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CURRICULUM VITAE

Personal Details

Name	Prof. Howard Wiseman
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Phone	+61 7 3735 7279
Fax	+61 7 3735 4426
E-mail	H.Wiseman@griffith.edu.au
Web page	http://www.ict.griffith.edu.au/wiseman/
Year of Birth	1968
Nationality	Australian

Substantive Positions Held

Jan. 2010–	Professor, Centre for Quantum Dynamics, Griffith U.
Dec. 2004–Jan. 2010	Professor & Federation Fellow, Centre for Quantum Dynamics, Griffith U.
July 2004–Nov. 2004	Professor, School of Science, Griffith U.
Jan. 2004–June 2004	Assoc. Professor & QEII Research Fellow, School of Science, Griffith U.
Jan. 2001–Dec. 2003	Senior Lecturer & QEII Research Fellow, School of Science, Griffith U.
July 1999–Dec. 2000	Lecturer & QEII Research Fellow, School of Science, Griffith U.
May 1999–July 1999	Research Fellow (ARC), Dept. of Physics, U. of Queensland
May 1996–May 1999	Postdoc. Research Fellow (ARC), Dept. of Physics, U. of Queensland.
May 1994–May 1996	Postdoc. Research Fellow, Dept. of Physics, Auckland U.

Other Positions Held

June 2012–	Honorary Professor, Faculty of Science, U. of Queensland
April 2012–	Coördinator, Physical Sciences (Area of Strategic Investment), Griffith U.
Jan. 2011–	Executive Committee Member, and Node Manager, Centre for Quantum Computation and Communication Technology (ARC CoE)
Feb. 2007–	Director, Centre for Quantum Dynamics, Griffith U.
Jan. 2003–Dec. 2010	Program Manager, Centre for Quantum Computer Technology (ARC CoE)
July 1999–June 2012	Honorary Research Advisor, Dept. of Physics, U. of Queensland

Education

- 1992-4 Doctorate of Philosophy in Physics
 The University of Queensland
 Thesis title: *Quantum Trajectories and Feedback*
 Supervisor: A/Prof. G. J. Milburn.
 Submitted: May 17, 1994; Awarded 22 November 1994.
- 1988-91 Bachelor of Science with First Class Honours (Physics),
 The University of Queensland

Awards and Fellowships

Life Fellowships and National Medals

- 2017 Elected as Fellow of The Optical Society [of America] (0.4% of membership per year)
- 2012 Elected as Fellow of the American Physical Society (0.5% of membership per year)
- 2008 Elected as Fellow of the Australian Academy of Science (16 per year)
- 2003 The Malcolm McIntosh Medal and Prize for Physical Scientist of the Year (under 35), Prime Minister's Science Awards
- 2003 The Pawsey Medal and Prize of the Australian Academy of Science, for Physicists under 40
- 1995 The Bragg Medal for best Ph.D. thesis of 1994/5, Australian Institute of Physics

Other Awards and Fellowships

- 2012 The Griffith Media Award for Outstanding Communication of Research, Griffith U.
- 2011 The Vice Chancellor's Research Excellence Award for Team Research as leader of the "Quantum Information Science" team, Griffith U.
- 2006 *Cosmos* magazine inaugural "Bright Sparks" award for young Australian scientists under 45 (10 per year)
- 2004 Federation Fellowship, Australian Research Council (~20 per year)
- 2001 The Excellence in Supervision Award, Griffith University Postgraduate Students Association
- 1999 Australian Research Council QEII Research Fellowship
- 1996 Australian Research Council Postdoctoral Research Fellowship
- 1994 The Postgraduate Student Prize, Australian Optical Society
- 1991 University of Queensland Medal
- 1991 The Duncan McNaughton Scholarship to undertake Honours Science, U. of Queensland
- 1990 Summer Vacation Scholarship, Theoretical Physics, Australian National University
- 1989 The Priest Memorial Prize for Applied Mathematics, University of Queensland

Evidence of Scholarly Contributions

Membership of Editorial Boards for Refereed Journals / Series

- 2012– *Physical Review X* (APS) (2014 Impact Factor: 9.0)
2010– *Quantum Information Science and Technology* book series (Springer)
2008–2011 *Quantum Information Processing* (Springer) (2010 Impact Factor: 2.1)
2002–2007 *Physical Review A* (APS) (2005 Impact Factor: 3.0)

Refereeing Awards

- 2015 Outstanding referee commendation from *New Journal of Physics* (2013 Impact Factor: 3.7)
2009 Outstanding referee award from *American Physical Society* (0.25% per year)

Refereeing for International Publishing Houses / Societies

- 2015– CSIRO publishing.
2013– Royal Society (London).
2011– Optical Society of America.
2011– International Federation of Automatic Control.
2009– American Association for the Advancement of Science.
2007– Institute of Electrical and Electronics Engineers (IEEE).
2007– American Association of Physics Teachers.
2006– National Academy of Sciences.
2006– Nature Publishing Group.
2006– British Society for the Philosophy of Science.
2003– Rinton Press.
2000– Kluwer Academic Publishers.
1998– European Physical Society / European Optical Society.
1997– Taylor and Francis Publishing.
1997– Institute of Physics Publishing.
1996– Elsevier Science.
1993– American Physical Society.

Invited Talks at International Meetings

- 2016 **Opening keynote talk** at 4th *Australia–China Quantum Control Workshop*, USTC, Hefei.
- 2016 *Hong Kong Workshop on Quantum Information and Foundations*, Hong Kong.
- 2015 *Workshop on Quantum Nonlocality, Causal Structures and Device-Independent Quantum Information*, Tainan, Taiwan.
- 2015 *Asia-Pacific Conference & Workshop on Quantum Information Science*, Auckland, New Zealand.
- 2015 **Keynote talk** at *Emergent Quantum Mechanics 3*, Vienna.
- 2015 **Plenary talk** at 22nd *Central European Workshop on Quantum Optics*, Warsaw.
- 2015 **Plenary talk** at 14th *International Conference on Squeezed States and Uncertainty Relations*, Sopot, Poland.
- 2015 American Physical Society March Meeting, San Antonio
- 2015 **Plenary talk** at 17th *Southwest Quantum Information Technology Workshop*, Berkeley
- 2015 **Opening talk** at *Nonlinear Physics at the Nanoscale: A Cross-Fertilization on Stochastic Methods*, Rotorua
- 2014 Isaac Newton Institute Workshop on *Quantum Control Engineering*, Cambridge
- 2014 8th Workshop on *Principles and Applications of Control in Quantum Systems*, Cambridge
- 2014 *Quantum [Un]speakables II – 50 years of Bell’s Theorem*, Vienna
- 2014 *Arthur, War, and the Sea*, Boulogne-sur-Mer
- 2014 *Nonlinear Physics at the Nanoscale: A Cross-Fertilization on Stochastic Methods*, Dresden
- 2014 *Sydney Meeting on Quantum Foundations*, Sydney
- 2013 *Emergent Quantum Mechanics 2*, Vienna.
- 2013 *Quantum Information Processing and Communication*, Florence, Italy.
- 2013 *Quantum Coherence and Optics X*, Rochester, New York.
- 2013 *Quantum Theory Without Observers III*, Bielefeld, Germany.
- 2013 *New Directions in the Quantum Control Landscape*, Kavli Institute for Theoretical Physics, UCSB
- 2013 **Plenary talk** at 15th *Southwest Quantum Information Technology Workshop*, Santa Barbara
- 2012 6th *Asia-Pacific Conference & Workshop on Quantum Information Science*, Putrajaya, Malaysia
- 2012 2nd *Australia–China Quantum Control Workshop*, CAS, Beijing
- 2012 6th Workshop on *Principles and Applications of Control in Quantum Systems*, Tokyo
- 2012 *Quantum Theory without Observers II*, Sexton Center for Astrophysics, Italy.
- 2012 *First Control of Quantum Systems MURI Retreat*, Berkeley, California.
- 2012 *First NASA Quantum Future Technologies Conference*, NASA Ames, California

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- 2011 Royal Society workshop on *Principles and applications of quantum control engineering*, Kavli Centre, Chicheley Hall, UK.
- 2011 **Lecture series** at CEA-EDF-INRIA School, *Quantum Information, Measurement, and Control*, (4 lectures), INRIA, Paris
- 2011 **Plenary** talk at 5th *International Scientific Conference on Physics and Control*, León, Spain
- 2011 **Plenary** talk at *Frontiers of Quantum and Mesoscopic Thermodynamics*, Prague.
- 2011 5th *Asia-Pacific Workshop on Quantum Information Science*, Singapore.
- 2011 2nd Conference on *Extreme Quantum Information Theory*, MIT.
- 2010 **Opening Tutorial** at 1st *Australia–China Quantum Control Workshop*, ANU.
- 2010 5th Workshop on *Principles and Applications of Control in Quantum Systems*. Sandbjerg Estate, University of Aarhus
- 2010 *Workshop on Entanglement and Quantum Control*, Qufu, Shandong
- 2010 *International Program on Quantum Information*, Institute of Physics, Bhubaneswar, Orissa
- 2010 **Plenary** talk at 40th *Physics of Quantum Electronics Conference*, Snowbird, Utah
- 2009 PIAF '09 *New Perspectives on the Quantum State*, Perimeter Institute, Waterloo
- 2009 Workshop on *Cooling & Calculating, Quantum Walks & Feedback*, Bonn
- 2009 *Concepts and Methods in Quantum Control: Theory and Experiment*, Kavli Institute for Theoretical Physics, UCSB
- 2008 4th Workshop on *Principles and Applications of Control in Quantum Systems*, Eugene
- 2008 9th International Conference on *Quantum Communication, Measurement, and Computing*, Calgary
- 2008 **Opening Tutorial** at OSA workshop on *Entanglement and Quantum Decoherence*, Nara, Japan
- 2007 **Opening Keynote** at *Noise, Information and Complexity at the Quantum Scale*, Erice, Italy.
- 2007 3rd Workshop on *Principles and Applications of Control in Quantum Systems*, Sydney
- 2007 Workshop on *Weak Values and Weak Measurements*, Arizona State
- 2007 **Plenary** talk at 37th *Physics of Quantum Electronics Conference*, Snowbird, Utah
- 2006 *Frontiers of Quantum Decoherence International Workshop*, Fields Institute, Toronto
- 2006 2nd Workshop on *Principles and Applications of Control in Quantum Systems*, Harvard
- 2005 **Lecture Series** at *Quantum Control Summer School* (3 lectures), Caltech.
- 2005 Conference on *Being Bayesian in a Quantum World*, Konstanz, Germany.
- 2005 *APS Division of Atomic, Molecular, and Optical Physics*, Lincoln, Nebraska.
- 2004 First Asia-Pacific Conference on *Quantum Information*, Tainan, Taiwan.
- 2004 *Frontiers in Optics* (OSA Annual Meeting), Rochester.
- 2004 1st Workshop on *Principles and Applications of Control in Quantum Systems*, Caltech.
- 2004 Workshop on *Reference Frames and Superselection Rules in Quantum Information Theory*, Perimeter Institute
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- 2004 International Symposium on *Fluctuations and Noise*, Canary Islands.
- 2004 Gordon Research Conference on *Quantum Information Science*, Ventura, California.
- 2003 Workshop on *Quantum Measurements and Quantum Stochastics*, University of Aarhus.
- 2003 16th *International Conference on Laser Spectroscopy*, Palm Cove, Queensland.
- 2003 8th International Conference on *Squeezed States and Uncertainty Relations*, Puebla, Mexico.
- 2003 First International Symposium on *Fluctuations and Noise*, Santa Fe.
- 2003 US-Australia Workshop on *Quantum Information Science*, Sydney.
- 2002 *Quantum Engineering, Science and Technology* Workshop, Santa Fe.
- 2001 One-day Meeting on *Environments, Control and Quantum Circuits*, University of Liverpool.
- 2001 Workshop on *Quantum Information* at Coolangatta, University of Queensland.
- 1999 One-day International Workshop on *Bose-Einstein Condensates and Atom Lasers*, Australian National University.
- 1999 Workshop on *Stochastics and Quantum Physics*, University of Aarhus, Denmark.
- 1998 Garda Workshop on *Mysteries, Puzzles and Paradoxes in Quantum Mechanics*, Garda, Italy.
- 1997 5th International Conference on *Squeezed States and Uncertainty Relations*, Balaton, Hungary.
- 1996 3rd International Workshop on *Quantum Communication and Measurement*, Fuji, Japan.
- 1996 Les Houches Workshop on *Collective Effects in Ultracold Atomic Gases*, Les Houches, France.

Invited Talks at National Meetings

- 2015 **Keynote talk** at *Australian Control Conference*, Gold Coast.
- 2014 *21st Australian Institute of Physics Congress*, Canberra.
- 2010 *19th Australian Institute of Physics Congress*, Melbourne.
- 2009 *Quantum Frontiers Symposium*, University of Queensland.
- 2009 *Sydney Quantum Information Theory Workshop*, Sydney.
- 2008 New Fellows Seminar, Australian Academy of Science.
- 2008 *Sydney Quantum Information Theory Workshop*, Sydney.
- 2006 *Australian Optical Society* Conference, Melbourne.
- 2004 Symposium: *A Celebration of Australian Science*, Australian Academy of Science.
- 2003 **Keynote talk** at *Australasian Conference on Optics, Lasers, and Spectroscopy*, Melbourne.
- 2003 Symposium on *Frontiers of Science*, Australian Academy of Science.
- 2002 *Quantum Information and Computing* Summer School, Queensland.
- 2001 **Keynote talk** at *Australasian Conference on Optics, Lasers, and Spectroscopy*, Brisbane.
- 1996 *12th Australian Institute of Physics Congress*, Hobart.

Other Notable Talks at International or National Meetings

- 2016 **Keynote talk** at *21st Australian Institute of Physics Congress*, Brisbane.
- 2016 13th International Conference on *Quantum Communication, Measurement, and Computing*, Singapore (contributed but very competitive)
- 2014 3rd *Australia–China Quantum Control Workshop*, Brisbane (all talks by invitation, but I'm not counting this as an invited talk since I was the Conference Chair.)
- 2015 Invited-length (upgraded) talk at *Causality in a Quantum World*, Sunshine Coast, Australia
- 2012 “Hot Topic” talk (contributed but very competitive), 11th International Conference on *Quantum Communication, Measurement, and Computing*, Vienna

Notable Invited Public Talks

- 2017 “Are We Living in the Matrix?”
Interdisciplinary Frontiers, Centre for Quantum Technologies, Singapore.
- 2016 “The Big Bell Test”
Griffith University Impact Event, Southbank, Brisbane.
- 2016 “Are We Living in the Matrix?”
New Scientist Instant Expert symposium *Quantum World*, UNSW, Sydney.
- 2011 “Are We Living in the Matrix?”
BrisScience, Customs House, Brisbane.
- 2009 “The God Particle Delusion”
Griffith University Maths and Physics associaTION, Nathan, Brisbane.
- 2008 “Quantum Computing and Quantum Measurement”
Public Forum, Australian Academy of Science, Townsville.
- 2005 “Einstein and the Prehistory of Quantum Computing”
Australian Institute of Physics Colloquium, UQ, Brisbane.
- 2002 “Quantum Computing: What’s the Buzz?”
IEEE Queensland Chapter, Brisbane.

Executive Service on Professional Committees

- 2013-14 Chair, *Australia–China workshop on Quantum Control*, Brisbane 2014.
- 2009-10 Principal Organizer, *Quantum Measurement and Control* workshop, Sydney 2010.
- 2006–07 Chair for the 3rd International Workshop on *Principles and Applications for Control of Quantum Systems (PRACQSYS)*, Sydney 2007.
- 2005–08 Inaugural Chair for *Quantum Information, Concepts, and Coherence*, a Topical Group of the Australian Institute of Physics
- 2004–07 Treasurer and Program Committee member, 2006 Australian Institute of Physics Congress
- 2003–04 Treasurer of Queensland Branch of the Australian Institute of Physics.
- 2000–01 Secretary for the *Australasian Conference on Optics, Lasers, and Spectroscopy 2001*

Other Service on Professional Committees

- 2016-7 Coorganiser for Focus Session “Challenging conventional quantum limits in measurements and metrology” at *APS March Meeting*, New Orleans, March 2017
- 2016 Program Committee for *Australia–China workshop on Quantum Control*, Hefei 2016
- 2014 Fellowship Selection Committee for the *Group on Quantum Information of the APS*.
- 2013-14 Program Committee for *Quantum Communication, Measurement and Computing*, Hefei, China, November, 2014.
- 2013-14 Program Committee for *Quantum Information and Measurement*, Berlin, March, 2014.
- 2013 Pawsey Medal Award Committee, *Australian Academy of Science*
- 2012-13 Program Committee for Conference on *Quantum Information Processing and Computing (QIPC)*, Florence 2013.
- 2012-14 College of Experts on *Physics, Chemistry and Earth Sciences*, Australian Research Council.
- 2012 Program Committee for 5th International Workshop on *Principles and Applications for Control of Quantum Systems (PrACQSys)*, Tokyo 2012.
- 2011-13 Sectional Committee 11, on *Information, Communication, and Quantum Information Sciences*, Australian Academy of Science.
- 2009-11 Sectional Committee 2, on *Physics and Astronomy*, Australian Academy of Science.
- 2009 Program Committee for *Australian Conference on Optics, Lasers, and Spectroscopy*, Adelaide 2009
- 2008 International Advisory Board for *XII International Conference on Quantum Optics and Quantum Information*, Vilnius 2008
- 2007–08 Program Committee for *Quantum Communication, Measurement and Computing*, Calgary, 2008.
- 2003 Session Organizer for the inaugural *Frontiers of Science* symposium of the Australian Academy of Science.
- 2001–04 Associate editor (Queensland) for *The Physicist*.

1998–04 Committee of Queensland Branch of the Australian Institute of Physics.

Advisory Service on Professional Committees

- 2015 International Advisory Committee for the *Asia-Pacific Conference and Workshop on Quantum Information Science*, Auckland, December, 2015
- 2013 International Committee for *Asia-Pacific Conference & Workshop on Quantum Information Science*, Korea, December 2013.
- 2012– Advisory Board, *Science China – Information Sciences* (Springer & Science China Press)
- 2012-13 Organizing Committee for *Quantum Information and Measurement*, Rochester, June, 2013.
- 2011-12 Advisory Board, 1st NASA *Quantum Future Technologies Conference*
- 2003–04 Committee of *Noise and Fluctuations in Photonics and Quantum Optics*, part of the *SPIE 2004 International Symposium on Fluctuations and Noise*
- 2002–03 Committee of *Noise and Fluctuations in Photonics and Quantum Optics*, part of the *SPIE 2003 International Symposium on Fluctuations and Noise*

Professional Affiliations

- 2017– Fellow, The Optical Society (formerly the Optical Society of America)
- 2013– Member, Optical Society of America
- 2011– Fellow, American Physical Society, Topical Group in Quantum Information
- 2008– Fellow, Australian Academy of Science
- 2002– Member, American Physical Society, Division of Laser Science
- 2002– Member, Institute of Physics
- 1992– Member, Australian Optical Society
- 1990– Member, Australian Institute of Physics

External Higher Degree Examinations

2016 Dr. habil., Technical University of Berlin
2013 Ph.D., Australian National University
2012 Ph.D., University of Waterloo
2010 Ph.D., University of Aarhus
2009 Ph.D., University of Auckland
2002 Ph.D., University of Auckland
2002 M.Sc., University of Queensland
2000 Ph.D., University of Queensland
2000 D. Phil., University of Auckland
1999 Ph.D., Australian National University

Citations etc.

Data from *Web of Knowledge* (ResearcherID <http://www.researcherid.com/rid/A-7266-2008>) or *Scopus*, except for the Book for which citations are only available through google scholar.

1 Book with 1000+ citations

1012 cites H. M. Wiseman and G. J. Milburn,
Quantum Measurement and Control,
(Cambridge University Press, Cambridge, 2010): 476 pages

6 Papers with 200+ citations

371 cites H. M. Wiseman and G. J. Milburn,
“Quantum theory of optical feedback via homodyne detection”,
Phys. Rev. Lett. **70**, 548-551 (1993).

340 cites H. M. Wiseman,
“Quantum theory of continuous feedback”,
Phys. Rev. A **49**, 2133-2150 (1994).

307 cites H. M. Wiseman and G. J. Milburn,
“Quantum theory of field-quadrature measurements”,
Phys. Rev. A **47**, 642-662 (1993).

264 cites H. M. Wiseman, S. J. Jones, and A. C. Doherty,
“Steering, Entanglement, Nonlocality, and the Einstein-Podolsky-Rosen Paradox”,
Phys. Rev. Lett. **98**, 140402 (4 pages) (2007).

234 cites H. M. Wiseman and G. J. Milburn,
“Interpretation of quantum jump and diffusion processes, illustrated on the Bloch sphere”,
Phys. Rev. A **47**, 1652-1666 (1993).

216 cites B. L. Higgins, D. W. Berry, S. D. Bartlett, H. M. Wiseman, and G. J. Pryde,
“Entanglement-free Heisenberg-limited phase estimation”,
Nature **450**, 393-396 (2007).

plus 12 more Papers with 100+ citations

162 cites G. J. Pryde, J. L. O'Brien, A. G. White, T. C. Ralph, and H. M. Wiseman,
“Measurement of quantum weak values of photon polarization”,
Phys. Rev. Lett. **94**, 220405 (4 pages) (2005).

147 cites H. M. Wiseman and G. J. Milburn,
“Squeezing via feedback”,
Phys. Rev. A **49**, 1350-1366 (1994).

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- 147 cites H. M. Wiseman and J. A. Vaccaro,
“Entanglement of indistinguishable particles shared between two parties.”
Phys. Rev. Lett. **91**, 097902 (4 pages) (2003).
- 137 cites H. M. Wiseman,
“Adaptive phase measurements of optical modes: Going beyond the marginal Q distribution”
Phys. Rev. Lett. **75**, 4587-4590 (1995).
- 145 cites E. G. Cavalcanti, S. J. Jones, H. M. Wiseman, and M. D. Reid,
“Experimental criteria for steering and the Einstein-Podolsky-Rosen paradox”
Phys. Rev. A. **80**, 032112 (16 pages) (2009).
- 126 cites C. Branciard, E. G. Cavalcanti, S. P. Walborn, V. Scarani, and H. M. Wiseman,
“One-sided Device-Independent Quantum Key Distribution: Security, Feasibility and the
Connection with Steering”
Phys. Rev. A (**Rapid Comm.**) **85**, 010301(R) (5 pages) (2012).
- 122 cites H. M. Wiseman,
“Quantum trajectories and quantum measurement theory”
Quantum Semiclass. Opt. (JEOS B) **8**, 205-222 (1996).
- 122 cites Hsi-Sheng Goan, G. J. Milburn, H. M. Wiseman, and He Bi Sun,
“Continuous quantum measurement of two coupled quantum dots using a point contact: A
quantum trajectory approach”,
Phys. Rev. B **63**, 125326 (12 pages) (2001).
- 113 cites D. H. Smith, G. Gillett, M. P. de Almeida, C. Branciard, A. Fedrizzi, T. J. Weinhold, A. Lita,
B. Calkins, T. Gerrits, H. M. Wiseman, S. W. Nam, and A. G. White,
“Conclusive quantum steering with superconducting transition edge sensors”
Nature Communications **3**, 625 (6 pages) (2012).
- 113 cites H. M. Wiseman and M. J. Collett,
“An atom laser based on dark-state cooling”,
Phys. Lett. A **202**, 246-252 (1995).
- 108 cites D. J. Saunders, S. J. Jones, H. M. Wiseman, and G. J. Pryde,
“Experimental EPR-Steering using Bell-local States”
Nature Physics **6**, 845-849 (2010).
- 102 cites H. M. Wiseman and G. J. Milburn,
“All-optical versus electro-optical quantum-limited feedback”,
Phys. Rev. A **49**, 4110-4125 (1994).

h-index¹ = 49, and > 7300 Citations in total

That is, I have 49 papers each with at least 49 citations.

42 Refereed Papers² in High-Impact Journals³

of which: 1 in *Science*, 2 in *Nature*, 1 in *Nature Physics*, 1 in *Nature Photonics*, 2 in *Nature Commun.*, 1 in *Science Advances*, 5 in *Physical Review X*, 28 in *Physical Review Letters*, and 1 in *Physics Reports*.

of which: 2 as sole author, 9 as first author, 5 as official corresponding author.

4 Invited Commentaries in *Nature*

all as sole author (2011, 2012, 2014, 2015)

¹ J. Hirsch, Proc. Nat. Acad. Sci. **46**, 16569 (2005). Here calculated using Scopus and Web of Knowledge data.

² Including *Scientific Correspondence* (Nature, 1995) but **not** *Comments* or *Replies* or *News & Views*.

³ Here taken to mean with Impact Factor > 7 around the year of publication.

Coverage in Books (selected)

- 2016 Jaclyn Moriarty,
A Tangle of Gold: book 3 of *The Colours of Madeleine* trilogy. [Young adult fantasy]
 (Pan McMillan, Australia, 2016)
 Part 14, chapter 3, relates that a note (by a still-living Sir Isaac Newton, it will later be revealed) “was pinned to another stack of pages: *Here’s the latest on the death of wave/particle duality & of Schrödinger’s cat (ha!) etc, & on new idea that multiple, jostling, invisible universes (each operating according to Newtonian law (!)) is true explanation for quantum weirdness.* Madeleine flicked through more loose papers, catching names: John Dalton, Henri Becquerel, Max Planck, Marie Curie, Ada Lovelace, Hugh Everett, Howard Wiseman.” The note (in italics) refers to
 Michael J. W. Hall, Dirk-André Deckert, and Howard M. Wiseman,
 “Quantum phenomena modelled by interactions between many classical worlds”
 Phys. Rev. X **4** 041013 [17 pages] (2014).
- 2013 Detleff Dürr, Sheldon Goldstein, and Nino Zanghì,
Quantum Physics Without Quantum Philosophy
 (Springer, Heidelberg, 2013)
 Chap. 7, entitled “On the Weak Measurement of Velocity in Bohmian Mechanics”, is a presentation of, and elaboration upon,
 H. M. Wiseman,
Grounding Bohmian Mechanics in Weak Values and Bayesianism
 New J. Phys. **9**, 165 (12 pages) (2007).
- 2009 A. Barchielli and M. Gregoratti,
Quantum Trajectories and Measurements in Continuous Time – The Diffusive Case,
 (Springer, Heidelberg, 2009)
 Sec. 10.2 is entitled “The Feedback Scheme of Wiseman and Milburn”, and this theory forms the basis for the rest of the chapter (*Feedback*). For the “original derivation” it cites
 H. M. Wiseman,
Quantum theory of continuous feedback,
 Phys. Rev. A **49**, 2133-2150 (1994).
- 2007 Guy Halsall, *Barbarian Migrations and the Roman West, 376-568*
 (Cambridge University Press, Cambridge, 2007)
 one-paragraph discussion (p. 522) of
 H. Wiseman,
The derivation of the date of the Badon entry in the Annales Cambriae from Bede and Gildas,
 Parergon **17**, 1-10 (2000).
- 2007 S.M. Barnett and J.A. Vaccaro, *The Quantum Phase Operator: A Review*
 (Taylor and Francis, London, 2007),
 reproduces and briefly discusses
 H. M. Wiseman,
Adaptive phase measurements of optical modes: Going beyond the marginal Q distribution,
 Phys. Rev. Lett. **75**, 4587-4590 (1995).

2004 C.W. Gardiner and P. Zoller, *Quantum Noise (3rd edition)*
(Springer, New York, 2004)

Sec. 13.5 (*Quantum Feedback*) begins “This subject has been largely developed by Wiseman and Milburn [J4,J7]. The main issues are very well covered in the paper by Wiseman, Mancini and Wang [J61].” The remainder of the section is based largely on material in this third paper,

H. M. Wiseman, S. Mancini, and J. Wang,
Bayesian feedback versus Markovian feedback in a two-level atom,
Phys. Rev. A **66**, 013807 (9 pages) (2002).

2002 N. Higham, *King Arthur: Myth-Making and History*
(Routledge, London, 2002)

one-paragraph discussion (pp. 209–10) of

H. Wiseman,
The derivation of the date of the Badon entry in the Annales Cambriae from Bede and Gildas,
Parergon **17**, 1-10 (2000).

Coverage in non-specialist Reviews (selected)

Reviews covering the following:

D. H. Mahler, L. Rozema, K. Fisher, L. Vermeyden, K. J. Resch, H. M. Wiseman, A. Steinberg,
 “Experimental nonlocal and surreal Bohmian trajectories”
[Science Adv.](https://doi.org/10.1126/science.1501466) **2**, e1501466 (2016). DOI: 10.1126/science.1501466

2016 Dan Falk, “New Support for Alternative Quantum View”
 Quanta Magazine, May 16, 2016

<https://www.quantamagazine.org/20160517-pilot-wave-theory-gains-experimental-support/>

2016 Dirk Eidemüller, “Quantenteilchen auf Bohmschen Bahnen”
 Spektrum [German edition of Scientific American] News – 02.03.2016

<http://www.spektrum.de/news/quantenteilchen-auf-bohmschen-bahnen/1401600>

2016 Hamish Johnston, “Surreal behaviour spotted in photon experiment”
 Physics World – News, Feb 26, 2016

<http://physicsworld.com/cws/article/news/2016/feb/26/surreal-behaviour-spotted-in-photon-experiment>

2016 Cathal O’Connor, “A different picture of quantum surrealism”
 Cosmos – News, 22 February, 2016

<https://cosmosmagazine.com/physical-sciences/different-picture-quantum-surrealism>

2016 Anil Ananthaswamy, “Quantum weirdness may hide an orderly reality after all”
 New Scientist – Daily News, 19 February, 2016

<https://www.newscientist.com/article/2078251-quantum-weirdness-may-hide-an-orderly-reality-after-all/>

2015 Adrian Cho, “More evidence to support quantum theory’s ‘spooky action at a distance’”,
[Science News](https://www.sciencemag.org/news/2015/08/more-evidence-support-quantum-theory-s-spooky-action-distance), 28 August, 2015

<http://news.sciencemag.org/physics/2015/08/more-evidence-support-quantum-theory-s-spooky-action-distance>

Gives my opinion as an expert on Bell’s theorem.

Reviews covering the following:

Maria Fuwa, Shuntaro Takeda, Marcin Zwierz, **Howard M. Wiseman**, and **Akira Furusawa**
 “Experimental proof of nonlocal wavefunction collapse for a single particle using homodyne
 measurements”
[Nature Communications](https://doi.org/10.1038/ncomms7665) **6**, 6665 (6 pages) (2015). DOI: 10.1038/ncomms7665

2015 Karen Hardison, “Einstein's contradiction of ‘spooky action at a distance’ refuted”
 Digital Journal, March 31, 2015

<http://www.digitaljournal.com/science/einstein-s-contradiction-of-spooky-action-at-a-distance-refuted/article/429527>

2015 Janet Fang, “«Spooky Action at a Distance» Confirmed by New Quantum Experiment”
 IFLScience, March 31, 2015

<http://www.iflscience.com/physics/einsteins-spooky-action-distance-confirmed-new-quantum-experiment>

2015 Michelle Starr, “Researchers demonstrate quantum entanglement, prove Einstein wrong”

CNET, March 29, 2015

<http://www.cnet.com/news/researchers-demonstrate-quantum-entanglement-prove-einstein-wrong/>

2015 Christian Nordqvist, “Einstein was wrong about ‘spooky action at a distance’, scientists say”
Market Business News, March 29, 2015

<http://marketbusinessnews.com/einstein-was-wrong-about-spooky-action-at-a-distance-scientists-say/54699>

2015 Troy Deag, “Griffith Uni Researchers Prove Einstein was Wrong”
27 March 2015

<http://www.training.com.au/ed/griffith-uni-researchers-prove-einstein-was-wrong/>

2015 Fiona MacDonald, “Single-particle ‘spooky action at a distance’ finally demonstrated”
Science Alert, 27 March 2015

<http://www.sciencealert.com/spooky-action-at-a-distance-in-a-single-particle-has-been-demonstrated-for-the-first-time>

2015 Dirk Eidemüller, “Und noch ein Schlupfloch erfolgreich geschlossen”
Spektrum [German edition of Scientific American] 26.03.2015

<http://www.spektrum.de/news/und-noch-ein-schlupfloch-erfolgreich-geschlossen/1339596>

2015 Jesse Emspak, “Proving Einstein Wrong with ‘Spooky’ Quantum Experiment”
Live Science, March 26, 2015

<http://www.livescience.com/50262-spooky-action-is-real.html>

2015 John Ross, “Queensland researchers prove Albert Einstein wrong”
The Australian (online, 25 March 2015)

<http://www.theaustralian.com.au/news/health-science/queensland-researchers-prove-albert-einstein-wrong/story-e6frg8y6-1227276909773>

Reviews covering the following:

Michael J. W. Hall, Dirk-André Deckert, and Howard M. Wiseman,
“Quantum phenomena modelled by interactions between many classical worlds”
Phys. Rev. X **4** 041013 [17 pages] (2014).

2017 Sophia Chen, “Physicists cannot agree about quantum world”

New Scientist magazine **3107** (7 January 2017), p.

<https://www.newscientist.com/article/mg23331074-600-physicists-cant-agree-on-what-the-quantum-world-looks-like/>

2016 Dan Falk, “Many Worlds” [cover story]

Cosmos Magazine **72** (Dec 2016-Jan 2017), pp. 34-43.

[discusses our Many Interacting Worlds approach on pp. 41-43 and in Editor’s Note (p. 7).]

2015 Zeeya Merali, “Quantum physics: What is really real?”

Nature (News Feature) **521**, 278–280 (21 May 2015) DOI:10.1038/521278a

[discusses a number of recent studies related to the status of the wavefunction.]

2015 Andrea Bernagozzi, “In un universo o nell’altro”

Focus [Italian Magazine] #268, Febbraio 2015

2014 Chip Sebens, “The Many-Interacting-Worlds Approach to Quantum Mechanics”
 Guest Post on Sean Carroll’s blog (16 December, 2014)
<http://www.preposterousuniverse.com/blog/2014/12/16/guest-post-chip-sebens-on-the-many-interacting-worlds-approach-to-quantum-mechanics/>

2014 “When Parallel Worlds Interact with Ours” (27 minutes)
 The FQXi Podcast (29 November, 2014)
<http://www.fqxi.org/community/podcast/2014.11.29>

2014 Michael Slezak, “Ghost universes kill Schrödinger's quantum cat”
 New Scientist magazine **2994** (8 November 2014), pp.6-7
www.newscientist.com/article/mg22429944.000-ghost-universes-kill-schrodingers-quantum-cat.html

2014 Cathal O'Connell, “Can we test for parallel worlds?”
 Cosmos Magazine online (in November 2015)
<https://cosmosmagazine.com/physical-sciences/can-we-test-parallel-worlds>

2015 Cosmos Magazine **61** (Feb-Mar 2015), pp. 16-17.

2014 Maddie Stone, “Parallel Universes Colliding Could Explain Quantum Weirdness”
 Motherboard (29 October, 2014)
<http://motherboard.vice.com/read/parallel-universes-colliding-could-explain-quantum-weirdness>

2014 “Interpretación de los mundos múltiples interactuantes”
 Neofronteras: Noticias de Ciencia y Tecnología (25 October, 2014).
<http://neofronteras.com/?p=4530>

2014 Alexandra Witze, “A quantum world arising from many ordinary ones”
 Nature News (24 October, 2014)
<http://www.nature.com/news/a-quantum-world-arising-from-many-ordinary-ones-1.16213>
 republished in
 Scientific American (29 October, 2014)
<http://www.scientificamerican.com/article/quantum-world-proposed-to-arise-from-many-ordinary-ones/>

2014 Bill Poirier, “The Many Interacting Worlds Approach to Quantum Mechanics”
 Phys. Rev. X **4** 040002 (2014) [Commentary as part of Editorial]

2012 “Squeezed light measures moving target”,
 Photonics Spectra (December, 2012), pp. 37-8.

Article on:

H. Yonezawa *et al.*
Quantum-enhanced optical phase tracking
 Science **337**, 1514–1517 (2012).

2012 Alexandra Witze, “Uncertainty not so certain after all”,
 ScienceNews (September 14, 2012)
http://www.sciencenews.org/view/generic/id/345081/title/Uncertainty_not_so_certain_after_all

Article focusing on L.A. Rozema *et al.* Phys. Rev. Lett. **109**, 100404 (2012) but mentioning and referencing the underpinning theory:

A. P. Lund and H. M. Wiseman,

Measuring measurement–disturbance relationships with weak values
New J. Phys. **12**, 093011 (2010).

2012 Lisa Zyga, “Proposed experiment would prove that quantum jumps are not objective events”,
Phys.org <http://phys.org/news/2012-06-quantum-events.html> (June 11, 2012).

Feature article on:

Howard M. Wiseman and Jay M. Gambetta,
Are dynamical quantum jumps detector-dependent?
Phys. Rev. Lett. **108**, 220402 (5 pages) (2012).

2011 Aephraim Steinberg, “How to ask a ‘forbidden question’”,
audio file at <http://physicsworld.com/cws/article/news/2011/dec/16/physics-world-reveals-its-top-10-breakthroughs-for-2011> (December 16, 2011)

mentions that the theory behind **Physics World Top Breakthrough** of 2011 was

H. M. Wiseman,
Grounding Bohmian Mechanics in Weak Values and Bayesianism
New J. Phys. **9**, 165 (12 pages) (2007).

2010 Nicolas Brunner, “Quantum mechanics: Steered towards non-locality”,
Nature Physics **6**, 842-3 (2010).

“News & Views” article on:

D. J. Saunders, S. J. Jones, H. M. Wiseman, and G. J. Pryde,
Experimental EPR-Steering using Bell-local States
Nature Physics **6**, 845-9 (2010).

Reviews covering the following:

T. A. Wheatley, D. W. Berry, H. Yonezawa, D. Nakane, H. Arao, D. T. Pope, T. C. Ralph,
H. M. Wiseman, A. Furusawa, and E. H. Huntington
Adaptive Optical Phase Estimation Using Time-Symmetric Quantum Smoothing
Phys. Rev. Lett. **104**, (4 pages) (2010).

2010 “A smoother quantum measurement”,
American Physical Society *Synopses* March 15, 2010
<http://physics.aps.org/synopsis-for/10.1103/PhysRevLett.104.093601>

2010 Miranda Marquit, “Using quantum smoothing for optical phase estimation”
Phys.org March 11, 2010
<http://www.physorg.com/news187520515.html>

Reviews covering the following:

B. L. Higgins, D. W. Berry, S. D. Bartlett, H. M. Wiseman, and G. J. Pryde
Entanglement-free Heisenberg-limited phase estimation
Nature **450**, 393-6 (2007).

2010 *Nature Milestones: Photons* (2010), chose this paper for the *Fundamentals NPG library* –
one of 11 reprinted papers in Nature Publishing Group journals, covering the period 1926-2010.
<http://www.nature.com/milestones/milephotons/library/fundamentals/index.html>

2008 “Quantum physics rules”
Australian Research Council inaugural publication
Outcomes: Results of research in the real world '08, p. 60

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- 2008 “World’s most precise ruler created”
Australasian Science April 2008 issue, p. 13 (Article # 35109579).
- 2007 S. Trad, “No size too tiny to gauge”,
The Australian, 21 November 2007, p. 26.
- 2007 Jeremy L. O’Brien, “Precision Without Entanglement”,
Science **318**, 1393-4 (2007)
- 2007 Jonathan P. Dowling, “Kittens catch phase”,
Nature **450**, 362-3 (2007).
- 2007 Phillip Ball, “The most accurate measurement ever made”,
Nature News 14 November 2007 (500 word)
<http://www.nature.com/news/2007/071114/full/news.2007.242.html>
-
- 2007 David Bradley, “Two slits are better than one”,
Science Base 28 July 2007
<http://www.sciencebase.com/science-blog/two-slits-are-better-than-one.html>
focuses on my work, in particular
R. Mir, J.S. Lundeen, M.W. Mitchell, A.M. Steinberg, H. M. Wiseman, and J. L. Garretson,
A double-slit ‘which-way’ experiment on the complementarity–uncertainty debate,
New J. Phys. **9**, 287 (2007).
-
- 2006 J. Roebke, “Quantum Pulp: Some physics is just crime fiction with math.”
SEED Magazine (New York) **2**, 5 (June/July 2006), p. 31.
prominently features
K. Jacobs and H. M. Wiseman,
An entangled web of crime: Bell’s theorem as a short story
Am. J. Phys **73**, 932-937 (2005).
-
- 2004 E. S. Reich, “Which way is up?” (2nd Cover Story) New Scientist **184**, No. 2467 (2 October 2004),
pp. 32–35.
prominently features and gives as sole “further reading” resource
H. M. Wiseman, S. M. Bartlett, and J. A. Vaccaro,
Ferretting out the fluffy bunnies: Entanglement constrained by generalized super-selection rules.
Laser Spectroscopy. Proceedings of the XVI International Conference, Eds P. Hannaford, A.
Sidorov, H. Bachor, and K. Baldwin (World Scientific, New Jersey, 2004), pp. 307-31.
-
- 2003 M. Brooks, “Curiouser and curiouser” (Cover Story), New Scientist **178**, No. 2394 (10 May 2003),
pp. 28–31.
two-paragraph review (p. 31) of
H. M. Wiseman,
Directly Observing Momentum Transfer in Twin-Slit ‘Which-Way’ Experiments,
Phys. Lett. A **311**, 285-291 (2003).
-

2002 B. D. Guenther (guest editor of special issue) “Optics in 2002”, *Optics and Photonics News* **13**, No. 12 (December, 2002), pp. 13–61.

one-page review (p. 53) of

W. P. Smith, J. E. Reiner, L. A. Orozco, S. Kuhr, and H. M. Wiseman,
Capture and Release of a Conditional State of a Cavity QED System by Quantum Feedback,
Phys. Rev. Lett. **89**, 133601 (2002).

Teaching

Formal University Teaching

Title	University
FOURTH YEAR CLASSES	
Honours Statistical Mechanics	Griffith
Topics and Research Methods in Physics	Griffith
Stochastic Methods for the Physical Sciences	Griffith and Queensland
Introductory Quantum Electrodynamics	Griffith
Quantum Optics B	Queensland
Advanced Quantum Mechanics	Queensland
Advanced Statistical Mechanics	Queensland
Advanced Quantum Mechanics	Auckland
THIRD YEAR CLASSES	
Advanced Quantum Theory	Griffith
Statistical Mechanics	Queensland
SECOND YEAR CLASSES	
Life, the Universe, and Everything	Griffith
Optics	Griffith
FIRST YEAR CLASSES	
Basic Concepts of Physics	Auckland

Undergraduate Supervision

- 2014-15 Supervisor for Matthew Palermo, 3rd/4th-year Summer Project, GU
- 2014 Mentor for Aiden Zelandonii, 2nd-year Advanced Studies Task and Project, GU
- 2010 Mentor for Mathew Curtis, 1st-year Advanced Studies Task, GU
- 2006 Supervisor for Anushya Chandran, Final Vacation Research Project, B.Tech. Indian Institute of Technology, Madras (undertaken at GU)
- 2005 Supervisor for Graham White, 3rd-year Advanced Studies Project, GU
- 2004 Mentor for Graham White, 2nd-year Advanced Studies Task, GU
- 2003 Industry Partner for Joshua Combes, Industrial Affiliates Program, GU
- 2002 Mentor for Joshua Garretson, 3rd-year Advanced Studies Project, GU
- 2002 Mentor for Joshua Combes, 3rd-year Advanced Studies Task and Project, GU
- 2001 Mentor for Joshua Garretson, 2nd-year Advanced Studies Task, GU
- 2001 Mentor for Joshua Combes, 2nd-year Advanced Studies Task, GU
- 1999-00 Supervisor for Zoe Brady, 3rd/4th-year Summer Project, GU
- 1999 Supervisor for Zoe Brady, 3rd-year Advanced Studies Project, GU
- 1999 Mentor for Daniel Salmond, 2nd-year Advanced Studies Task, GU
- 1998-99 Supervisor for Dian Wahyu, 3rd-year Special Research Project, UQ
- 1994-95 Supervisor for Jacob Dunningham, 3rd/4th-year Summer Project, AU

Honours/Diploma Research Supervision

- 2016 Supervisor for Travis Baker, GU
“New conditions for establishing one-way steerability”
- 2006 Supervisor for Byron Booth, GU
“Does a photon reflecting off a mirror give a momentum kick of $2\hbar k$?”
- 2006 Associate supervisor for Graham White, GU
“Entanglement of Particles and Reference Frames”
- 2004 Supervisor for Steve Jones, GU
“Entanglement under Mixing and Operational Constraints”
- 2003 Supervisor for visiting Masters diploma student Tomas Askerud, U. Stockholm
“Jumplike unravelings for non-Markovian open quantum systems”
- 2003 Supervisor for Joshua Garretson, GU
“Charaterizing Momentum Transfer in Which-Way Experiments”
- 2002 Co-supervisor for Neil Oxtoby, UQ
“Detection of qubit states by a non-ideal quantum point contact.”

-
- 2002 Co-supervisor for Greg Carroll, GU
“Minds and Quantum Mechanics.”
- 2001 Supervisor for Daniel Atkins, GU
“Approximate Master Equations for Atom Optics”
- 2000 Supervisor for Zoe Brady, GU
“Robustness of Measurements of the Fluorescence of a two-level atom.”
- 2000 Co-supervisor for Damian Sypher, UQ
“Nuclear Magnetic Resonance: Emulating Quantum Computation.”
- 1999-00 Co-supervisor for Dian Wahyu Utami, UQ
“Measuring the state of a qubit using a single-electron transistor.”
- 1999 Supervisor for Prahlad Warszawski, UQ
“Adiabatic Elimination in Quantum Feedback Systems”
- 1999 Supervisor for Ben Hollis, UQ.
“Quantum Computation for Today’s Quantum Computers.”
- 1997 Supervisor for Gilman Toombes, UQ.
“Measurement and Feedback of a Driven Two Level Atom.”

Postgraduate Research Supervision⁴

- 2016 Supervisor for visiting PhD student, Yu Xiang, Peking University
- 2014 Supervisor for visiting PhD student, Areeya Chantasri, University of Rochester
- 2014– Supervisor for PhD student, Shuming Cheng.
- 2013– Supervisor for PhD student, Li (Kenny) Lee.
- 2013 Supervisor for visiting PhD student, Colin Teo, National University of Singapore
- 2012–16 Co-Supervisor for PhD student, Shakib Daryanoosh
- 2012–16 Supervisor for PhD student, Ivonne Guevara
- 2012 Supervisor for visiting PhD student, Nicola Dalla Pozza, University of Padua
- 2011–12 Supervisor for visiting PhD student, Li Lee, University of Science and Technology of China.
- 2010–13 Associate Supervisor for Dylan Saunders, Ph.D., GU.
“Quantum Correlations: Experimental EPR-Steering, Bilocality, and Weak Tomography in Photonic Quantum Information Science”.
- 2009–14 Principal Supervisor for David Evans, Ph.D., GU.
- 2007–10 Associate Supervisor for Brendon Higgins, Ph.D., GU.
“Quantum Measurement: Concepts and algorithms in photonic quantum information science”
[Received the 2010 Chancellor’s Medal \(one of four at GU\).](#)
[Queensland Branch nominee for 2012 Bragg Medal of Australian Institute of Physics](#)
- 2006–11 Principal Supervisor for Andy Chia, Ph.D., GU.

⁴ Associate supervision listed only when I actively participated, leading to joint papers.

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- “Explorations in Quantum Measurement and Control”
Received an Academic Excellence listing by GU
Queensland Branch nominee for 2013 Bragg Medal of Australian Institute of Physics
- 2005–07 Associate Supervisor for Mark Dowling, Ph.D., UQ.
“Entanglement, Geometry, and Quantum Computation”
- 2005–08 Principal Supervisor for Steve Jones, Ph.D., GU.
“Verifying Entanglement of Constrained Bipartite Quantum Systems”
- 2004–10 Principal Supervisor for Joshua Combes, Ph.D., GU.
“Rapid Measurement and Purification using Quantum Feedback Control”
- 2003–06 Principal Supervisor for Neil Oxtoby, Ph.D., GU.
“Keeping it Real: A quantum trajectory approach to realistic measurement of solid-state quantum systems.”
- 2000–04 Principal Supervisor for Laura Thomsen, Ph.D., GU
“Using Quantum Feedback to Control Nonclassical Correlations in Light and Atoms”
- 2000–04 Principal Supervisor for Jay Gambetta, Ph.D., GU
“Non-Markovian Stochastic Schrödinger Equations and Interpretations of Quantum Mechanics”
- 2000–02 Principal Supervisor for Prahlad Warszawski, M.Phil., GU
“Quantum Trajectories for Realistic Detection.”
- 1998–01 Principal Supervisor for Jin Wang, Ph.D., UQ
“Decoherence Control by Quantum Interference and Homodyne-Mediated Feedback.”
- 1998–01 Principal Supervisor for Dominic Berry, Ph.D., UQ
“Adaptive Phase Measurements.”
- 1995–96 Co-supervisor for Stephen Choi, M.Sc., AU
“Quantum aspects of the biochromatic beam splitter for two-level atoms.”
- 1995–96 Co-supervisor for Rowan Killip, M.Sc., (in Mathematics), AU
“An appraisal of phase measurements”

University Service

- 2014–15 ERA “Academic Adviser” for Physical Sciences.
- 2014–15 Griffith Sciences Research Committee (chaired by Dean), Member
- 2011–12 SEET Group Project Team for ERA, Member
- 2010–11 Research Committee (chaired by DVCR), Member
- 2010 Acting Head of Physics
- 2009–10 SEET Group Project Team for ERA, Member (responsible for Physics and Maths)
- 2007–8 Head of “Theoretical and Quantum Physics Group” for RQF
- 2007–14 SEET Group Research Committee (chaired by Dean), Member
- 2004–5 School Committee (chaired by Head of School), Member

External Grants⁵

- 2015 Foundational Questions Institute (2 years, US\$104 000).
“How do measurement events emerge from Many Interacting Worlds?”
Principal Investigators: Wiseman and Hall
- 2015 Foundational Questions Institute (2 years, US\$94,300).
“Events, agents, and causation in ontological models of quantum theory”
Principal Investigator: Cavalcanti. Co-Investigator: Wiseman
- 2014 Australian Research Council Discovery Grant (3 years, \$450 000).
“Unconditional photonic entanglement verification and quantum metrology using fast, ultra-high-efficiency photon detectors”
Chief Investigators: Pryde, Hall, and Wiseman
- 2011 US Department of Defense, MURI project (5 years)
“Control of Quantum Systems: Theory and Experiments” (Lidar, PI)
One of 13 Members (travel-funding only, as at a non-US university).
- 2011 Templeton Foundation (2 years, US\$20 500, to GU).
“Non-Linearity and Quantum Mechanics: Quest for a Rogue Wave Mechanics”
Samuel Colin, Thomas Durt, Ralph Willox and Howard Wiseman.
- 2011 Australian Research Council Centre of Excellence (7 years, \$24.5 million).
“Centre for Quantum Computation and Communication Technology”
Executive Committee: Simmons, Hollenberg, Ralph, Wiseman, Lam, and Dzurak.
(as Node Manager, responsible for GU’s ARC budget of \$2.4 million).
- 2009 Perimeter Institute (Canada) External Funding (3 years, \$33 000 to GU)
plus \$33,000 transferred to GU from ARC DP held by Price at U.Syd.
Part of the “Perimeter Institute – Australia Foundations (PIAF) partnership”
Australian Management Committee members: Price, Milburn, and Wiseman.

⁵ by year of commencement.

- 2009 Australian Research Council Discovery Grant (3 years, \$410 000 to GU).
“Quantum limits in measurement and communication”
Chief Investigators: Pryde, Bartlett, Doherty, and Wiseman
- 2008 Australian Research Council Centre of Excellence renewal (3 years, \$10.1 million).
“Centre for Quantum Computer Technology” (Clark, Director)
(one of 21 Chief Investigators, responsible for an ARC budget of \$420 000).
- 2007 Australian Research Council Discovery Grant (3 years, \$570 000, to GU).
“Quantum computing with trapped ions”
Chief Investigators: Kielpinski and Wiseman.
- 2004 Australian Research Council Federation Fellowship (5 years, \$1.5 million).
“Quantum Information, Measurement, and Control”
- 2003 Queensland Government “Smart State” Centre Funding (5 years, \$225 000, to GU).
“Centre for Quantum Computer Technology”
- 2003 Australian Research Council Centre of Excellence (5 years, \$14 million).
“Centre for Quantum Computer Technology” (Clark, Director)
(one of 18 Chief Investigators, responsible for an ARC budget of \$770 000).
- 2002 Australian Research Council Discovery Grant (3 years, \$211 000, to GU).
“Novel aspects and applications of quantum measurement theory”
Chief Investigators: Wiseman and Pegg.
- 1999 Australian Research Council QEII Research Fellowship (5 years, \$570 000).
“Non-Markovian Dynamics of Open Quantum Systems”
- 1999 Australian Research Council Small Grant (1 year, \$25 000, to UQ).
“First experimental realisation of a quantum-limited arbitrary phase measurement”
Chief Investigators: Heckenberg, Wiseman, and Truscott.
- 1996 Australian Research Council Postdoctoral Research Fellowship (3 years, \$173 000).
“Physical Realizations for Quantum-Limited Measurements on Light and Atoms”

PUBLICATIONS

Books

1. H. M. Wiseman and G. J. Milburn,
Quantum Measurement and Control
(Cambridge University Press, Cambridge, 2010): 476 pages

Editing

2. Eric G. Cavalcanti, Curtis J. Broadbent, Stephen P. Walborn, and Howard M. Wiseman (editors),
Feature Issue: *80 years of Steering and the Einstein-Podolsky-Rosen Paradox* [Introduction]
J. Opt. Soc. Am. B **32**, 4, EPR1-2 (2015). DOI: 10.1364/JOSAB.32.00EPR1
1. S. Mancini, V. I. Man'ko, and H. M. Wiseman (editors),
Special Issue on *Quantum Control* [editorial]
J. Opt. B Quantum and Semiclassical Optics **7**, S177 (2005)

Invited Book Chapters

- B6 H. M. Wiseman,
“Transmarine campaigns by the ‘historical’ Arthur: trends in modern fiction”
Arthur, la mer et la guerre
Civilisation médiéval XXX (Classiques Garnier, Paris, to appear).
edited by Alban Gautier, Marc Rolland and Michelle Szkilnik
- B5 Howard M. Wiseman and Eric G. Cavalcanti,
“*Causarum Investigatio* and the Two Bell's Theorems of John Bell”
Quantum [Un]speakables II: Half a Century of Bell's Theorem,
The Frontiers Collection (Springer, Switzerland, 2017)
edited by Editors: Bertlmann, Reinhold, Zeilinger, Anton (Eds.), pp. 119–142.
- B4 H. M. Wiseman and J. Eisert
“Nontrivial quantum effects in biology: A skeptical physicists’ view”
Quantum Aspects of Life,
(Imperial College Press, London, 2008)
edited by D. Abbot, P. C. W. Davies, and A. K. Pati, pp. 381–401
- B3 R. Van Handel, J. K. Stockton, H. Mabuchi and H. M. Wiseman
“Quantum State Preparation of Spin Ensembles by Continuous Measurement and Feedback”
Quantum Information with Continuous Variables of Atoms and Light
(Imperial College Press, London, 2007)
edited by N. J. Cerf, G. Leuchs, and E. S. Polzik, pp. 463–486
- B2 H. M. Wiseman
“Squeezing and Feedback”
Quantum Squeezing (Springer, Berlin, 2004)
edited by P.D. Drummond and Z. Ficek. pp. 171-223
- B1 H. M. Wiseman
“Complementarity in Spontaneous Emission: Quantum Jumps, Staggers and Slides”
Directions in Quantum Optics (Springer, Berlin, 2001)
Lecture Notes in Physics **561**
edited by Howard J. Carmichael, Roy J. Glauber, and Marlan O. Scully, pp. 347-357

Refereed Journal or Book Papers

Refereed Papers as Sole Author

- S24 “How many principles does it take to change a light bulb ... into a laser?” (Invited commentary)
Physica Scripta **91**, 033001 [10 pages] (2016).
- S23 “The Two Bell’s Theorems of John Bell” (Invited review)
J. Phys. A **47**, 424001 [31 pages] (2014) (Special Issue, *50 years of Bell’s theorem*).
- S22 “Quantum discord is Bohr’s notion of non-mechanical disturbance introduced to counter the Einstein-Podolsky-Rosen argument”
Ann. Phys. (N.Y.) **338**, 361–374 (2013).
- S21 “A British legion stationed near Orléans c. 530? Evidence for Brittonic military activity in late antique Gaul in *Vita Sancti Dalmatii* and other sources”
Journal of the Australian Early Medieval Association **7**, 9–31 (2011).
- S20 “Grounding Bohmian Mechanics in Weak Values and Bayesianism”
New J. Phys. **9**, 165 (12 pages) (2007).
- S19 “From Einstein’s Theorem to Bell’s Theorem: A History of Quantum Nonlocality”
Contemp. Phys. **47**, 79-88 (2006).
- S18 “Defending Continuous Variable Teleportation: Why a laser is a clock, not a quantum channel”
J. Opt. B: Quant. Semiclass. Opt. **6**, S849-S859 (2004).
- S17 “Comment: There is no unmet requirement of optical coherence for continuous-variable quantum teleportation”
Journal of Modern Optics **50**, 1797-1800 (2003).
- S16 “Directly Observing Momentum Transfer in Twin-Slit ‘Which-Way’ Experiments”
Physics Letters A **311**, 285-291 (2003).
- S15 “Weak values, quantum trajectories, and the cavity-QED experiment on wave-particle correlation”
Phys. Rev. A **65**, 032111 (6 Pages) (2002).
- S14 “The derivation of the date of the Badon entry in the *Annales Cambriae* from Bede and Gildas”
Parergon **17**, 1-10 (2000).
- S13 “Light amplification without stimulated emission: Beyond the standard quantum limit to the laser linewidth”
Phys. Rev. A **60**, 4083-4093 (1999).
- S12 “Squashed States of Light: Theory and Applications to Quantum Spectroscopy”
J. Opt. B: Quant. Semiclass. Opt. **1**, 459-463 (1999).
- S11 “Extending Heisenberg’s measurement-disturbance relation to the twin-slit case”
Found. Phys. **28**, 1619-1631 (1998).
-

- S10 “In-loop squeezing is like real squeezing to an in-loop atom”
[Phys. Rev. Lett.](#) **81**, 3840-3843 (1998).
- S9 “Bohmian analysis of momentum transfer in *welcher Weg* measurements”
[Phys. Rev. A](#) **58**, 1740-1756 (1998).
- S8 “Defining the (atom) laser”
[Phys. Rev. A](#) **56**, 2068-2084 (1997).
- S7 “Quantum trajectories and quantum measurement theory”
[Quantum Semiclass. Opt. \(JEOS B\)](#) **8**, 205-222 (1996).
- S6 “Adaptive phase measurements of optical modes: Going beyond the marginal Q distribution”
[Phys. Rev. Lett.](#) **75**, 4587-4590 (1995).
- S5 “SU(2) distribution functions and measurement of the fluorescence of a two-level atom”
[Quantum Semiclass. Optics \(JEOS B\)](#) **7**, 569-584 (1995).
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