

BENJAMIN JOHN EGGLETON

Curriculum Vitae

Date of birth: 6 November 1970

Nationality: Australian

Contact: benjamin.eggleton@sydney.edu.au, +61 2 9351 3604, School of Physics (A28), The University of Sydney, NSW 2006, Australia

ACADEMIC QUALIFICATIONS

1996 PhD in Physics, The University of Sydney
1992 BSc (Hons I) in Physics, The University of Sydney

CURRENT POSITIONS

Since 2018 Director, University of Sydney Nano Institute (Sydney Nano)
Since 2016 Co-Director, NSW Smart Sensing Network (NSSN)
Since 2003 Professor of Physics, The University of Sydney

PREVIOUS POSITIONS

2009-2018 Founding Director, Institute of Photonics and Optical Science (IPOS), The University of Sydney
2013-2017 ARC Laureate Fellow
2003-2017 Founding Director, ARC Centre of Excellence for Ultrahigh bandwidth Devices for Optical Systems (CUDOS)
2008-12 ARC Federation Fellow (renewed)
2003-07 ARC Federation Fellow
2000-02 Director, Photonic Devices Research Department, OFS Laboratories and Research Director, Specialty Photonics Division, OFS Fitel (managed a team of 25 scientists and engineers supporting the \$200Million OFS Specialty Optical Fibre business).
2000-2001 Director of Research, Specialty Fiber Devices, Bell Laboratories, Lucent Technologies (supporting Lucent' Optical Network business)
1999-2000 Technical Manager, Optical Fiber Research Department, Bell Laboratories, Lucent Technologies
1998-2000 Member of Technical Staff, Optical Fiber Research Department, Bell Laboratories, Lucent Technologies
1996-1998 Postdoctoral Member of Technical Staff, Bell Laboratories, Lucent Technologies
1993-1996 Research Assistant, University of Sydney and Optical Fibre Technology Centre

PRIZES AND AWARDS

2017 VICE-CHANCELLOR'S AWARD for Excellence for Outstanding Research
2016 FELLOW of the Australian Academy of Science
2011 WALTER BOAS MEDAL from the Australian Institute of Physics
2011 EUREKA PRIZE FOR LEADERSHIP IN SCIENCE; the citation states "leadership in establishing CUDOS and for the vast body of research he continues to contribute to the field"
2010 SCOPUS YOUNG RESEARCHER OF THE YEAR in the physical sciences
2009 FELLOW of the IEEE (yearly intake limited to 0.1% of the voting membership)
2009 FELLOW of the Australian Academy of Technological Sciences and Engineering (ATSE)
2008 NSW SCIENTIST OF THE YEAR Award for Physics and Astronomy, NSW Government

- 2007 THE PAWSEY MEDAL from the Australian Academy of Science, for outstanding research in physics by a scientist younger than 40
- 2007 COSMOS BRIGHT SPARK. *Australia's Top Ten Scientific Minds under 40*, as voted by the Editorial Advisory Board and selected by COSMOS Magazine
- 2004 MALCOLM MCINTOSH PRIZE – AUSTRALIAN PHYSICAL SCIENTIST OF THE YEAR, Australian Government
- 2003 ICO PRIZE, International Commission for Optics, awarded to an individual who has made a noteworthy contribution to optics before reaching the age of 40
- 2002 R&DI100 AWARD for inventing and developing the dynamic dispersion compensator, as one of the 100 most technologically significant products of the year
- 2002 IEEE/LEOS DISTINGUISHED LECTURER AWARD (2002–03) Awarded to honour excellent speakers who have made technical, industrial or entrepreneurial contributions of high quality to the field of lasers and electro-optics.
- 2002 FELLOW OF THE OPTICAL SOCIETY OF AMERICA, by nomination and elected by the Committee, in recognition of contributions optical fibre gratings and photonic devices
- 1998 ADOLPH LOMB MEDAL, Optical Society of America, presented to a scientist who has made a noteworthy contribution to optics before the age of 35

FELLOWSHIPS, PROFESSIONAL AND MAJOR LEADERSHIP ROLES

- 2017- Membership of the Australian Academy of Science Gender Equity committee
- 2016- Membership of the School of Physics Equity committee
- 2015-2017 Member of the Optical Science of America Leadership group (strategic planning)
- Since 2016 Fellow, Australian Academy of Science (AAS)
- Since 2014 Fellow, Royal Society of New South Wales
- Since 2009 Fellow, Australian Academy of Technological Sciences and Engineering
- Since 2009 Fellow, IEEE Photonics Society
- Since 2008 Fellow, Australian Institute of Physics
- Since 2003 Fellow, Optical Society of America (Chair, 2005 OSA Adolph Lomb Medal Committee, Member of the OSA Meetings Council from 2015)
- Since 2003 Member, Australian Optical Society (President 2008–10)

RECENT RELEVANT PROFESSIONAL AND UNIVERSITY LEADERSHIP ROLES

- 2015-2017 Board of Governors, IEEE Photonics Society
- 2008-2010 President of the Australian Optical Society
- 2015 Chair of the University of Sydney working group that shaped the University's current strategy for engagement and translation
- 2014 Chair of the University of Sydney working group that shaped the interdisciplinary strategy for the University's research program in nanoscience and nanotechnology

SIGNIFICANT POSITIONS – CONFERENCES AND WORKSHOPS

- 2020 GENERAL CHAIR, CLEO *CLEO-Conference on Lasers and Electro-Optics -Pacific Rim (Sydney, Australia)*
- 2019 GENERAL CHAIR, CLEO *CLEO-Conference on Lasers and Electro-Optics, San Jose, USA*
- 2017 Program Chair, *CLEO-Conference on Lasers and Electro-Optics, San Jose, USA*
- 2016 Congress Chair, *OSA Photonics and Fiber Technology, Sydney, Australia*
 Conference Chair, *Nonlinear Optics and its Applications, SPIE Europe 2016, Brussels, Belgium*
- 2016-2018 Chair of CLEO Short Courses, Leads Coordination of CLEO Short courses (~20 4hour courses given by leading researchers from around the world)

- 2015 Conference Chair, *SPIE Micro+Nano Materials, Applications, and Devices 2015*, Sydney, Australia
 Conference Chair, *Workshop on OptoMechanics and Brillouin scattering: fundamentals, Applications and Technologies (WOMBAT 2015)*, Sydney, Australia
- 2014 Conference General Chair, *OptoElectronics and Communication Conference (OECC)*, Melbourne, Australia
 Conference Chair, *Nonlinear Optics and its Applications, SPIE Europe 2014*, Brussels, Belgium
- 2012 Conference Chair, *Nonlinear Optics and its Applications, SPIE Europe 2012*, Brussels, Belgium
- 2011 Program Chair, *International Quantum Electronics Conference / Conference on Lasers and Electro-Optics (IQEC-CLEO)*, Sydney, Australia
- 2009 General Chair, *8th International Photonic & Electromagnetic Crystal Structures Meeting (PECS VIII)*, Sydney, Australia
- 2008 General Chair, *Opto-Electronics and Communications Conference (OECC)*, Sydney, Australia
- 2007 General Chair, *OSA Topical Meeting, Bragg Gratings, Photosensitivity and Poling (BGPP)*, Quebec City, Canada
- 2005 Program Chair, *Bragg Gratings, Photosensitivity and Poling (BGPP)*, Sydney
 General and Program Chair, *Photonic Crystals: Fundamentals to Devices*, Sydney, Australia
 Sub-committee Chair, *Fiber and guided wave lasers and amplifiers, Conference on Laser and Electro-Optics (CLEO 2005)*, Baltimore, USA
- 2004 Program Chair: *Australian Conference on Optical Fiber Technology*, Canberra
 Technical Group Chair: *Photonic Devices, Frontiers in Optics, OSA Annual Meeting*, Rochester, USA
- 2003 Sub-committee Chair: *Gratings, Photonic Bandgap and Signal Conditioning Devices, Optical Fiber Communications Conference*, Anaheim, USA
 Committee: *Conference on Lasers and Electro-optics (CLEO'2003)*, Anaheim, USA
 Sub-committee chair: *Bragg Gratings, Photosensitivity and Poling*, Monterey, USA
 Program Chair: *Holey Fibers and Photonic Crystals, IEEE/LEOS Topical Meeting*, Vancouver, Canada
 Symposium organiser: *Specialty Fiber Devices, Optical Society of America Annual Meeting*, Tuscon, USA
- 2002 Committee: *Conference on Lasers and Electro-optics (CLEO 2002)*, Long Beach, USA
 Committee: *Nonlinear Guided Waves, topical meeting (NLGW 2002)*, Stresa, Italy
 Committee: *Materials Research Society annual meeting, Symposium on Micro-Photonics*, Boston, USA
 Committee: *Optical Fiber Communications Conference, 2002*, Anaheim, USA
- 2001 Committee Member: *Bragg Gratings, Photosensitivity Meeting and Poling (BGPP)*, Stresa, Italy
- 2000 Committee: *Quantum-Electronics and Laser-Spectroscopy, Subcommittee member: Novel Optics, QELS'2000*, San Francisco, USA
 Committee: *Nonlinear Guided Waves topical meeting, 2000-01*, Florida, USA
- 1999 Committee: *Bragg Gratings, Photosensitivity and Poling*, Florida, USA
- 1998 Co-organiser for workshop: *Novel Solitons and Nonlinear Periodic Structures (Victoria Meetings 1998)*, Victoria, Canada

EDITORIAL POSITIONS

- Editor-in-Chief, *APL Photonics* (since 2015)
- Editor-in-Chief, *Optics Communications* (since 2007)
- Guest Editor, Special issue on Quantum photonics, *Journal of nanophotonics* (2016).
- Guest Editor, *Focus on Stimulated Brillouin Scattering, New Journal of Physics* (2015)
- Guest Editor, Special Issue on Chalcogenide Photonics, *Optics Express* (2011)
- Editorial Board Member, *Opto-Electronics Letters* (since 2006)
- Associate Editor, *IEEE Photonics Technology Letters* (2003–07)
- Guest Editor, Special Issue on Photonic Crystals and Holey Fibres, *Optics Express* (2003)

COURSES TAUGHT

2nd year Advanced Optics - Physical Optics (2018, 8 lectures)
3rd Year course on nanophotonics (2004-2012, 6-8 lectures)
Masters in Photonics: Optical Physics (2011-2012, 12 lectures)
Honours course: Advanced Optical Physics (2013, 8 lectures)
CLEO Short course: Photonic crystals and optical fibers (2005-2012, 4hour course)
CLEO Short course: Nonlinear waveguides (2013-present, 4 hours course)
OFC Short course: Optical fiber gratings (2000-2003, 4hour course)

STUDENT SUPERVISION

Supervised to completion: 28 Honours students; 8 Masters students (by Research) and 28 PhD students.

Physics BSc Hons students

2003 Hong Nguyen, Transverse probing of photonic crystal fibres
2003 Trina Ng, Dispersion monitoring using four-wave-mixing in nonlinear fibers
2005 Dane Austin Supercontinuum generation in optical fibers
2006 Therese Au (with Martijn de Sterke), Low-threshold optical switching in fibre Bragg gratings
2006 Michael Lee, Photosensitive post-tuning of chalcogenide photonic crystal waveguides
2007 George Brawley, Photosensitivity in chalcogenide glass waveguides
2007 Tim Iredale (with Mark Pelusi), Multichannel signal regeneration using NL fibres
2007 Alessandro Tuniz, Raman modulation schemes in photonic structures
2010 Hanna Mcfarlane, Suppressing SBS in photonic integrated circuits
2011 Owen Brasier, (with Jochen Schroeder), Noise Monitoring in optical Networks
2011 Adam Byrnes, Stimulated Brillouin Scattering Induced Slow and Fast Light on a Chip
2012 Richard Neo, Phase sensitive parametric amplification of light in a photonic chip
2012 Andrew Watts, Photoinducing Whispering Gallery Mode Cavities in Chalcogenide Fibres
2013 Iman Jizan, Novel method of measuring the spectral entanglement of photon pairs
2014 El-Abed Haidar, Controlling Four Wave Mixing Phase Matching Condition using SBS
2015 Runyu Jiang (with Chunle Xiong), Interfering single photons

Masters of Photonics and Optical Science students

2011 Tomonori Hu (with Jochen Schroeder), Complex filtering in dissipative solitons lasers
2011 Matthew Stuart (with Chad Husko), Dispersion Measurement in Photonic Crystals

Engineering Honours students (USyd)

2004 Cameron Smith, Transverse probing tapered photonic crystal fibres

2004 Yi Lun Miao, Efficient coupling to planar nanowire using taper micro-structured optical fibres
2004 Tom Liu, Raman scattering in silica fibre
2005 Eric Yuihong Lo, Measurement of high repetition rate pulse train by homodyne detection
2005 Mohit Patil, Grating apodisation in chalcogenide glasses
2007 Maggie Chao (with Mark Pelusi), Pulse Compression for Communications
2007 Tong Chen, Recirculating loop test bed for high capacity optical networks
2007 Bhranavan Sivanandan (with Mark Pelusi) OSNR monitoring using nonlinear optics
2007 Darran Wu (with Boris Kuhlmeiy), Selectively Filling Photonic Crystal Fibres with Liquids
2009 Amy Fu (with Mark Pelusi), SBS based optical performance monitoring
2009 Kevin Ng, Tunable passive mode-locked L-band laser
2012 Adam Byrnes, Microwave photonic filter based on SBS

MSc students

2003 Sam Meyers (Macquarie Uni with Judith Dawes), Radiation dynamics in photonic crystals
2004-2005 Trina Ng (with Justin Blows), Optical performance monitoring using four-wave mixing
2006-2007 Dane Austin (with Martijn de Sterke), Sculpting supercontinuum generation
2008-2008 Darren Wu (with Boris Kuhlmeiy), Hybrid photonic crystal fibres
2013-2015 Stephen Dekker (with Martijn de Sterke), Supercontinuum Generation in optical fibres
2014-2016 Iman Jizan (with Chunle Xiong), Two photon spectral correlation states

PhD students (graduated)

1998-2002 Charles Kerbage, Microfluidic optical fibers (Columbia University)
2003-2006 Peter Domachuk, Microfluidic photonic devices
2003-2006 Vahid Ta'eed, Microphotonic planar devices for optical signal processing
2003-2006 Paul Steinvurzel (with Martijn de Sterke) Novel photonic crystal fibers
2003-2006 Joe Mok (with Martijn de Sterke), Nonlinear pulse propagation in Bragg gratings
2004-2007 Hong Nguyen (with Martijn de Sterke), Tapered nonlinear photonic crystal fibres
2005-2008 Neil Baker (with Martijn de Sterke), Slow light in chalcogenide grating structures
2005-2008 Mike Lamont (with David Moss), Integrated all-optical chalcogenide waveguides
2005-2006 Mehrdad Shokooh-Saremi, Nonlinear effects in chalcogenide Bragg gratings
2006-2009 Cameron Smith, Coupling into photonic crystal waveguides using tapered nanowires
2007-2010 Michael Lee, Optical cavities through photosensitivity in chalcogenide photonic crystals
2007-2010 Bill Corcoran (with Christelle Monat), Slow light enhanced nonlinearities in silicon
2008-2012 Trung Vo, Nonlinear signal processing in Chalcogenide waveguides
2008-2011 Irina Kabakova (with Martijn de Sterke), Nonlinear pulse propagation in Bragg gratings
2009-2012 Alvaro Casas Bedoya, Optofluidics
2011-2015 Matthew Collins, Nonlinear Photonic Devices for Quantum Information Processing
2011-2015 Tomonori Hu, (with Stuart Jackson), Creating highly efficient mid-infrared fiber lasers
2011-2015 Yvan Paquot (with Jochen Schroeder), Integrated all optical information processing
2012-2015 Thomas Büttner (with Irina Kabakova), SBS frequency combs in chalcogenide waveguides
2012-2016 Neetesh Singh (with Darren Hudson), Silicon mid-infrared waveguides devices
2012-2016 Yanbing (Young) Zhang, (with Chad Husko), Phase sensitive amplifier in silicon
2012-2015 Mattia Pagani, (with David Marpaung) Stimulated Brillouin scattering on chip
2013-2016 Jiakun He (with Chunle Xiong), Correlated Photon-pair Generation for Quantum
2013-2017 Sayyed Reza Mirnaziry (at UTS with Chris Poulton), Phonon-Photon interactions
2013-2017 Iman Aryanfar (with David Marpaung), Non-reciprocal mode-conversion
2013-2017 Moritz Merklein (with Birgit Stiller), Chip based Brillouin scattering
2013-2017 Blair Morrison (with David Marpaung), On-chip SBS for Microwave Signal Processing
2015-2018 Andri Mahendra (with Philip Leong in EE), Electronic Photonic Integrated Circuits

Current MSc and PhD Students

2015- Atiyeh Zarifi (with Birgit Stiller), Silicon-chalcogenide Hybrid Integration

2015- Xiang Zhang, Multiplexed quantum light sources

2015- Yang Liu (with David Marpaung), Integrated microwave photonics

2015- Loris Marini (with Stefano Palomba), Nonlinear effects in 2D materials

RESEARCH GRANTS AND INDUSTRY CONTRACTS

Total income since 2003: > \$54M, including lead CI on two ARC Centre of Excellences, ARC Laureate Fellowship, 2 ARC Federation Fellowships (renewed), 6 Discovery grants, 5 Linkage grants and \$2.5M in first-authored large equipment and LIEF grants, NSW Government grants and Industry contracts.

2018

- Integration of broadband microwave photonic frequency convertors; Eggleton B, Madden S, Stiller B, Choudhary A, Marpaung D; Australian Research Council (ARC)/Linkage Projects (LP); \$580K (2018-2020)
- High-resolution integrated microwave signal processing to the W-band; Eggleton B; US Office of Naval Research (USA)/Research Support.

2017

- NSW Smart Sensing Network (NSSN); Eggleton B, Gooding J; NSW Department of Industry, Skills and Regional Development; \$1.25M (2017-18).
- Tunable Microwave Filters; B. J. Eggleton, D. Marpaung; Lockheed Martin (contract); 300K (2017-2018).
- Air-quality monitoring; B. J. Eggleton and T. Hu; Office of Environment and Heritage (NSW Government); 30K (2017-2018).

2016

- NSW Smart Sensing Network (NSSN); Eggleton B, Gooding J, Fleming S, Donald, W; NSW Department of Industry, Skills and Regional Development; \$950K (2016-17).
- Better vibrations: controlling light with sound in semiconductor chips; Steel M, Eggleton B, Poulton C; Australian Research Council (ARC)/Discovery Projects (DP) \$450K (2016)
- Harnessing giant Brillouin gain for advanced integrated microwave signal processing; Eggleton B, Choudhary A, Marpaung D; Asian Office of Aerospace Research and Development (AOARD) - US Air Force/Research Grant \$100K (2016-2017).
- High-speed RF generation and detection architecture; Eggleton B, Stiller B, Choudhary A; DVC Research/Equipment Grant \$175K

2015

- Inductively-coupled plasma etching facility (LE150100172); Eggleton B, Reilly D, Palomba S, Fleming S, Poulton C, Arnold M, Dzurak A, Mitchell A, de Sterke M, Moss D; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$270K (2015).
- Silicon Quantum Photonics; Benjamin. J. Eggleton, Huawei (contract), 300K (2015-2017).

2014

- Frequency agile microwave photonic filter in a photonic chip; Eggleton B, Marpaung D; Asian Office of Aerospace Research and Development (AOARD)/Research Support \$100K (2014-2015).
- Universal Optical Transmitter for rapid prototyping and system emulation (LE140100062); Schroeder J, Eggleton B, Lowery A, Luther-Davies B, Husko C, Pelusi M, Roelens M; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$240k (2014).

- The University of Sydney and the Technion collaborative photonics research project; Eggleton B; NSW Department of Industry and Investment/Research Attraction and Acceleration Program; \$300k (2012-16).

2013

- Helium and Neon Ion Microscope for Sub nanometer imaging and Fabrication (LEI30100128); Skafidas E, Eggleton B; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$670k (2013).
- A Femtosecond Mid-IR Optical Parametric Amplifier Source for Waveguide Nonlinear Optics (LEI30100067); Luther-Davies B, Jackson S, Eggleton B, Hudson D, Moss D; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$150k (2013).
- Putting stimulated Brillouin scattering to work: Tailored optical-phononic interactions of on-chip signal processing (DPI30100832); Poulton C, Eggleton B, Steel M; Australian Research Council (ARC)/Discovery Projects (DP); \$400k (2013-15).
- Research infrastructure for Optical Lithography; Eggleton B, Fleming S, Reilly D, Bland-Hawthorn J; DVC Research/Equipment Grant.

2012

- Nonlinear optical Phononics: harnessing sound and light in nonlinear nanoscale circuits (FLI20100029); Eggleton B; Australian Research Council (ARC)/Laureate Fellowship (FL); \$2.9M (2012-17).
- Coherent detection based characterization facility for ultra-broadband photonic and RF systems (LEI20100124); Shieh W, Eggleton B, Tucker R, Nirmalathas A, Lim C, Skafidas E, Pelusi M, Schroeder J, Austin M, Nguyen T, Bui L; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$300k (2012).
- A versatile optical wavelength and mode switching device for future telecommunication networks (LPI20100661); Eggleton B, Schroeder J, Roelens M; Australian Research Council (ARC)/Linkage Projects (LP); \$250k (2012-14).
- Deep - Ultraviolet light source by frequency doubling of blue or green light for disinfection (LPI20100059); de Sterke C, Fleming S, Eggleton B, Duvall S, Atanackovic P; Australian Research Council (ARC)/Linkage Projects (LP); \$265k (2012-14).

2011

- ARC Centre of Excellence for Ultrahigh bandwidth Devices for Optical Systems (CUDOS) (CEI10001018); Eggleton B, Kivshar Y, Luther-Davies B, de Sterke C, Gu M, Lowery A, McPhedran R, Kuhlmeier B, Neshev D, Madden S, Withford M, Steel M, Dawes J, Poulton C, Mitchell A, Krauss T, Anderson T, Leuthold J, Baets R, Kuipers L, Zheludev N, Wilson T, Namiki S, Botten L, Oxenlowe L, Kaertner F, Sipe J, O'Brien J, Frisken S, Pendry J, Duvall S; Australian Research Council (ARC)/Centres of Excellence (CE); \$24M (2011-18).
- 100 Gbit to 1 Terabit per second optical communication test-bed facility (LEI10100116); Eggleton B, Pelusi M, Luther-Davies B, Withford M, Mitchell A, Frisken S, Lowery A, Moss D, Monat C, de Sterke C, Madden S; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$400k (2011).
- Mid-infrared photonics; Eggleton B; DVC Research/Bridging Support Grant.
- Tunable stimulated Brillouin scattering in planar optical circuits (#FA23861114030); Eggleton B, Pant R; Asian Office of Aerospace Research and Development (AOARD)/Research Support; (2011).

2010

- ARC Centre of Excellence for Ultrahigh bandwidth Devices for Optical Systems (CUDOS); Eggleton B; Department of Innovation, Industry, Science and Research (Federal)/Project Support.
- Stimulating light scattering in periodic structures: How slow can it go? (DPI096838); Eggleton B, Pant R; Australian Research Council (ARC)/Discovery Projects (DP); \$370k (2010-12).
- A co-thermal evaporation system for the production of chalcogenide thin films for photonics (LEI00100092); Luther-Davies, B, Wang R, Eggleton B et al; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$270k (2010).
- Silicon-Organic hybrid fabrication platform for integrated circuits (SOFI) (#248609); Kronimus B, Eggleton B; European Commission (Belgium)/Seventh Framework Network of Excellence Programme; EUR2.5M (2010-13).

2009

- Nanophotonic and Microfluidic Integration Facility: a Platform for Optofluidics (LE0989726); Mitchell A, Eggleton B; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$250k (2009).
- Optical Test-bed facility for Testing Mid Infrared Components for Sensing, Imaging and Astrophotonics (LE0989648); Bolger J, Grillet C, Austin M, Cosic I, Luther-Davies B, Madden S, Pirogova E, Tuthill P, Luan F, Fleming S, Eggleton B, Karnutsch C, Monat C, Moss D, Kable S, Canning J, Large M, Bland-Hawthorn J, Jackson S, McPhedran R; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$350k (2009).
- Tailoring ultrafast pulses for Tb/s transmission with advanced modulation formats (LP0989752); Eggleton B, Frisken S; Australian Research Council (ARC)/Linkage Projects (LP); \$281k (2009-11).
- Slow Light in Chalcogenide Moiré Bragg gratings (094085); Eggleton B; Air Force Office of Advanced Research and Development (AOARD); \$65k (2009-10).

2008

- Unlocking the bandwidth using ultrafast photonic integrated circuits; Eggleton B; Australian Research Council (ARC)/Federation Fellowship (FF); \$3M (2008-12).
- Ultra-sensitivity through resonances in photonic bandgap fibres (DP0881528); Kuhlmeier B, Eggleton B, Knight J; Australian Research Council (ARC)/Discovery Projects (DP); \$255k (2008-10).
- High-Resolution Field Emission Scanning Electron Microscopy (FESEM) Platform for Characterisation at the Nanometre-Level (LE0883030); Ringer S, Barton G, Ramzan I, Copeland L, Potts D, Braet F, Grillet C, Lay P, Murphy C, Cairney J, Ferry M, Eggleton B, McKenzie D, Masters A, Parker A, Overall R, Weiss A, Ruys A, Sorrell C, Ye L, Harris A, Ranzi G; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$450k (2008).
- 100 Gb/s optical switch - collaboration with EU project SPLASH; Eggleton B; DEST/International Science Linkages Competitive Grants; \$200k (2008-11).

2007

- Ultrafast photonic integrated circuits: Unlocking the bandwidth (FF0776056); Eggleton B; Australian Research Council (ARC)/Federation Fellowship (FF); \$1.6M (2007-12).
- Direct write microphotonics fabrication facility (LE0775668); de Sterke C, Eggleton B, Marshall G, Lancaster D, Dawes D, Piper J, Withford M, Jackson S, Fuerbach A; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$210k (2007).

2006

- Ultra-high speed optical transmission test-bed for testing next generation photonic devices (LE0668490); Eggleton B, Fleming S, Mitchell A, Moss D, Littler I, Cosic I, de Sterke C, Bolger J; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$207k (2006).
- National Nanolithography Facility (LE0667994); Eggleton B, de Sterke C, Jagadish C, et al; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$1M (2006).
- Semiconductor Photonic Crystal Devices (LX0668600); Eggleton B, Moss D; Australian Research Council (ARC)/Linkage International: ARC International Fellowships (ARCIF); \$24k (2006-07).
- Efficient and tailored supercontinuum generation using dispersion management (DP0665627); Eggleton B, de Sterke C; Australian Research Council (ARC)/Discovery Projects (DP); \$850k (2006-09).
- Novel optical dispersion compensation techniques in an optical transmission system (LP0667956); Eggleton B, Frisken S; Australian Research Council (ARC)/Linkage (LP); \$228k (2006-08).

2005

- Microfluidic photonic systems (DP0556781); Eggleton B, Grillet C; Australian Research Council (ARC)/Discovery Projects (DP); \$365k (2005-07).
- Vibrational Spectroscopy Microprobe/FESEM/AFM Imaging of Cells, Tissues and Materials (LE0560680); Lay P, Ringer S, Maschmeyer T, Sorrell T, McKenzie D, Eggleton B, Fleming S, et al; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$901,862 (2005).
- Near-field Scanning Optical Microscopy (NSOM); Eggleton B, McPhedran R, de Sterke C, Bilek M, McKenzie D, Moss D, Braet F, Ringer S, Soon L, Thordarson P; University of Sydney/Major Equipment.

2004

- Raman Photonic Device Facility (LE0453541); Jackson S, Fleming S, Eggleton B, Blows J, Bolger J, et al; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$298,052 (2004).
- Microwave Signal Processing Using A Photonic Crystal Superprism; Eggleton B; DSTO Department of Defence/Research Grants.
- NSW Government funding supporting ARC Centre of Excellence for Ultrahigh bandwidth Devices for Optical Systems; Blows J, de Sterke C, Eggleton B, McPhedran R, Botten L; DEPT OF BUSINESS AND REGIONAL DEVT NSW/Research Grant.

2003

- Engineered optical fibre device structures for next generation telecommunication systems (FF0241382); Eggleton B; Australian Research Council (ARC)/Federation Fellowship (FF); \$2.5M (2003-07).
- ARC Centre of Excellence for Ultrahigh bandwidth Devices for Optical Systems (CUDOS) (CE0348259); Gu M, Blows J, de Sterke C, Eggleton B, McPhedran R, Botten L, Dawes J, Gu M, Krolikowski W, Luther-Davies B; Australian Research Council (ARC)/Centres of Excellence (CE); \$19M (2003-10).
- Light-matter interactions in microstructured optical waveguides for nonlinear optical signal processing (DP0344675); Eggleton B; Australian Research Council (ARC)/Discovery Projects (DP); \$1.215M (2003-07).

- Picosecond optical probing and characterization of infrared and visible devices (LE0347140); de Sterke C, Eggleton B, Dawes J; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$208k (2003).
- Optical fibre fabrication and characterisation facility for next-generation photonics research (LE0346889); Fleming S, Love J, Huntington S, Eggleton B, et al; Australian Research Council (ARC)/Linkage Infrastructure, Equipment and Facilities (LIEF); \$670k (2003).
- Frontier and security technologies microfabrication network (SR0354721); Eggleton B, Fleming S; Australian Research Council (ARC)/Special Research Initiatives (SRI); \$10k (2003).
- Network for Optical and Quantum Science and Technology (SR0354519); Baldwin K, Luther-Davies B, Eggleton B, et al; Australian Research Council (ARC)/Special Research Initiatives (SRI); \$10k (2003).
- Frontier technologies, prototypes and strategic positioning for the international radio telescope, the Square Kilometre Array (SR0354527); Green A, Sadler E, Eggleton B et al; Australian Research Council (ARC)/ Special Research Initiatives (SRI); \$10k (2003).
- Australian Network on Microelectronics, Optoelectronics and Microelectromechanical Systems (SR0354735); Faraone L, Eggleton B, et al; Australian Research Council (ARC)/Special Research Initiatives (SRI); \$10k (2003)

PLENARY/INVITED/KEYNOTE ADDRESSES AT MAJOR CONFERENCES

1. B. J. Eggleton, Invited Tutorial presentation “Compact Brillouin devices based on hybrid integration in silicon circuits”, OptoElectronics and Communications Conference (OECC), Jeju Island, Korea, July 2018.
2. B. J. Eggleton, Keynote speaker, “Portable air-quality sensors for environmental monitoring: The challenges and opportunities,” Create, Innovate, Translate, Sydney June 2018.
3. B.J Eggleton, Plenary Speaker, “Harnessing Opto-acoustic Interactions in Nanoscale Integrated Circuits,” SPIE NanoPhotonics Australasia Symposium, Melbourne, Australia, December 2017.
4. B.J Eggleton, Plenary Speaker, “Recent Advances in Chalcogenide based Integrated Microwave Photonics,” The 2017 International Topical Meeting on Microwave Photonics (MWP 2017). Beijing, China, October 2017.
5. B.J Eggleton, Plenary Speaker, “Harnessing Opto-acoustic Interactions in Nanoscale Integrated Circuits,” 2017 IEEE Photonics Conference (IPC), Florida, USA, October 2017.
6. B.J Eggleton, Invited Speaker, “Harnessing photon-phonon interactions in nanoscale integrated circuits”, The 24th Congress of the International Commission for Optics (ICO-24), Tokyo, Japan, August 2017.
7. B.J Eggleton, Plenary Speaker, “New frontiers in Integrated Nanophotonics,” 16TH International Conference on Optical Communications and Networks (ICOON’2017), P.R. China, August 2017.
8. B.J Eggleton, Invited Speaker, “Compact Brillouin Devices Through Hybrid Integration On Silicon,” CLEO Pacific Rim Conference, Singapore, August 2017.
9. B.J Eggleton, Plenary Speaker, “Inducing and Harnessing Photon-phonon Interactions in Nanoscale Integrated Circuits,” OSA Advanced Photonics Conference, New Orleans, USA, July 2017.
10. B.J Eggleton, Invited paper, International Symposium on Ultrafast Photonics Technologies (ISUPT) 2017, Zepler Institute, University of Southampton, July 2017.

11. B.J Eggleton, Plenary Speaker, Harnessing photon-phonon interactions in nanoscale integrated circuits', NOMA 2017, Cetraro, Italy, June 2017.
12. B.J Eggleton, Invited Speaker, Advanced Materials and Process Engineering Laboratory (AMPEL) Seminar, University of British Columbia, "New Frontiers In Nonlinear Optics: Harnessing Photon-Phonon Interactions In Nanoscale Integrated Circuits," Vancouver, Canada, April 2017.
13. B.J Eggleton, Invited Key Speaker "Integrated Nanophononic Circuit: Harnessing On-Chip Photon-Phonon Interactions," Conference Exhibition on Optics and Electro-Optics (Oasis6), Tel Aviv, Israel, February 2017.
14. B. J. Eggleton, Plenary presentation "Integrated photonic smart sensors," 2nd International Conference on Fibre-optic and Photonic Sensors for Industrial and Safety Applications, Brisbane, January 2017.
15. B. J. Eggleton, Plenary presentation "Integrated photonic smart sensors for air-quality sensing," Emerging Sensing Technologies Summit 2016 (ESTS'16), Melbourne, December 2016.
16. B.J. Eggleton, Tutorial "Inducing and harnessing photon-phonon interactions in photonic integrated circuits", Asia Communications & Photonics Conference, Wuhan, P.R. China, November 2016.
17. B. J. Eggleton, Invited paper, "Multiplexing of heralded single photonics," Frontiers in Optics, Annual meeting of the Optical Society of America, Rochester, New York, October 2016.
18. B. J. Eggleton, Tutorial, "Stimulated Brillouin scattering in photonic integrated circuits", IEEE Photonics Annual meeting, Hawaii, October 2016.
19. B.J. Eggleton, Tutorial, "Harnessing Photon-phonon Interactions in Photonic Integrated Circuits", OSA Latin America Optics & Photonics Conference, Medellin Colombia, August 2016.
20. B.J. Eggleton, Keynote presentation, "Inducing and Harnessing Hypersound Acoustic Phonons in Photonic Integrated Circuits," 2016 International Conference on Optical MEMS and Nanophotonics (OMN), Singapore, August 2016.
21. B.J. Eggleton, Keynote presentation, "Good vibrations: controlling light with sound in phononic chips," PECS-XII, York, UK, July 2016.
22. B.J. Eggleton, Invited paper, "Nonlinear optical phononics: Harnessing light-sound interactions in nanoscale integrated circuits," NUSOD 16th International Conference, Sydney, Australia, July 2016.
23. B.J. Eggleton, Invited paper, Enhancing and inhibiting Stimulated Brillouin Scattering in photonic integrated circuits," SPIE Photonics, Europe, Brussels, Belgium, April 2016.
24. B.J. Eggleton, Plenary talk, "Nonlinear photonic circuits for the new information age: Faster, smaller and smarter", The 8th IEEE/International Conference for Advanced Infocomm Technology (ICAIT), Hangzhou, China, October 2015.
25. B.J. Eggleton, Public lecture, "Light and the information revolution", International Year of Light Presentation Series, The University of Sydney, Sydney, Australia, September 2015.
26. B.J. Eggleton, Keynote presentation, 2015 Successful Innovation Workshop, ATP Innovations, Sydney, Australia, September 2015.
27. B.J. Eggleton, Public lecture, "Photonic integrated circuits for the new information age: Faster, smaller and smarter", The 2015 International Year of Light Lecture, Institute of Advanced Studies, The University of Western Australia, Perth, Australia, August 2015.

28. B.J. Eggleton, Invited paper, “Enhancing and Inhibiting Stimulated Brillouin Scattering in Photonic Integrated Circuits”, Nonlinear Optics (NLO), Kauai, Hawaii, USA, July 2015.
29. B.J. Eggleton, Invited paper, “Enhancing and inhibiting stimulated Brillouin scattering on photonic integrated circuits”, SPIE Photonics West, San Francisco, USA, February 2015.
30. B.J. Eggleton, Plenary talk, “Inducing and harnessing stimulated Brillouin scattering in photonic integrated circuits”, Photonics India Conference, Calcutta, India, December 2014.
31. B.J. Eggleton, Invited paper, “Photonic crystal waveguide sources of photons for quantum information”, Australian Institute Physics Congress, Canberra, December 2014.
32. B.J. Eggleton, Plenary talk, “Frontiers in nanophotonic circuits: faster, smaller and smarter”, Optics & Photonics Taiwan, the International Conference 2014 (OPTIC), Taichung, Taiwan, December 2014.
33. B.J. Eggleton, Keynote presentation, “Photonics circuits in the new information age: Faster, smaller and smarter”, The Photonics Institute (TPI) Opening and International Photonics Workshop, Singapore, October 2014.
34. B.J. Eggleton, Plenary presentation, “Inducing and Harnessing Stimulated Brillouin Scattering in Photonics Integrated Circuits”, ICP 2014 Malaysia, Kuala Lumpur, Malaysia, September 2014.
35. B.J. Eggleton, Invited paper, “New Frontiers in Chip-based Nonlinear Optics”, PIERS Conference, Guangzhou, China, August 2014.
36. B.J. Eggleton, Invited paper, “Nonlinear optical phononics: Inducing and harnessing stimulated Brillouin scattering in nanoscale photonic circuit waveguides”, SPIE Optics + Photonics, San Diego, August 2014.
37. B.J. Eggleton, Plenary talk, “Nonlinearities in Periodic Media, From Fiber to Silicon Chips”, OSA Photonics Congress, Barcelona, July 2014.
38. B.J. Eggleton, Plenary talk, “Nanophotonics in the New Information Age: Faster, Smaller, Smarter and Greener”, International Photonics and OptoElectronics Meetings (POEM), Wuhan, P.R.China, June 2014.
39. B.J. Eggleton, Invited paper, “Nonlinear effects in photonic crystals”, The Nonlinear Meeting, Edinburgh, Scotland, May 2014.
40. B.J. Eggleton, Invited paper, “Inducing and harnessing stimulated Brillouin scattering in photonic integrated Circuits”, 11th International Symposium on Photonic and Electromagnetic Crystal Structures (PECS-XI), Fudan University, Shanghai, P.R. China, May 2014.
41. B.J. Eggleton, Keynote presentation, “Frontiers in Nanophotonics: Faster, smaller, smarter”, APLS2014 (The 9th Asia Pacific Laser Symposium), Yokohama, Japan, April 2014.
42. B.J. Eggleton, Invited paper, “Inducing and harnessing stimulated Brillouin scattering in photonic integrated circuits”, SPIE Photonics West, San Francisco, USA, February 2014.
43. B.J. Eggleton, Invited paper, “Inducing and Harnessing Stimulated Brillouin Scattering in Photonic Integrated Circuits”, WRAP2013 - Workshop on Recent Trends in Photonics, Delhi, India, December 2013.
44. B.J. Eggleton, Keynote presentation, “Nonlinear optics on-chip”, 7th Annual Dodd-Walls Symposium – The Dodd-Walls Centre for Quantum Science and Technology, Dunedin, New Zealand, November 2013.
45. B.J. Eggleton, Invited paper, “Slow light enhanced optical processing”, 6th International Symposium on Ultrafast Photonics Technologies, Rochester, New York, USA, October 2013.

46. B.J. Eggleton, Invited paper, “Academic perspective: Benefits/challenges of engaging with Industry?” Science Pathways 2013, Melbourne, October 2013.
47. B.J. Eggleton, Invited paper, “Nonlinear optical phononics: harnessing stimulated Brillouin scattering in nonlinear nanoscale circuits”, SPIE 2013 Optics + Photonics, San Diego, USA, August 2013.
48. B.J. Eggleton, Invited paper, “Photonic Circuits for the New Information age: Faster, Smaller and Smarter”, Institute for Basic Science Symposium, Seoul, Korea, July 2013.
49. B.J. Eggleton, Invited paper, “Nonlinear optical phononics: Harnessing stimulated Brillouin scattering in nanoscale circuits”, International Conference on Materials for Advanced Technologies, Singapore, July 2013.
50. B.J. Eggleton, Invited paper, “Nonlinear optical signal processing for on-chip microwave photonics”, International Conference on Materials for Advanced Technologies, Singapore, July 2013.
51. B.J. Eggleton, Invited paper, “On-Chip All-Optical Processing Exploiting Stimulated Brillouin Scattering”, International Conference on Advanced Infocomm Technology (ICAIT), Hsinchu Park, Taiwan, July 2013.
52. B.J. Eggleton, “Nonlinear optical phononics: Harnessing stimulated Brillouin Scattering in nanoscale circuits”, 3rd International Conference: Nonlinear Waves – Theory and Applications – Frontiers of Nonlinear Waves in Optics Minisymposium, Beijing, China, June 2013
53. B.J. Eggleton, Invited paper, “Nonlinear optical phononics: harnessing sound and light in nonlinear nanoscale circuits”, 9th International Symposium on Modern Optics and its Applications (ISMOA), Bandung, Indonesia, June 2013.
54. B.J. Eggleton, Keynote presentation, “Photonic circuits for the new information age: Faster, smaller and smarter”, Photonics Global Conference (PGC), Singapore, December 2012.
55. B.J. Eggleton, “Nonlinear photonic circuits for ultrafast signal processing: Breaking the terabit per-second barrier”, Photonics Global Conference (PGC), Singapore, December 2012.
56. B.J. Eggleton, “Nonlinear Optical Phononics: Harnessing Sound and Light in Nonlinear Nanoscale Circuits”, Australian Conference on Fibre Optical Technology (ACOFOT), Sydney, Australia, December 2012.
57. B.J. Eggleton, Plenary talk, “Ultrafast Photonic Circuits”, KOALA, Brisbane, Australia, December 2012.
58. B.J. Eggleton, “Photonic circuits for the new information age: Faster, Smaller and Smarter”, Physics in Industry Day, CSIRO Lindfield, Sydney, Australia, November 2012.
59. B.J. Eggleton, “Nonlinear Optical Phononics: Harnessing Sound and Light in Nonlinear Nanoscale Circuits”, Frontiers in Optics Conference, Rochester, NY, USA, October 2012.
60. B.J. Eggleton, Plenary talk, “Photonic integration for the new information age: Challenges and opportunities”, IRMMW-THz 2012, Wollongong, Australia, September 2012.
61. B.J. Eggleton, “Breaking the terabaud per second rate using photonic circuits”, Photonics in Switching Conference, Ajaccio, Corsica, France, September 2012.
62. B.J. Eggleton, “Nonlinear optical phononics: Harnessing SBS in circuits”, 5th EPS-QEOD Europhoton Conference, Stockholm, Sweden, August 2012.

63. B.J. Eggleton, “Slow light enhanced optical processing in photonic crystals for classical and quantum information systems”, PECS-X, Santa Fe, New Mexico, USA, June 2012.
64. B.J. Eggleton, Plenary talk, “Nonlinear photonic circuits transforming the new information age: Faster, smaller and smarter,” ICOOPMA12, Nara, Osaka, Japan, June 2012.
65. B.J. Eggleton, “Ultrahigh Speed Switching with Chalcogenide Waveguides”, COIN 2012, Yokohama, Japan, May 2012.
66. B.J. Eggleton, “Ultrafast photonic integrated circuits”, International Conference on Nanotechnology (INC8), Tsukuba, Japan, May 2012.
67. B.J. Eggleton, “Stimulated Brillouin Scattering in chalcogenide photonics circuits”, IEEE Photonics Society Annual meeting, Arlington, VA, USA, October 2011.
68. B.J. Eggleton, “Nonlinear optics in emerging structures”, 6th International Summer School - New Frontiers in Optical Technologies, Tampere, Finland, August 2011.
69. B.J. Eggleton, Tutorial “Nonlinear optics for signal processing in high-speed optical communications systems”, 16th Opto-Electronics and Communications Conference (OECC Taiwan 2011), Kaohsiung, Taiwan, July 2011.
70. B.J. Eggleton, Plenary, “Ultrafast nonlinear optics on a chip”, International Photonics Conference (IPOC 2011), Chengdu, Sichuan, China, July 2011.
71. B.J. Eggleton, Plenary, “Photonic circuits for the new information age: Faster, smaller and smarter”, International Applied Photonics Technology Conference, Miaoli City, Taiwan, July 2011.
72. B.J. Eggleton, Plenary, “Slow light enhanced nonlinear optics in periodic structures”, 2011 Advanced Photonics: OSA Optics & Photonics Congress (Slow and Fast Light), Toronto, Canada, June 2011.
73. B.J. Eggleton, “Chalcogenide nanophotonics”, 5th International Conference on Nanophotonics, Shanghai, China, May 2011.
74. B.J. Eggleton, “Delivering Photonics to Transform the New Information Age – Smaller, Faster and Energy Efficient”, 5th Dodd-Walls Symposium, Wellington, New Zealand, February 2011.
75. B.J. Eggleton, Invited Speaker, Photonics Global Conference (PGC), Singapore, December 2010.
76. B.J. Eggleton, Plenary, “Delivering Photonics to Transform the New Information Age – Smaller, Faster and Energy Efficient”, PHOTONICS 2010 – 10th International Conference on Fiber Optics and Photonics, India, Guwahati, India, December 2010.
77. B.J. Eggleton, Public Lecture, “Delivering Photonics to Transform the New Information Age – Smaller, Faster and Energy Efficient”, BrisScience Seminar Series, Brisbane, Australia, November 2010.
78. B.J. Eggleton, Plenary, 9th International Conference on Optical Communications and Networks (ICOON), Nanjing, China, October 2010.
79. B.J. Eggleton, “Ultrafast nonlinear optics on a chip: Application to terabit per-second optical processing”, International Symposium on Ultra-high Capacity Optical Communication and Related Optical Signal Processing and Devices, Copenhagen, Denmark, September 2010.
80. B.J. Eggleton, “Nonlinear and photosensitivity in photonic crystal circuits”, Ninth International Conference on Photonic and Electromagnetic Crystal Structures (PECS-IX 2010), Granada, Spain, September 2010.

81. B.J. Eggleton, “Chalcogenide photonic integrated circuits for ultrafast nonlinear optics“, SPIE Optics + Photonics, San Diego, USA, August 2010.
82. B.J. Eggleton, Invited Speaker, 10th International Conference on Nanotechnology (IEEE NANO 2010), Goyang, Korea, August 2010.
83. B. J. Eggleton,” Ultrafast photonic integrated circuits: Breaking the terabit per second barrier”, Photonic Society meeting on Novel waveguide structures, Cancun, Mexico, July 2010
84. B.J. Eggleton, Plenary, “Ultrafast Nonlinear Optics on a Chip: Breaking the Terabit per Second Barrier”, SPIE Photonics Europe, Brussels, Belgium, April 2010.
85. B.J. Eggleton, “Photonic signal processing”, Australian Conference in Optical Fiber Technology (ACOFT), Adelaide, Australia, November-December 2009.
86. B. J. Eggleton, “Ultrafast photonic integrated circuits”, Asian Photonics Conference, Shanghai, China, November 2009.
87. B.J. Eggleton, “Slow light in nonlinear periodic structures”, Korean workshop on slow-light, Jeju Island, Korea, November 2009.
88. B.J. Eggleton, “Chalcogenide photonic integrated circuits”, European Conference on Optical Communications (ECOC), Vienna, Austria, September 2009.
89. B.J. Eggleton, “Ultrafast chalcogenide photonic integrated circuits”, Photonics Society Conference on optical switching, Pisa, Italy, September 2009.
90. B.J. Eggleton, Tutorial, “Breaking the terabit per-second barrier using ultrafast nonlinear optics”, Opto-Electronics and Communications Conference (OECC), Hong Kong, July 2009.
91. B.J. Eggleton, “Ultrafast nonlinear optics on a chip: Breaking the terabit per-second barrier”, International Conference on Materials and Applied Technologies, Singapore, July 2009.
92. B.J. Eggleton, “Tunable microfluidic optical circuits”, Nanophotonics Downunder, Melbourne, Australia, July 2009.
93. B.J. Eggleton, “Reconfigurable photonic circuits using microfluidics”, Conference on Lasers and Electro-Optics (CLEO), Baltimore, USA, June 2009.
94. B.J. Eggleton, “Ultrafast nonlinear optics for next generation communication systems”, NICT annual conference, Tokyo, Japan, March 2009.
95. B.J. Eggleton, “Slow light in nonlinear periodic structures”, SPIE Photonics West, San Jose, USA, January 2009.
96. B.J. Eggleton, “Reconfigurable photonic crystal circuits using microfluidics”, SPIE Photonics West, San Jose, USA, January 2009.
97. B.J. Eggleton, “Ultrafast nonlinear optics on a chip”, SPIE Photonics West, San Jose, USA, January 2009.
98. B.J. Eggleton, “Ultrafast nonlinear optics in emerging waveguide structures”, IEEE LEOS: The Society for Photonics, Vienna, Austria, January 2009.
99. B.J. Eggleton, “Ultrafast nonlinear optics on a photonic chip”, Symposium of the Dodd-Walls Centre for Quantum Science and Technology, Queenstown, New Zealand, December 2008.
100. B.J. Eggleton, “International workshop on advances in nanoscale nonlinear optics”, Rome, Italy, October 2008.

101. B.J. Eggleton, “Ultrafast nonlinear optics on a photonic chip”, Photonics 2008 9th International Conference on Fibre Optics and Photonics, New Delhi, India, December 2008.
102. B.J. Eggleton, “Reconfigurable photonic crystal circuits”, SPIE Photonics annual meeting, San Diego, USA, August 2008.
103. B.J. Eggleton, “Ultrafast chalcogenide photonic circuits”, Invited paper, International Conference on optics, Optoelectronics, Photonic Materials and Applications, Edmonton, Canada, July 2008.
104. B.J. Eggleton, “Ultrafast all-optical signal processing using photonic integrated circuits”, LEOS Summer Topical Meeting, Acapulco, Mexico, July 2008.
105. B.J. Eggleton, “Optofluidics”, SPIE Photonics West, San Jose, USA, January 2008.
106. B.J. Eggleton, “Ultrafast chalcogenide photonic integrated circuits”, Workshop on Fiber Optic and Passive Components (WFOPC), Taipei, Taiwan, December 2007.
107. B.J. Eggleton, “Ultrafast chalcogenide photonic integrated circuits”, Asia Pacific Optical Communications (APOC), Wuhan, China, November 2007.
108. B.J. Eggleton, “Ultrafast all-optical photonic integrated circuits”, Nanostructures for Electronics Energy and Environment NanoE3, Couran Cove, Australia, September 2007.
109. B.J. Eggleton, “All-optical control on a chip”, Asia-Pacific Physics Conference, Pohang, South Korea, August 2007.
110. B.J. Eggleton, “Ultrafast photonic integrated circuits”, CLEO – Pacific Rim, Seoul, South Korea, August 2007.
111. B.J. Eggleton, “Optofluidic integration”, Asian Pacific Biophotonics Conference, Cairns, Australia, July 2007
112. B.J. Eggleton, “Ultrafast photonic integrated circuits”, Australian Conference on Fiber Technology, Melbourne, Australia, July 2007.
113. B.J. Eggleton, Keynote, “All-optical control on a photonic chip”, CLEO-Europe, Munich, Germany, June 2007.
114. B.J. Eggleton, “Microphotonic chalcogenide devices”, PECS VII, Monterey, USA, April 2007
115. B.J. Eggleton, “Chalcogenide glass waveguides and grating devices for all-optical signal conditioning”, Optical Fiber Communications Conference, Anaheim, USA, March 2007.
116. B.J. Eggleton, “Microfluidic ARROW photonic crystal fibers”, SPIE Photonics West, San Jose, USA, January 2007.
117. B.J. Eggleton, “Ultrastrong photosensitivity in chalcogenide waveguides for on chip filter applications”, SPIE Photonics West, San Jose, USA, January 2007.
118. B.J. Eggleton, Plenary, “Microphotonics for signal processing, microfluidics and sensing applications”, Smart Materials, Nano-, and Micro-Smart Systems 2006, Adelaide, Australia, December 2006.
119. B.J. Eggleton, “Nonlinear propagation effects in chalcogenide waveguide gratings”, LEOS Annual meeting, Montreal, Canada, October 2006.
120. B.J. Eggleton, “Slow light solitons in nonlinear Bragg gratings”, CLEO/Europe-EQEC Focus Meeting on New Directions in Photonics and Optical Communications, Cannes, France, September 2006.

121. B.J. Eggleton, “Towards all-optical logic photonic integrated circuits”, SIAM Conference on Nonlinear Waves and Coherent Structures, University of Washington, Seattle, USA, September 2006.
122. M. Cronin-Golomb, P. Domachuk, and B.J. Eggleton, “Optical tweezers and optofluidics”, LEOS Summer Topicals – Optofluidics: Emerging Technologies and Applications, Quebec City, Canada, July 2006.
123. P. Domachuk, C. Monat, C. Grillet, H.C. Nguyen, E.C. Magi, I.C.M. Littler, M. Cronin-Golomb, B.J. Eggleton, “Optofluidic tuning and sensing in fibre based devices”, LEOS Summer Topicals – Optofluidics: Emerging Technologies and Applications, Quebec City, Canada, July 2006.
124. B.J. Eggleton, Plenary, “Next generation photonic crystal fibres”, 15th International Laser Physics Workshop, Lausanne, Switzerland, July 2006.
125. B.J. Eggleton, “Nanophotonics”, Indian Nanoscience Workshop, Bangalore, India, April 2006.
126. B.J. Eggleton, “Optical regeneration using highly nonlinear chalcogenide waveguides”, Australasian Conference on Optics, Lasers and Spectroscopy (ACOLs), Rotarua, New Zealand, December 2005.
127. B.J. Eggleton, “Optical regeneration in highly nonlinear chalcogenide waveguides”, Annual meeting for Lasers and Electro-optics Society, Sydney, Australia, October 2005
128. B.J. Eggleton, “Nonlinear pulse propagation in resonant photonic devices: Tunable solitons, slow-light and chalcogenides” Australia Conference on Fibre Optic Technology (ACOPT), Sydney, Australia, 2005.
129. B.J. Eggleton, Plenary, “Towards integrated terabit per second all-optical regeneration”, International Commission for Optics Meeting, Changchun, China, August 2005.
130. B.J. Eggleton, “Microphotonic crystal fibres”, Nanophotonics for Information Processing Conference, San Diego, USA, May 2005.
131. B.J. Eggleton, “Functional fibre devices”, Asia Pacific Conference on Photonics and Optical Communications, Beijing, China, November 2004.
132. B.J. Eggleton, “Microphotonic crystal fibres”, Frontiers in Optics – OSA Annual Meeting, Rochester, USA, October 2004.
133. B.J. Eggleton, Plenary, “Microphotonics: towards all-optical technology”, Australian Conference on Optics, Lasers and Spectroscopy (ACOLS), Melbourne, Australia, December 2003.
134. B.J. Eggleton, “Microstructured optical fiber devices”, Optical Society of America Annual Meeting, Tucson, USA, October 2003.
135. C. Kerbage and B.J. Eggleton, “Hybrid microstructured optical fibres enabling integrated tunability”, Materials Research Society Meeting: Microphotonics, Nanophotonics, and Photonic Crystals, San Francisco, USA, April 2003.
136. N. Litchinitser, Y. Li, M. Sumetsky, P. Westbrook, B.J. Eggleton, “Tunable Dispersion Compensation Devices: Group Delay Ripple and System Performance”, Optical Fibre Communications Conference, Atlanta, USA, March 2003.
137. B.J. Eggleton and C. Kerbage, “Microstructured optical fibers: enabling integrated tunability and nonlinearity for photonic device applications”, LEOS annual meeting, Glasgow, Scotland, November 2002.

138. B.J. Eggleton, “Enabling all-optical signal processing devices for 40Gb/s systems”, European Conference on Optical Communications (ECOC), Copenhagen, Denmark, September 2002.
139. B.J. Eggleton, “Tunable, switchable and nonlinear microstructured optical fiber devices”, Nonlinear guided waves topical meeting (NLGW), Stressa, Italy, September 2002.
140. B.J. Eggleton, “Tunable all-fiber devices enabling next generation lightwave systems”, Photonic North Conference, Quebec, Canada, June 2002.
141. B.J. Eggleton, “Emerging applications of microstructured photonic crystal optical fibre devices”, IEEE/LEOS Workshop on High Speed Optical Interconnects, Santa Fe, USA, May 2002.
142. B.J. Eggleton, “Systems applications of advanced fibre grating devices”, LEOS Summer Topical Meetings, Copper Mountain, USA, July–August 2001.
143. B.J. Eggleton, “Advanced system application of fibre Bragg grating devices”, Opto-Electronics and Communications Conference (OECC), Sydney, Australia, 2001.
144. B.J. Eggleton, “Microstructured photonic crystal optical fibres enable new optical device functionalities”, Materials Research Society meeting, Boston, USA, November 2001.
145. P.S. Westbrook, R.S. Windeler, C. Kerbage, and B.J. Eggleton, “Fabrication and properties of Bragg gratings in air-silica microstructured fibres”, Bragg gratings, photosensitivity topical meeting (BGPP), Stressa, Italy, July 2001.
146. B.J. Eggleton, “Recent progress in tunable fibre gratings”, Bragg gratings, photosensitivity topical meeting (BGPP), Stressa, Italy, July 2001.
147. B.J. Eggleton, “Properties and applications of air-silica microstructured optical fibres”, Conference on Lasers and Electro-optics (CLEO), Baltimore, USA, 2001.
148. B.J. Eggleton, “Dynamic dispersion compensation devices for high speed transmission systems”, Optical Fiber Communications (OFC) Conf. WHI-I, Anaheim, USA, March 2001.
149. B.J. Eggleton, G. Lenz, R. E. Slusher and C.M. de Sterke, “Bragg solitons in nonlinear periodic structures”, Lasers and Electro-Optics Society (LEOS) Annual Meeting, Puerto Rico, November 2000.
150. B.J. Eggleton, “Novel device structures for fiber gratings”, Workshop on Fiber and Passive Components (WFPC), Milan, Italy, June 2000.
151. B.J. Eggleton, “Novel device structures for fiber gratings”, Conference on Lasers and Electro-optics (CLEO Europe), Nice, France, September 2000.
152. B.J. Eggleton, G. Lenz, R.E. Slusher and C.M. de Sterke, “Bragg solitons in nonlinear periodic structures”, Conference on Lasers and Electro-Optics (CLEO), QWGI, San Francisco, USA, 2000.
153. G. Lenz, B.J. Eggleton and N. Litchinitser, “Novel pulse compression schemes based on non-linear Bragg gratings”, Bragg Gratings, Photosensitivity and Poling topical meeting (BGPP), Florida, USA, 1999.
154. B.J. Eggleton, “Tunable fiber grating devices for high speed WDM lightwave networks”, Australian Conference on Fibre Technology (ACOFT), Sydney, Australia, June 1998.
155. R.E. Slusher & B.J. Eggleton, “Bragg solitons and optical switching in nonlinear periodic media”, Nonlinear Optics Conference, Hawaii, USA, 1998.

156. B.J. Eggleton, R.E. Slusher, N.M. Litchinitser, G. Agrawal and C.M. de Sterke, "Experimental observation of interaction of Bragg solitons", QTuJ5, CLEO 98, Baltimore, USA, 1998.
157. R.E. Slusher and B.J. Eggleton, "Bragg grating soliton experiments", Workshop on Novel Solitons and Nonlinear Periodic Structures (Victoria Meetings 1997), Victoria, Canada, April 1998.
158. B.J. Eggleton, "Nonlinear pulse propagation in Bragg gratings", OSA annual meeting 1998, presented at symposium on Fundamentals of Bragg Gratings, San Jose, USA, 1998.
159. B.J. Eggleton, R.E. Slusher, T.A. Strasser, C.M. de Sterke, "High intensity pulse propagation in Bragg gratings", Bragg gratings and photosensitivity topical meeting 1997, Technical digest paper BMB, Williamsburg, USA, October 1997.
160. B.J. Eggleton, Richard Slusher, Martijn de Sterke, "Nonlinear effects in Bragg gratings", Optical Society of America Annual Meeting, Rochester, NY, USA, 1996.

PUBLICATIONS

Summary

- Patents (35)
- Edited books (2)
- Book chapters (16)
- Refereed journal papers (~ 470 with total citations > 18,000): Papers in refereed conference proceedings (> 300, not listed)

Patents (issued in the USA)

1. 7,440,664 Microstructured optical waveguide for providing periodic and resonant structures
2. 7,139,478 Nonlinear device comprising a spectrally broadening fiber
3. 7,110,646 Tunable microfluidic optical fiber devices and systems
4. 7,081,323 Method of making gratings and phase masks for fiber grating fabrication
5. 7,079,777 Optical fiber communication systems having simultaneous compensation of polarisation mode dispersion and chromatic dispersion
6. 6,996,317 Optical devices including microstructured fiber sections disposed for transverse signal propagation
7. 6,940,889 Optical pulse source for long haul optical communication systems
8. 6,885,792 Wavelength monitoring optical fibers using detection in the near field
9. 6,847,763 Colourless tunable dispersion compensator
10. 6,836,606 Filled-core optical fiber and method of making the same
11. 6,807,338 Multiwavelength cascaded raman resonator
12. 6,782,148 Modifying birefringence in optical fibers
13. 6,778,734 Thermally tunable fiber devices with microcapillary heaters
14. 6,768,577 Tunable multimode laser diode module, tunable multimode wavelength division multiplex Raman pump, and amplifier, and a system, method, and computer program product for controlling tunable multimode laser diodes, Raman pumps, and Raman amplifiers
15. 6,753,118 Optical grating fabrication process
16. 6,658,183 Process for fabricating tapered microstructured fiber system and resultant system
17. 6,654,522 Process for fabricating tapered microstructured fiber system and resultant system
18. 6,608,952 Fiber apparatus and method for manipulating optical signals

19. 6,529,676 Waveguide incorporating tunable scattering material
20. 6,438,277 Stabilized thermally tunable optical waveguide devices and communication systems employing them
21. 6,427,040 Optical waveguide gratings device with adjustable optical space profile
22. 6,415,079 Optical fiber gratings having internal gap cladding for reduced short wavelength cladding mode loss
23. 6,408,118 Optical waveguide gratings having roughened cladding for reduced short wavelength cladding mode loss
24. 6,386,714 Controlling mirror shape for generating interference patterns and the like
25. 6,370,300 Optical communication system incorporating automatic dispersion compensation modules
26. 6,351,585 Thermally adjustable optical fiber grating device with packaging for enhanced performance
27. 6,307,988 Optical fiber communication system incorporating automatic dispersion compensation modules to compensate for temperature induced variations
28. 6,303,182 Method for making optical fiber devices having variable thickness metal coatings
29. 6,285,812 Switchable and reconfigurable optical grating devices and methods for making them
30. 6,275,629 Optical grating devices with adjustable chirp
31. 6,201,916 Article comprising means for optical pulse reshaping
32. 6,192,177 Electrically modifiable optical grating devices
33. 6,181,852 Optical grating device with variable coating
34. 6,169,831 Method of making optical chirped grating with an intrinsically chirped grating and external gradient
35. 6,163,638 Article comprising an optical pulse compressor

Edited books

- S. Wabnitz and B.J. Eggleton (eds), *All-Optical Signal Processing: Data Communication and Storage Applications*, Springer, 2015
- R. E. Slusher and B.J. Eggleton (eds), *Nonlinear photonic crystals*, Springer, 2002

Book chapters

1. D. Marpaung, R. Pant, and B.J. Eggleton, "Harnessing Nonlinear Optics for Microwave Signal Processing", *All-Optical Signal Processing: Data Communication and Storage Applications*, S. Wabnitz and B.J. Eggleton (eds), Springer, 2015, pp. 449-468.
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