

Curriculum Vitae of Professor Brian Derby, FIMMM, CEng.

May 2020

University Address

School of Materials
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Date of Birth 8th July 1957

Nationality British

QUALIFICATIONS

Education

- B.A., Natural Sciences – Metallurgy and Materials Science - (1st Class Honours), Cambridge, 1978.
- Ph.D. – Thesis title *A Theoretical Model for Diffusion Bonding* - Cambridge, 1981.

Professional

- Chartered Engineer (C.Eng.)
- Fellow of the Institution of Materials, Mining and Minerals (FIMMM)
- Academician of the World Academy of Ceramics
- Member of the Institute of Physics
- Member of the American Ceramic Society
- Member of the Materials Research Society (USA)

Appointments Held

- Professor of Materials Science, University of Manchester, (January 1999 - present).
- Reader (1997), Lecturer (1987-97) in Materials Engineering, Oxford University, Department of Materials; Tutor in Engineering and Materials, Corpus Christi College, Oxford, 1987 - 99.
Director of the Oxford Centre for Advanced Materials and Composites 1997 –99.
- Senior Research Fellow, Oxford University, Department of Materials 1985 - 87.
- Research Fellow, St. John's College & Engineering Dept., Cambridge University, 1982 - 84.
- European Space Agency Research Fellow, Centre d'Études Nucleaire de Grenoble, 1981 - 1982.

PRESENT APPOINTMENT

Professor of Materials Science, University of Manchester.

Visiting Appointment

Senior Principal Investigator, Beihang University, Beijing, China. (Beijing Aerospace University)

Awards and Honours

- The article "Multilayer Phase Analysis: Quantitative Scanning Acoustic Microscopy for Soft Tissues and Live Cells", X. Zhao et al, was awarded best paper by IEEE Journal of Ultrasonics and Ferroelectrics (2011).
- Edward de Bono Medal for Original Thinking (2008) – part of the Saatchi and Saatchi Award for World Changing Ideas.
- Guest Professor, University of Chongqing (2005).
- Elected as Chairman of the Gordon Conference in Ceramic Science (2005).
- Elected Academician, World Academy of Ceramics (2004).

Positions on Grant Awarding and Research Advisory Bodies Since 2010

- ERC Consolidator Grant Engineering Panel (2020).
- EU Horizon 2020 Panel – Bioengineering (2019).
- Science Foundation Ireland (SFI), Grants Review Panel, Dublin (2010, 2013, 2015, 2017, 2019, 2020).
- Christian Doppler Institute (Austria), Grant Reviewer and Site Visits - Leoben (2017).
- Invited Expert Reviewer (Remote Panel), NIH (USA) (2015).
- Member Horizon 2020, NMP Panel, Brussels (2014).
- Expert Panel ERC Investigator Awards, 2010-Present.
- Royal Society International Grants Panel 2008-2011.
- EPSRC Referees College.

Research Advisory Roles for other UK Institutions

- “Mock REF Assessor”, Materials, University of Central Lancaster, 2014.
- External Assessor for Rapid Manufacturing/Inkjet Project, Institute for Manufacturing, University of Loughborough (2009 – 2013).

Editorships

- Series Editor Monographs (Materials Engineering and Processes), Springer Nature (1999 – present): >30 Titles in series.
- Associate Editor, Journal of the American Ceramic Society (2000 - present).
- Editorial Board, Materials Science and Engineering C – Materials for Biological Applications (2007 – present).
- Editorial Board of Ceramics International (Commencing 2018)

Invited Plenary and Keynote Speaker (Selected)

1. *Keynote Speaker*, Biofabrication, Wurzburg, Germany, 2018.
2. *Keynote Speaker* 3D printing in Medicine, Mayo Clinic/MRS, Boston 2017.
3. *Keynote Speaker* Inkjet Printing in Biology and Medicine, International Engineering Conference, Chinese Academy of Engineering, Beijing 2014
4. *Plenary Speaker*, Inkjet printing and Tissue Engineering, International Meeting on Artificial Organs and Human Assist Engineering, Saga, Kyushu, Japan, April 2012.
5. *Keynote Speaker*, *Applications of Inkjet Printing in Tissue Engineering*, World Biomaterials Congress, Chengdu, China, June 2010.

RESEARCH

Publication Summary

- 4 Patents
- >300 Publications in peer-reviewed journal literature
- Paper in *Science*
- Five Highly Cited Papers in Web of Science, two as sole author

Selected Publications in Refereed Journals

1. Acoustic Poration and Dynamic Healing of Mammalian Cell Membranes During Inkjet Printing. S. Barui, R.E. Saunders, S. Naskar, B. Basu, B. Derby. *ACS Biomater. Sci. Eng.* **6**, 749-757 (2019).
2. Screen-Printing of a Highly Conductive Graphene Ink for Flexible Printed Electronics. P He, J Cao, H Ding, C Liu, J Neilson, Z Li, IA Kinloch, B Derby. *ACS Appl. Mater. Interfaces* **11**, 32225-32234 (2019).
3. Angiogenesis and Tissue Formation Driven by an Arteriovenous Loop in the Mouse. R. Wong, R. Donno, C. León Valdivieso, U. Roostalu, B. Derby, N. Tirelli, J. Wong, *Sci. Rep.* **9**, 10478 (2019).
4. A Definition of Bioinks and their Distinction from Biomaterial Inks. J. Groll, J.A. Burdick, D.W. Cho, B. Derby, M. Gelinsky, S.C. Heilshorn, T. Jüngst, J. Malda, V.A. Mironov, K. Nakayama, A. Ovsianikov, W. Sun, S. Takeuchi, J.J. Yoo, T.B.F. Woodfield, *Biofabrication* **11**, 013001 (2019)
5. Implication of free fatty acids in thrombin generation and fibrinolysis in vascular inflammation in Zucker rats and evolution with aging. J. Lagrange, M. Didelot, A. Mohamadi, L.A. Walton, S. Bloemen, B. de Laat, H. Louis, S.N. Thornton, **B. Derby**, M.J. Sherratt, K. Fève, P. Challande, R. Akhtar, J.K. Cruickshank, P. Lacolley and, V. Regnault. *Front. Physiol.* **8**, 949 (2017).
6. Two-step electrochemical intercalation and oxidation of graphite for the mass production of graphene oxide. J. Cao, P. He, M.A. Mohammed, X. Zhao, R.J. Young, B. Derby and I.A. Kinloch, *J. Amer. Chem. Soc.* **139**, 17446-17456 (2017).
7. Pristine Graphene Aerogels by Room-Temperature Freeze Gelation. Y. Lib, F. Liu, G. Casano, R. Bhavsar, I.A. Kinloch and B. Derby. *Adv. Mater.* **28**, 7993-8000 (2016).
8. A pilot study of scanning acoustic microscopy as a tool for measuring arterial stiffness in aortic biopsies. R. Akhtar, J.K. Cruickshank, X.G. Zhao, **B. Derby** and T. Weber. *Artery Res.* **13**, 1-5 (2016).
9. High throughput cryopreservation of cells by rapid freezing of sub- μ l drops using inkjet printing - cryoprinting. R. Dou, R.E. Saunders, L. Mohamet, C.M. Ward and **B. Derby**, *Lab Chip*, (2015).
10. Mechanical properties of porous ceramic scaffolds: Influence of internal dimensions. I.K. Sabree, J.E. Gough and **B. Derby**, *Ceramics Inter.* **41** 8425-8432 (2015).

Grants Awarded since 2010

| Project Title | Funding | Amount | Period | Role | Comment |
|--|--------------------------|-----------------------------------|------------|------|--|
| Imaging of Biological Printing for High Throughput Applications | IAA EPSRC & Industry | £35,000 | 2/20-8/20 | PI | |
| Nanomechanical Testing in Controlled Environments and in the TEM (Nano-TCT) | EPSRC | £911,357 | 1/19-12/20 | PI | Strategic Equipment Award |
| Engineering van der Waals heterostructures: from layer-by-layer assembly to printable innovative devices | EPSRC | £4,707,000 | 3/16-3/21 | CI | |
| Organ-on-a-chip Glomerulus and Nephrotube Model | BBSRC | £199,909 | 5/16-2/18 | PI | Patent Awarded |
| Performance of solution processed nanoplatelet 2D inks | Merck | £107,000 | 5/16-4/17 | PI | |
| Graphene Aerogels | Masdar Institute | £151,000 | 10/16-9/19 | PI | |
| Inkjet printing on Structured Surfaces | IAA EPSRC & Industry | £48,000 | 7/15-9/15 | PI | |
| Additive Manufacturing: 3D Inkjet Printed Micro Li Ion Batteries | CDE (MoD_ | £77,000 | 1/15-6/15 | PI | |
| Inkjet Printing Solar Cells | IAA EPSRC & Industry | 167,000 | 9/14-8/15 | PI | |
| Graphene Coated Pins | Industry | 151,000 | 1/14-1/15 | CI | |
| Challenges in High Resolution Inkjet Printing | EPSRC | £881,000 | 9/13-8/16 | PI | Strategic Equipment Award |
| High Throughput Cryopreservation of Cells by Inkjet Printing | UMIP POP | £109,000 | 10/12-9/13 | PI | |
| Quantifying Age-Related Changes in the Mechanical Properties of Tissues | MRC | £900,000 | 4/12-3/15 | PI | |
| Innovation in Digital Fabrication | EU FP7 | £60,000 | 4/12-3/13 | PI | Led to Roadmap for Digital Manufacture |
| Structural evolution across multiple time and length scales | EPSRC | 2,126,000 | 10/11-9/16 | CI | |
| Inkjet Printing Supercapacitor Structures | US Army | £80,000 | 10/11-9/12 | PI | |
| | Total Value As PI | £10,710K £3,726K | | | |