and R.I. Todd, "Mechanisms of microsuperplasticity", Proc. 4th European Conference on Superplastic Forming – Euro SPF '05, pp31-36, IoMMMM, London, (2005).
63. J.L. Ortiz, A. Cock, S.G. Roberts and R.I. Todd, "Quantitative Surface Fractography of Alumina and Alumina-SiC Composites during Diamond Grinding", Key Engineering Materials 290 (2005) 149-159
64. M. Russell-Stevens, R. Todd and M. Papakyriacou, "Microstructural analysis of a carbon fibre reinforced AZ91D magnesium alloy composite", Surface and Interface Analysis 37 (2005) 336-342
65. M. Russell-Stevens, R. Todd and M. Papakyriacou, "The effect of thermal cycling on the properties of a carbon fibre reinforced magnesium composite", Materials Science and Engineering A 397 (2005) 249-256
66. J.L. Ortiz Merino and R.I. Todd, "Relationship between wear rate, surface pullout and microstructure during abrasive wear of alumina and alumina/SiC nanocomposites", Acta Materialia 53 (2005) 3345-3357
67. A.M. Cock, I.P. Shapiro, R.I. Todd and S.G. Roberts, "Effects of yttrium on the sintering

and microstructure of alumina-silicon carbide “nanocomposites” ", J. Am. Ceram. Soc. 88 (2005) 2354-2361

68. R.I. Todd and A. Limpichaipanit, “Microstructure-Property Relationships in Wear Resistant Alumina/SiC "Nanocomposites" ”, Adv. Sci. Tech. 45 (2006) 555-563

69. M. Russell-Stevens, R. I. Todd and M. Papakyriacou, “Thermal expansion behaviour of ultra-high modulus carbon fibre reinforced magnesium composite during thermal cycling”, J. Mat. Sci. 41 (2006) 6228-6236

70. J.H. Robinson, M.A. Rust and R.I. Todd, “Mechanisms of Microsuperplasticity”, Materials Science Forum 551-552 (2007) 135-145

71. M.A. Rust and R.I. Todd, “High Resolution Surface Studies of Superplastic Deformation”, Materials Science Forum 551-552 (2007) 615-620

72. F.C. Zhang, H.H. Luo, S.G. Roberts and R.I. Todd, “Effect of fracture mode on wear resistance of alumina-based ceramics”, Journal of Inorganic Materials 22 (2007) 493-498

73. N. Wain, P.G. Radaelli and R.I. Todd, “In situ neutron diffraction study of residual stress development in MgO/SiC ceramic nanocomposites during thermal cycling”, Acta Mater. 55 (2007) 4535-4544

74. R.I. Todd, D. Stowe, S. Galloway, D. Barnes and P.R. Wilshaw, “Piezospectroscopic measurement of the stress field around and indentation crack tip in ruby using SEM cathodoluminescence”, J. Eur. Ceram. Soc. 28 (2008) 2049-2055

75. M.A. Rust and R.I. Todd, “High resolution surface studies of superplastic deformation in shear and tension”, Materialwissenschaft und Werkstofftechnik 39 (2008) 289-292

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