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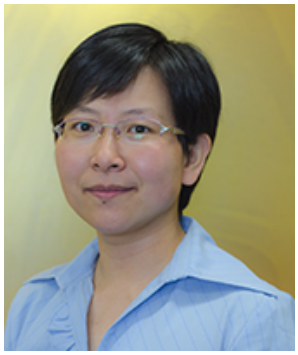
Prof. Baohua Jia

Professor, Research Leader



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Swinburne University of Technology
Centre for Micro-Photonics (H74)
John Street
PO Box 218
Hawthorn, Victoria , 3122
Australia

Background

Doctor of Philosophy in Optics, 2007
Swinburne University of Technology, Australia

Master of Science in Optical Communications, 2003
Nankai University, P.R. China

Bachelor of Science in Applied Optics & Bachelor of Economics in Management, 2000
Nankai University, P.R. China

Research Interests

- Ultrafast laser imaging, spectroscopy and nanofabrication of novel photonic nanostructures
- Investigation of functionality and nonlinear effects inside 3D photonic nanostructures
- Development of active photonic devices facilitated with quantum dots and graphene
- Development of novel nanoplasmonic devices with laser nanofabrication
  Design and fabrication of nanostructures and nanomaterials for energy related photonics research
- Graphene oxide optoelectronic devices

Membership of Professional Organisations

Life member of International Society for Optics and Photonics (SPIE)
Life Member of Optical Society of America (OSA)
Member of OSA Member Advisory Network
Member of Australia Institute of Physics (AIP)
Member of Australia Optical Society (AOS)
Member of the Australian Research Council Nanotechnology Network (ARCNN)
Member of ARC Australian Research for Advanced Materials (ARNAM)
Member of ARC/NHMRC network: Fluorescence applications in biotechnology and life sciences (FABLES)

PhD Thesis

Study on the complex evanescent focal region of a high numerical aperture objective and its applications

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Areas of Expertise and Research

- 2016-(ongoing), Professor, Research Leader, Nanophotonics Solar Technology, Centre for Micro-Photonics
  Program Leader, Manufacturing Futures Research Institute, Swinburne University of Technology, Australia
- 2013-(ongoing), Associate Professor, Research Leader, Nanophotonics Solar Technology, Australian Research Council (ARC) Discovery Early Career Researcher Award (DECRA), Centre for Micro-Photonics, Faculty of SET, Swinburne University of Technology, Australia
- 2012-2013, Senior Research Fellow, Australian Research Council (ARC) Discovery Early Career Researcher Award (DECRA), Centre for Micro-Photonics, Faculty of EIS, Swinburne University of Technology, Australia, Project Leader for the Centre for Ultrahigh bandwidth Devices for Optical Systems (CUDOS)-an ARC Centre of Excellence
- 2010-2012, Senior Research Fellow, Australian Research Council (ARC) Postdoctoral Fellow (APD), Centre for Micro-Photonics, Faculty of EIS, Swinburne University of Technology, Australia Project Leader for the Centre for Ultrahigh bandwidth Devices for Optical Systems (CUDOS)-an ARC Centre of Excellence
- 2009-2010, Research Fellow, Australian Research Council (ARC) Postdoctoral Fellow (APD), Centre for Micro-Photonics, Faculty of EIS, Swinburne University of Technology, Australia Project Manager for the Centre for Ultrahigh bandwidth Devices for Optical Systems (CUDOS)-an ARC Centre of Excellence
- 2009-2010, Research Fellow, Australian Research Council (ARC) Postdoctoral Fellow (APD), Centre for Micro-Photonics, Faculty of EIS, Swinburne University of Technology, Australia Project Manager for the Centre for Ultrahigh bandwidth Devices for Optical Systems (CUDOS)-an ARC Centre of Excellence

Professional Committees and Activities

Professional services:

- Honorary Treasurer Australian Optical Society

- Committee Member of Academic Senate, Swinburne University of Technology, 2014-2015
- Committee Member of Joint Standards Australia/Standards New Zealand Committees

Regular referee for international professional journals:
Optics letters, Optics Express, Journal of the Optical Society of America B (JOSAB), ACS Nano, Optics Communication, Applied Optics, Nanotechnology, New Journal of Physics, Nanotechnology, Journal of Physics: Condensed Matter, Journal of Physics D: Applied Physics and Measurement Science and Technology.

Grant reviewer:

- Australian Research Council (Discovery Project, Discovery Early Career Researcher Award and Future Fellow schemes)
- British Columbia Innovation Council, Canada
- Department of Management and Administration of Thematic Research Programmes , Partnerships in S&T Priority Domains Programme, Romania
  OSA Foundation

Conference organisation and session chair:

- Program Chair for 2017 SPIE Nanophotonics Australasia (AU17), Dec 13-15, 2017, Melbourne, Australia.
- Organizing committee for the International Conference and Expo on Condensed Matter Physics (ICECMP-2017), September 25-27, 2017 at Valencia, Spain.
- Organising committee for OSA Optics and Photonics Congress for Light, Energy and the Environment, 14 - 17 November 2016 in Leipzig, Germany.
- Program committee for Annual International Conference on Manipulation, Manufacturing and Measurement on the Nanoscale (3M-Nano); 18-22 July 2016 in Chongqing, China
- Organising committee for SPIE Micro+Nano Materials, Devices, and Applications 2015 in Sydney, Australia, 6-9 December 2015.
- Organising committee and Session Chair for OSA Optics and Photonics Congress for Light, Energy and the Environment, 2-5 November 2015 in Suzhou, China.
- Session organiser for "2D materials nanophotonics and nanoplasmonics", 2015 EMN/Quantum Meeting at Beijing, China, April 14-17, 2015.
- Session Chair, Energy Materials Nanotechnology, April 14-17 (2015) Beijing, China
- Organising committee for OptoElectronics and Communication Conference and Australian Conference on Optical Fibre Technology 2014 (OECC-ACOFT), Melbourne Convention and Exhibition Centre, Melbourne, Australia from 6-10 July 2014
- Organising committee for 2014 OSA Optics Congress on Renewable Energy and the Environment, Canberra, Australia, 2 - 5 December, 2014
- Organising committee for the 3rd International Summit on Green Photonics, Melbourne, Australia 13 January, 2014
- Organising committee and Conference General Chair for Graphene Workshop in the Centre for Ultrahigh bandwidth Devices for Optical Systems, Melbourne, August 13 2013
- Session co-chair for BIT's 2nd Annual World Congress of Advanced Materials-2013, Suzhou, China, June 5-7 2013
- Organising committee for The SOLAR 2012 conference 50th annual conference of the Australian Solar Council (AuSES), Swinburne University of Technology, Hawthorn Campus, Melbourne on the 6th & 7th of December 2012
- Organising committee for the 2nd International Summit on Green Photonics, Tsinghua University, China 28 Nov, 2012
- Organising committee for Asia Communications and Optics Conference - ACP 2011, Shanghai, China 13-16 November, 2011
- Organising committee for NanoPhotonics Downunder: Device and Applications (NanoPhotonics2009), Melbourne, Australia June 21-24, 2009
- Session organiser for 'Femtosecond Photonics: Microfabrication and Optical Data Storage' in the Progress In Electromagnetics Research Symposium in Hangzhou, China, 24-28 March, 2008
- Chairman for Femtosecond Photonics: Microfabrication and Optical Data Storage session in Progress In Electromagnetics Research Symposium (PIERS) in Hangzhou, China, 24-28 March, 2008

Grant, Prize and Awards

- Graphene Supply Chain Certification, CRC-P, 2017, $943,937, (Co-CI)
- 2016 Vice Chancellor's Industry Engagement Award, Swinburne University of Technology
- Melbourne-Sarawak Research Collaboration Scheme Grant, Swinburne University of Technology, 2016, $287,150 (1st CI)
- "Investigating novel glass technologies and photovoltaics in protected cropping," Horticulture Innovation Australia, VG15038 - RFP, 2016, $1,315,432 (1st CI)

- Topology Optimisation for Three-dimensional Periodic Nanophotonic Structures *; ARC Project Funds shared with RMIT, 2016, $30,000 (1st CI)
- Defence Science and Technology (DST) Group research fund, 2016, $11,000. (1st CI)
- Defence Science Institute (DSI) Collaborative Research Grants 2015, $25,000. (1st CI)
- ARC Discovery grant (PROJECT ID: DP150102972) 2015-2017, $375,100
- FSET 2014 Research Infrastructure Investment Scheme, Swinburne University of Technology. ($12,790)
- Visiting Research Scheme Award 2014, Swinburne University of Technology:$10,000
- CASS Foundation Travel Grant 2013
- ARC Discovery grant (PROJECT ID: DP140100849) in 2013: $550,000
- 2013 Young Tall Poppy Science Award, Australian Institute of Policy and Science & the Tall Poppy Campaign
- CASS Foundation Travel Grant 2013: $2,750
- L'Oreal Australia and New Zealand For Women in Science Fellowship in 2012
- Research fund from Chinese National Natural Science Foundation (PROJECT ID: A040405) in 2012
- ARC Discovery Early Career Researcher Award (PROJECT ID: DE120100291) 2012-2014
- Vice-Chancellor's Industry Engagement Award in 2011
- ARC LIEF grant (PROJECT ID: LE110100121) in 2010
- French Fellowship from Australian French Association for Science and Technology in 2010
- Victoria Fellowship from the Victoria Government in 2010
- Travel grant from the Australian-China Young Scientist Exchange scheme from Australian academy of Technological Sciences and Engineering (ATSE) in 2010
- Awarded International Science Linkages - Science Academies Program travel grant from the
  Australian Academy of Science to undertake scientific visits to Europe in 2010
- Vice-Chancellor's Research Award (Early Career) for research excellence from Swinburne University of Technology in 2009
- ARCNN Bursaries (Australian Research Council Nanotechnology Network) for presentation on The 8th International Photonic & Electromagnetic Crystal Structures Meeting (PECS VIII) in April 2009
- Travel grant from the Australian-China Young Scientist Exchange scheme from Australian academy of Technological Sciences and Engineering (ATSE) in 2009
- ARC discovery grant: ARC Postdoctoral Fellow (APD) from 2009-2011 (PROJECT ID: DP0987006)
- Swinburne University of Technology, Faculty of Engineering and Industrial initiative grant award in 2008
- Inclusion in the 10th Anniversary Edition of Who's Who in Science and Engineering in 2008
- Biotechnology Entrepreneur Young Achievement Australia Award in 2005

Student supervision

PhD opportunities available. Please contact Baohua Jia for more details

- Number of current PhD students: 9. Coordinating supervisor: Ms Chunhua Zhou, Mr Tieshan Yang, Mr. Yao Liang, Mr. Scott Fraser, Mr. Guiyuan Cao, Mr. Yunyi Yang, Ms. Shuo Li, Mr. Lai Jia Jiun, Mr. Japheth Lau Zi Jun
- Number of graduated PhD students: 12. Dr Sahar Tabriz, Dr. Li Fu, Dr. Xiaorui Zheng, Dr. Shouyi Xie, Dr. Yinan Zhang, Dr. Boyuan Cai, Dr. Jiafang Li, Dr. Hong Kang, Dr. Elisa Nicoletti and Dr. Muntasir Hossain, Dr. Han Lin, Dr. Zongsong Gan
- Number of undergraduate students (project): 9
- Winter scholarship under Research Experience for Undergraduate (REU) Program at Swinburne
- Visiting scholars: 5. Prof. Minghui Hong, A.Prof. Hongming Fei, Mr Hong Tao Wang, Ms Jun Ren, Mr Tieshan Yang, Dr Zheng Cao

Publications

Download full publication list [PDF, 160KB]

Latest Publications

87. **Template-Free Synthesis of High-Yield Fe-Doped Cesium Lead Halide Perovskite Ultralong Microwires with Enhanced Two-Photon Absorption**
Shuangyang Zou, Gaoling Yang, Tieshan Yang, Duan Zhao, Zhixing Gan, Weijian Chen, Haizheng Zhong, Xiaoming Wen, Baohua Jia and Bingsuo Zou

J. Phys. Chem. Lett. **9**, 4878-4885 (2018); doi: 10.1021/acs.jpclett.8b02127
Journal Link | Swinburne Research | | RIS Export

86. **Two-dimensional material functional devices enabled by direct laser fabrication**
Tieshan Yang, Han Lin and Baohua Jia
Front. Optoelectron. **10** (4), 1 (2017); doi: 10.1007/s12200-017-0753-1
Journal Link | Swinburne Research | | RIS Export

85. **Tailoring pores in graphene-based materials: from generation to applications**
Tieshan Yang, Han Lin, Xiaorui Zheng, Kian Ping Loh and Baohua Jia
J. Mater. Chem. A **5** (32), 16537-16558 (2017); doi: 10.1039/C7TA04692H
Journal Link | Swinburne Research | | RIS Export

84. **Optical gears in a nanophotonic directional coupler**
Fengchun Zhang, Yao Liang, Heran Zhang, Yong Zhang, Xu-Guang Huang, Baohua Jia and Songhao Liu
Optics Express **25** (10), 10972-10983 (2017); doi: 10.1364/OE.25.010972
Journal Link | Swinburne Research | | RIS Export

83. **Diodelike asymmetric transmission in hybrid plasmonic waveguides via breaking polarization symmetry**
Heran Zhang, Fengchun Zhang, Yao Liang, Xu-Guang Huang and Baohua Jia
Appl. Phys. D **50** (16), 165104 (2017); doi: 10.1088/1361-6463/aa613a
Journal Link | Swinburne Research | | RIS Export

82. **Two-Dimensional CH3NH3PbI3 Perovskite Nanosheets for Ultrafast Pulsed Fiber Lasers**
Pengfei Li, Yao Chen, Tieshan Yang, Ziyu Wang, Han Lin, Yanhua Xu, Lei Li, Haoran Mu, Bannur Nanjunda Shivananju, Yupeng Zhang, Qinglin Zhang, Anlian Pan, Shaojuan Li, Dingyuan Tang, Baohua Jia, Han Zhang and Qiaoliang Bao
ACS Appl. Mater. Interfaces **9** (14), 12759-12765 (2017); doi: 10.1021/acsami.7b01709
Journal Link | Swinburne Research | | RIS Export

81. **Achieving large band gaps in 2D symmetric and asymmetric photonic crystals**
Fei Meng, Yangfan Li, Shuo Li, Han Lin, Baohua Jia and Xiaodong Huang
Journal of Lightwave Technology **35** (9), (2017); doi: 10.1109/JLT.2017.2667681
Journal Link | Swinburne Research | | RIS Export

80. **Application of metal nanowire networks on hydrogenated amorphous silicon thin film solar cells**
Shouyi Xie, Guofu Hou, Peizhuan Chen, Baohua Jia and Min Gu
Nanotechnology **28** (8), (2017); doi: 10.1088/1361-6528/aa53b4
Journal Link | Swinburne Research | | RIS Export

79. **Laser trimming of graphene oxide for functional photonic applications**
Xiaorui Zheng, Han Lin, Tieshan Yang and Baohua Jia
Appl. Phys. D **50** (7), (2017); doi: 10.1088/1361-6463/aa54e9
Journal Link | Swinburne Research | | RIS Export

78. **Chemical Stabilization of 1T Phase Transition Metal Dichalcogenides with Giant Optical Kerr Nonlinearity**
Sherman J. R. Tan, Ibrahim Abdelwahab, Zijing Ding, Xiaoxu Zhao, Tieshan Yang, Gabriel Z. J. Loke, Han Lin, Ivan Verzhbitskiy, Sock Mui Poh, Hai Xu, Chang Tai Nai, Wu Zhou, Goki Eda, Baohua Jia and Kian Ping Loh
JACS **139** (6), 2504-2511 (2017); doi: 10.1021/jacs.6b13238
Journal Link | Swinburne Research | | RIS Export

77. **Two-photon reduction: a cost-effective method for fabrication of functional metallic nanostructures**
Sahar Tabrizi, YaoYu Cao, Han Lin and BaoHua Jia
Science China: Physics, Mechanics and Astronomy **60** (3), (2017); doi: 10.1007/s11433-016-0447-6
Journal Link | Swinburne Research | | RIS Export

76. **Giant third-order nonlinearity from low-loss electrochemical graphene oxide film with a high power stability**
Jun Ren, Xiaorui Zheng, Zhiming Tian, Dan Li, Pu Wang and Baohua Jia
109 (22), (2016); doi: 10.1063/1.4969068
Journal Link | Swinburne Research | | RIS Export

75. **Tunable high-efficiency light absorption of monolayer graphene via Tamm plasmon polaritons**
Hua Lu, Xuetao Gan, Baohua Jia, Dong Mao and Jianlin Zhao
41 (20), (2016); doi: 10.1364/OL.41.004743
Journal Link | Swinburne Research | | RIS Export

74. **Advanced Catalytic and Electrocatalytic Performances of Polydopamine-Functionalized Reduced Graphene Oxide-Palladium Nanocomposites**
Li Fu, Guosong Lai, Deming Zhu, Baohua Jia, Francois Malherbe and Aimin Yu
8 (18), 2975–2980 (2016); doi: 10.1002/cctc.201600532
Journal Link | Swinburne Research | | RIS Export

73. **Ultraviolet plasmonic aluminium nanoparticles for highly efficient light incoupling on silicon solar cells**
Yinan Zhan, Boyuan Cai and Baohua Jia
6 (6), (2016); doi: 10.3390/nano6060095
Journal Link | Swinburne Research | | RIS Export