George Andrew Davidson Briggs

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PERSONAL DETAILS

Home Address: 5 Northmoor Road, Oxford, OX2 6UW **Tel:** +44 1865 420007 **Mobile:** +44 7983 431010
Nationality: British; Married; 2 daughters.

EDUCATION

1976-1979	Queens' College Cambridge, Theology Tripos, Chase Prize for Greek
1973-1976	Physics and Chemistry of Solids Group, Cavendish Laboratory, Cambridge, Ph.D.
1968-1971	Clothworkers' Scholar, St Catherine's College, Oxford, Physics, B.A., M.A.

APPOINTMENTS

Current	
2022	Co-Founder and Executive Chair, QuantrolOx Ltd
2022	Chief Innovation Officer, LocatorX
2022	Professor Emeritus of Nanomaterials, University of Oxford
2022	Senior Research Fellow, St Anne's College, Oxford
2018	Scientific Advisory Board, Evonetix
2003	Emeritus Fellow, Wolfson College, Oxford
Previous	
2002-2021	Professor of Nanomaterials, University of Oxford
2002-2021	Professorial Fellow, St Anne's College, Oxford
2002-2009	Director, Quantum Information Processing Interdisciplinary Research Collaboration (QIP IRC)
2002-2009	EPSRC Professorial Research Fellow
1999-2002	Professor of Materials, University of Oxford
1996-1999	Reader in Materials, University of Oxford
1984-2002	Governing Body Fellow, Wolfson College, Oxford
1984-1996	Lecturer in Metallurgy and Science of Materials, University of Oxford
1983-1984	Royal Society Research Fellow in the Physical Sciences
1982-1984	Research Associate, St Catherine's College, Oxford
1981-1993	Lecturer in Physics, St Catherine's College, Oxford
1980-1982	University of Oxford, Department of Metallurgy, Research Fellow
1979	Cambridge University Engineering Department, Research Assistant
1971-1973	Canford School, Dorset (Physics and RE, House Tutor)
1968	Glanzstoff A.G., Germany (Praktikant)

PROFESSIONAL ACTIVITIES

Current	
2021	Anglican Communion Science Commission
2020	Board of Visitors, Pitt Rivers Museum
2019	International Advisory Board, The Faraday Institute, Cambridge
2018	Scientific Advisory Board, Evonetix Ltd
2013	Fellow, International Society for Science and Religion
2011	Member, The Lambeth Partnership
2011	Member Academia Europaea
2008	Advisory Council, McDonald Centre for Theology, Ethics, and Public Life
2008	Engineering Panel, Newton International Fellowships
2006	Science & Engineering Fellowships Committee, Royal Commission for the Exhibition of 1851
2005	Liveryman, Clothworkers' Company
2004	Fellow, Institute of Physics
2002	Freeman, Clothworkers' Company and City of London
2001	Editorial Board, *Science & Christian Belief*
1999	Honorary Fellow, Royal Microscopical Society
1977	Fellow, Cambridge Philosophical Society
Previous	
2019-21	Advisory Board, LocatorX
2010-20	Director, services to Templeton World Charity Foundation by University of Oxford
2009-12	Editorial Board, *Journal of Physics D: Applied Physics*

2007-9, 2011-13	International Board of Advisors, John Templeton Foundation
2006-9, 2010-14	EPSRC Peer Review College
2005	Guest Professor, State Key Laboratory, Wuhan University of Technology, China
2005-2006	Editorial Board, *Nanotechnology*
2002-2012	Editorial Board, *Current Opinion in Solid State and Materials Science*
2002	Visiting Professor, University of New South Wales
2001-2015	Board of Management, Ian Ramsey Centre, Faculty of Theology, University of Oxford
2000-2008	Founding Director and Vice-Chair, OxLoc Ltd
2000-2002	External Examiner, Cranfield University, BSc (Hons) in Applied Science
1999	Guest Editor, *Ultrasonics*
1997-1998	Visiting Scientist, Hewlett-Packard Laboratories, Palo Alto, California
1996-2006	Director, Oxford Toppan Centre
1993-1994	Special Lectureship, University of Oxford
1992-2002	Professeur invité, Ecole polytechnique fédérale de Lausanne
1991	Select Preacher, Trinity Term, University of Oxford
1990, 1993	Visiting Faculty, Centre for Quantized Electronic Structures (QUEST), University of California at Santa Barbara
1989-1992	Research Executive Committee, British Institute of Non-Destructive Testing
1989-1991	Honorary Treasurer, Royal Microscopical Society
1986-1991	Council, Royal Microscopical Society, Chair of Materials Section
1985	British Council Visitor, New Zealand Vice-Chancellors' Committee

AWARDS

2019	Areté Literature Prize in the category of Apologetics.
2019	Vatican Foundation Joseph Ratzinger – Benedict XVI; Honorable Mention, Expanded Reason Awards.
2007	Oxfordshire Science Writing Competition Prize: *'Molecules are Real.'*
1999	Honorary Fellow, Royal Microscopical Society. *'This award is in recognition of your many outstanding achievements in various scanned probe microscopy techniques and their applications to the study of the mechanical and structural properties of surfaces over a very wide dimensional scale. Your recent development of the ultrasonic force microscope is an example of your innovative achievements.'*
1999	Metrology for World Class Manufacturing Awards: Winner (with Dr O.V. Kolosov), Category 1, Frontier Science and Measurement. "Ultrasonic Force Microscopy (UFM)", *'Kolosov and Briggs have demonstrated the effect on various materials and shown that UFM is capable of both high resolution and quantitative measurement.'*
1994	Buehler Technical Paper Merit Award for Excellence. "Depth measurements of short cracks in perspex with the scanning acoustic microscope." *Materials Characterization* **31**, 115-126 (1993), reprinted in *Materials Characterization* **39**, 653-644 (1997).
1986	Holliday Prize, Institute of Metals, '*for his outstanding research and development in the field of scanning acoustic microscopy and for the application of this novel technique to the solution of materials problems.*'

PAPERS, PATENTS & BOOKS

I have published over 650 articles, the majority in internationally peer reviewed journals. Many are listed at https://scholar.google.com/citations?user=hQLefQ8AAAAJ&hl=en; total citations = 29,274; h-index = 80. Preprints are available at https://arxiv.org/search/quant-ph?searchtype=author&query=Briggs%2C+G+A+D. Active patents (priority; published): Atomic clock (G.A.D. Briggs, A. Ardavan. 29/6/07; 14/10/10); Method for forming nano-gaps in graphene (G.A.D. Briggs, J.A. Mol, 11/7/14; 25/5/17); Coupled quantum dot memristor (Y. Li, S.C. Benjamin, J.A. Mol, G.A.D. Briggs. 22/4/16; 21/2/19); Oscillation device (G.A.D. Briggs, E.A. Laird, K. Porfyrakis, 16/3/20; 23/9/21).

Books since 2016: *Human Flourishing: scientific insight and spiritual wisdom in uncertain times*. Andrew Briggs and Michael. J. Reiss (Oxford University Press 2021). '*The theme of this highly readable and enlightening book is broad and ambitious. It's the product of the authors' deep engagement with science, ethics and religion, and analyses the requisites for a fulfilled life, highlighting those that too often elude politicians and economists. The text is enlivened with historical allusions and quotations. It offers a wise perspective that's much needed as individuals and societies contend with the anxieties of the present era.*' Lord Martin Rees FRS. '*The struggle for human beings to integrate a thoughtful understanding of the world as described by science and an ambitious hope of human flourishing as described by philosophy or faith is one at which humans have largely failed over the last three hundred years. This book is a major step in the right direction. It is very serious about science and very serious about human beings and their hopes and fears. I warmly commend it for a careful and thoughtful provocation towards a deeper commitment to the flourishing of human beings and of the creation.*' Justin Welby, Archbishop of Canterbury. *It Keeps Me Seeking: The Invitation from Science, Philosophy and Religion*. Andrew Briggs, Hans Halvorson, and Andrew Steane (Oxford University Press 2018). *The Curious Science Quest* series (6 books for children). Julia Golding, Andrew Briggs and Roger Wagner (Lion Hudson 2018-2019). *The Penultimate Curiosity: How science swims in the slipstream of ultimate questions*. Roger Wagner and

Andrew Briggs (Oxford University Press 2016; paperback 2019, translated into Portuguese, Spanish, and Chinese; two part documentary film available for streaming).

RESEARCH SUPERVISION

73 doctoral students have graduated under my supervision. Many are in positions of leadership and responsibility in industry, commerce, teaching, and government.

Thirteen members of my laboratory have won Royal Society University Research Fellowships: Martin Castell, Simon Benjamin, David Bowler, Andrei Khlobystov, Brendon Lovett, Rachel Oliver, Gavin Morley, John Morton, Jamie Warner, Lapo Bogani, Alex Robertson, Natalia Ares, and Junjie Liu; two have won RAEng fellowships, Edward Laird and Jan Mol. They have between them won 8 ERC grants, 5 EPSRC Fellowships, a UKRI Future Leaders Fellowship, 6 Oxford College Junior Research Fellowships, 3 Glasstone Fellowships, 3 Science & Engineering Fellowships of the Royal Commission for the Exhibition of 1851, 4 Marie Skłodowska-Curie Fellowships, a Royal Society Newton Fellowship and a Templeton Independent Research Fellowship.

At least 37 former members of my laboratory have been appointed to tenured academic posts: Mike Somekh FREng (Nottingham, HKPU), John Weaver (Glasgow), Alfred Huan (NUS), Richard Tew (Nottingham), Martin Castell (Oxford), Ilan Goldfarb (Tel Aviv), Oleg Kolosov (Lancaster), Tchavdar Todorov (QUB), David Bowler (UCL), Rachel Oliver FREng (Cambridge), Simon Benjamin (Oxford), John Morton (UCL), Erik Gauger (Heriot-Watt), Gavin Morley (Warwick), Stephanie Simmons (SFU), Bryan Huey (Connecticut), Andrei Khlobystov (Nottingham), Andrew Watt (Oxford), Dan Browne (UCL), Pieter Kok (Sheffield), Géraldine Dantelle (CNRS), Brendon Lovett (St Andrews), Haoli Zhang (Lanzhou), Erik Gauger (Heriot-Watt), Yasuo Ito (Argonne NL), Jun Luo (Tsinghua, Tianjin UT), Peter Rohde (UT Sydney), Guzman Gil-Ramirez (Lincoln), Ying Li (GSCAEP Beijing), Fabien Silly (CNRS), Ahsan Nazir (Manchester), Jamie Warner (Oxford, UT Austin), Edward Laird (Lancaster), Jan Mol (QMUL), Kyriakos Porfyrakis (Greenwich), Natalia Ares (Oxford), James Thomas (QMUL).

RESEARCH FUNDING

QuantrolOx, of which I am Executive Chair, has been awarded funding of £30k from NQCC, £182k from UKRI ISCF, €252k from Business Finland, and €10.5M from the European Innovation Council (€2.5M as grant and €8M as equity).

A list of research council funding since 1987 is at https://gow.epsrc.ukri.org/NGBOViewPerson.aspx?PersonId=77862); total 15 grants to a value over £40 million, of which I am PI on 12 grants to a value of nearly £27 million.

Major EPSRC grants as PI since 2000 include: IRC in Quantum Information Processing, 2004-09, £10,081,417; Platform Grant, Molecular Quantum Devices, 2013-18, £1,207,705; Quantum Technology Capital, 2016-19, £1,445,889; Programme Grant, Quantum Effects in Electronic Nanodevices (QuEEN), 2016-22, £5,296,044; Platform Grant, From Nanoscale Structure to Nanoscale Function (NS2NF), 2018-24, £1,530,594.

Major grants from international philanthropies since 2010 amount to nearly £17 million, mostly as PI. Over that period I have received 9 donations from private individuals to a value over £500k.

From 2010-20, I directed the services provided by University of Oxford for Templeton World Charity Foundation. Over 100 grants developed at Oxford were approved for funding by the trustees to a total value of nearly $110 million.

RECENT INVITED LECTURES & ENGAGEMENT (SELECTION)

I have given over 600 invited papers and lectures at national and international conferences, workshops and seminars. The following is a varied selection of lectures and other engagement activities since 2015.

Five possibilities and three challenges for quantum computing, *Technology and Humanity* (DFGI-8), Japan House London, 5-6 October 2022.

AI, Democracy and Human Flourishing. *Svenska kyrkan Vetenskapsfestivalen*, Gothenberg, 17 April 2021.

Policy Report: *Citizenship in a Networked Age*, 1 May 2020; associated videos, podcasts, and blogs also available.

Office of Net Assessment: *Future Humans*, Rockefeller University, New York, 19-21 November 2019.

Measuring and Tuning Quantum Devices by Machine Learning. Quantum Networks, Erwin Schrödinger Institute for Mathematics and Physics, Vienna, 2019.

Broadcast: *Questioning*. BBC Radio 4, 17 February 2019. https://www.bbc.co.uk/programmes/m00026gf

Schoolchildren: *The Curious Science Quest*. The Royal Institution of Great Britain, London, 29 January 2019.

Quantum foundations on the nanoscale. Quantum Gates, Jumps, and Machines; Brisbane, Queensland, 2018.

Is reality there when nobody looks? Challenges in Quantum Foundations, Condensed Matter Physics and Beyond; University of Illinois, 2018.

Blog: *Why artificial intelligence will enable new scientific discoveries*.

The unreasonable effectiveness of curiosity. Eugene Wigner Distinguished Lecture; Oak Ridge National Laboratory, Tennessee, 8 March 2016. https://www.ornl.gov/content/wigner-distinguished-lecture-series; video of lecture available at https://www.youtube.com/watch?v=fqlx0FLTw10.

Greatest achievements in quantum information technologies. AAAS 2015 Annual Meeting; San Jose, California, 2015.

WEB SITES

http://andrewbriggs.org; www.materials.ox.ac.uk/peoplepages/briggs.html

http://www.ukwhoswho.com/view/article/oupww/whoswho/U10000304/BRIGGS_Prof._George_Andrew_Davidson