STAFF PROFILE

Professor Min Gu

Position: Associate Deputy Vice Chancellor RandI

College / Portfolio: Research and Innovation

School / Department: Research Innovation and Entrepreneurship

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Campus: Melbourne City Campus

Contact me about: Research supervision

Professor Min Gu (FAA, FTSE) is Associate Deputy Vice-Chancellor for Research Innovation and Entrepreneurship at RMIT University.

Overview

Professor Min Gu is currently *Associate Deputy Vice-Chancellor for Research Innovation and Entrepreneurship* at Royal Melbourne Institute of Technology University (RMIT University).

In this capacity, he is responsible for strategic oversight of the development of deployment programs as well as developing the research ecosystem to support innovation and entrepreneurship across the University.

Since 2003, he has been a Node Director of the Australian Research Council (http://en.wikipedia.org/wiki/Australian_Research_Council) for Ultrahigh-bandwidth Devices for Optical Systems.

He was a Laureate Fellow of the Australian Research Council, a University Distinguished Professor in optoelectronics and Director of the Centre of Micro-Photonics at Swinburne University of Technology. He was appointed as Pro Vice-Chancellor for International Research Collaboration (2009-2010), Research Innovation (2010), and Research Capacity (2011-2015) at Swinburne. He was also the Foundation Director of the Victoria-Suntech Advanced Solar Facility from 2010-2015. From 2005 - 2010, he was a node leader of the Australian Cooperative Research Centre for Polymers. Previously, he was the Special Advisor to Swinburne's Vice-Chancellor, Acting Deputy Vice-Chancellor (Research and Development) and Vice President, Dean of Science, Acting Dean and Deputy Dean (Research) of Engineering, and a member of the University Council, Academic Board, and Board of Research.

Professor Gu is a world leading authority in the fields of nanophotonics, nanofabrication, biophotonics and multi-dimensional optical data storage (http://en.wikipedia.org/wiki/3D_optical_data_storage) with internationally renowned expertise in three-dimensional optical imaging theory. He is the sole author of two standard reference books, *Principles of Three-Dimensional Imaging in Confocal Microscopes* (World Scientific, 1996), and *Advanced Optical Imaging Theory* (Springer-Verlag, 2000). He is also the first author of *Femtosecond Biophotonics: Core Techniques and Applications* (Cambridge University Press, 2010), and *Microscopic Imaging through Tissue-like Media: Monte Carlo Modelling and Applications* (Springer-Verlag, 2015). He has over 450 papers in internationally refereed journals including *Nature*, *Nature Photonics*, *Nature Communications* and *PNAS*. He is a member of the Editorial Boards of 16 top international journals. Professor Gu has won the external fund of over A$100 m from national and international science foundations, governments and industries.

He served as President (2002–2004) and Vice President (2004–2012) of the International Society of Optics within Life Sciences. He was Vice President of the International Commission for Optics (ICO) (2005–2011). He was the Chair of the ICO Prize Committee and member of the ICO Galileo Galilei

Award Committee and served on the Young Scientist Prize Committee in Optics of the International Union of Pure and Applied Physics. He served on the Board of Directors of the Optical Society of America (Executive committee, the finance committee, Chair of the International Council, Chair of the Working Group on Asia).

He was awarded the Chang Jiang Chair Professorship (Ministry of Education, China (http://en.wikipedia.org/wiki/Ministry_of_Education_(China)), 2007), the World Class University Professorship (Ministry of Education, South Korea (http://en.wikipedia.org/wiki/Ministry_of_Education_(South_Korea)), 2009), the Thousand Talents Award (Ministry of Education, China, 2009), Einstein Professorship (Chinese Academy of Science (http://en.wikipedia.org/wiki/Chinese_Academy_of_Science), 2010), and Laureate Fellowship (Australian Research Council (http://en.wikipedia.org/wiki/Australian_Research_Council), 2010). He is a recipient of the *W. H. Steel Prize* (Australian Optical Society, 2011), the *Ian Wark Medal and Lecture* (Australian Academy of Science, 2014) and the *Boas Medal* (Australian Institute of Physics, 2015). He was a Finalist of the Australian Innovation Competition (2013) and a winner of the People's Choice KCA Research Commercialisation Award (2015).

Professor Min Gu has led an Australian research team in the creation of a breakthrough chip for the nano-manipulation of light, paving the way for next gen optical technologies and enabling deeper understanding of black holes. The research has been published online by the journal *Science:*

> Haoran Ren, Xiangping Li, Qiming Zhang and Min Gu, On-chip noninterference angular momentum multiplexing of broadband light, *Science*, 10.1126/science.aaf1112 (2016). doi: 10.1126/science.aaf1112
>
> - Abstract (http://science.sciencemag.org/content/352/6287/805.abstract?ijkey=SZMswjeWdw7aI&keytype=ref&siteid=sci)
> - Reprint (http://science.sciencemag.org/content/sci/352/6287/805.full.pdf?ijkey=SZMswjeWdw7aI&keytype=ref&siteid=sci)
> - Full text (http://science.sciencemag.org/content/352/6287/805.full?ijkey=SZMswjeWdw7aI&keytype=ref&siteid=sci)

Key Activities

As *Associate Deputy Vice-Chancellor for Research Innovation and Entrepreneurship* at Royal Melbourne Institute of Technology University (RMIT University), Professor Gu:

> leads the strategic change agenda for RMIT's Research Innovation and Entrepreneurship development, utilising external benchmarking and trends to enhance and develop RMIT's ecosystem for Innovation and Entrepreneurship across the Enterprise
>
> drives RMIT's collaboration, translation and commercialisation strategies, including the identification and development of opportunities to enhance RMIT's research impact in line with RMIT's strategic aspirations
>
> leads the overall strategic development of deployment opportunities, partnering with key internal and external stakeholders to develop solutions to global challenges.

In addition, he is a RMIT Distinguished Professor directing a newly established world-class Laboratory of Artificial-Intelligence Nanophotonics.

Qualifications

Professor Gu is an elected Fellow of the Australian Academy of Science (http://en.wikipedia.org/wiki/Fellow_of_the_Australian_Academy_of_Science) (FAA), the Australian Academy of Technological Sciences and Engineering (http://en.wikipedia.org/wiki/Australian_Academy_of_Technological_Sciences_and_Engineering) (FTSE), the Australian Institute of Physics (http://en.wikipedia.org/wiki/Australian_Institute_of_Physics) (FAIP), the Optical Society of America (http://en.wikipedia.org/wiki/Optical_Society) (FOSA) , the International Society for Optical Engineering (http://en.wikipedia.org/wiki/International_Society_for_Optical_Engineering) (FSPIE), the Institute of Physics (http://en.wikipedia.org/wiki/Institute_of_Physics) (FInstP), and the International Institute of Electric and Electronic Engineers (FIEEE).

Professor Gu gained a PhD degree in optics from the Chinese Academy of Sciences. He was awarded the prestigious Australian Research Fellowship and Australian Laureate Fellowship of the Australian Research Council in 1991 and 2010, respectively.

Industry Experience

Professor Min Gu is a visionary, strategic and inspiring university senior executive, an outstanding world-class research leader as well as an innovative entrepreneur.

Professor Gu's ground-breaking research work has led to significant societal impacts as exemplified by more than 2500 media reports including Nature, Nature Photonics, Nature Nanotechnology, Nature Materials, Nature Asia-Materials, Time Magazine, MIT Technology Review, Cosmos, BBC, Wall Street Journal Biophotonics International, Photonics Spectra, Laser Focus World, Economists, Australian Optical Society News, The Australian, The Age, The Herald Sun, Campus Review, Conversation, Australasian Science and ABC TV and Radio. His inventions have received more than 400,000 online social media comments, leading to the establishment of six spin-off companies supported by Federal Government's COMET Grants, and industrial joint R&D projects with international leading companies. His leadership role in innovation has been widely recognised as a Finalist (information and communication technology) of The Australian Innovation Challenge Award and he is the recipient of the Ian Wark Medal of the Australian Academy of Science for his outstanding contributions (solar energy, information photonics and biophotonics) to the prosperity of Australia.

Professor Gu has established wide research business networks by playing a significant leading role on many national councils/boards/committees:

- Member, Prime Minister's Trade Delegation (Education) to China
- Member, Australia-US Science and Technology Joint Commission Committee (Department of Innovation, Industry, Science and Research) (DIISR)
- Member, Australia-China Science and Technology Commission Committee (DIISR)
- Member, Excellence in Research for Australia (ERA) Evaluation Committee (ARC)
- Member, Board of the ARC Centre of Excellence-CUDOS
- Member, Steering Committee of the Cooperative Research Centre (CRC) for Polymers
- Member, Strategic Initiative Committee of the ARC and NHMRC Network on Fluorescence Applications in Biotechnology and Life Sciences
- Member, Major National Research Facilities Program Evaluation Committee (Department of Education, Science and Training)

Member, International Science Linkages Assessment Panel (DIISR)

Member, Sectional Committee of Applied Physics and Engineering Science and the International Committee (the Australian Academy of Science)

Member, Council of the Australian Optical Society (AOS)

President, Council of The Federation of Chinese Scholars in Australia (Chair of its Advisory Board)

Member, Selection Panel for the Victoria Prize and Victoria Fellowships (Department of Business and Innovation, Government of Victoria, Australia)

Member, Victoria India Doctoral Scholarship (VIDS) Judging Panel (Department of State Development, Business and Innovation, Government of Victoria, Victoria, Australia

Executive Director, Victorian Government's Victoria-Suntech Advanced Solar Facility

Publications

Yue, Z.,Xue, G.,Liu, J.,Wang, Y.,Gu, M. (2017). Nanometric holograms based on a topological insulator material (http://researchbank.rmit.edu.au/list/?cat=quick_filter&form_name=adv_search&search_keys%5Bcore_66%5D=2006074195) In: *Nature Communications*, 8, 1 - 4

Yan, W.,Zhikuo, T.,Gu, M.,Richards, B. (2017). Photocurrent enhancement of ultrathin front-textured crystalline silicon solar cells by rear-located periodic silver nanoarrays (http://researchbank.rmit.edu.au/list/?cat=quick_filter&form_name=adv_search&search_keys%5Bcore_66%5D=2006076860) In: *Solar Energy*, 150, 156 - 160

Lu, H.,Gu, M. (2017). Chip-integrated plasmonic Schottky photodetection based on hybrid silicon waveguides (http://researchbank.rmit.edu.au/list/?cat=quick_filter&form_name=adv_search&search_keys%5Bcore_66%5D=2006077380) In: *Applied Physics B: Lasers and Optics*, 123, 1 - 8

Thekkekara, L.,Gu, M. (2017). Bioinspired fractal electrodes for solar energy storages (http://researchbank.rmit.edu.au/list/?cat=quick_filter&form_name=adv_search&search_keys%5Bcore_66%5D=2006077588) In: *Scientific Reports*, 7, 1 - 9

Cumming, B.,Schroder-Turk, G.,Debbarma, S.,Gu, M. (2017). Bragg-mirror-like circular dichroism in bio-inspired quadruple-gyroid 4srs nanostructures (http://researchbank.rmit.edu.au/list/?cat=quick_filter&form_name=adv_search&search_keys%5Bcore_66%5D=2006077602) In: *Light: Science and Applications*, 6, 1 - 8

Xie, S.,Hou, G.,Chen, P.,Jia, B.,Gu, M. (2017). Application of metal nanowire networks on hydrogenated amorphous silicon thin film solar cells (http://researchbank.rmit.edu.au/list/?cat=quick_filter&form_name=adv_search&search_keys%5Bcore_66%5D=2006077618) In: *Nanotechnology*, 28, 1 - 8

Zou, C.,Ren, G.,Hossain, M.,Nirantar, S.,Withayachumnnankul, W.,Ahmed, T.,Bhaskaran, M.,Sriram, S.,Gu, M.,Fumeaux, C. (2017). Metal-loaded dielectric resonator metasurfaces for radiative cooling (http://researchbank.rmit.edu.au/list/?cat=quick_filter&form_name=adv_search&search_keys%5Bcore_66%5D=2006079305) In: *Advanced Optical Materials*, 5, 1 - 7

Chen, X.,Fang, J.,Zhang, X.,Zhao, Y.,Gu, M. (2017). Optical/electrical integrated design of core-shell aluminum-based plasmonic nanostructures for record-breaking efficiency enhancements in photovoltaic devices (http://researchbank.rmit.edu.au/list/?cat=quick_filter&form_name=adv_search&search_keys%5Bcore_66%5D=2006080480) In: *ACS Photonics*, 4, 2102 - 2110

Dai, Q.,Ouyang, M.,Yuan, W.,Li, J.,Guo, B.,Lan, S.,Liu, S.,Zhang, Q.,Lu, G.,Tie, S.,Deng, H.,Xu, Y.,Gu, M. (2017). Encoding random hot spots of a volume gold nanorod assembly for

ultralow energy memory (http://researchbank.rmit.edu.au/list/?cat=quick_filter&form_name=adv_search&search_keys%5Bcore_66%5D=2006080483) In: *Advanced Materials*, 29, 1 - 8

Barbiero, M.,Castelletto, S.,Gan, X.,Gu, M. (2017). Spin-manipulated nanoscopy for single nitrogen-vacancy center localizations in nanodiamonds (http://researchbank.rmit.edu.au/list/?cat=quick_filter&form_name=adv_search&search_keys%5Bcore_66%5D=2006080555) In: *Light: Science and Applications*, 6, 1 - 7

View more outputs from this academic in the RMIT Research Repository (http://researchbank.rmit.edu.au/list/author_id/1261332)

Grants

Optically-activatable nanolithography for ultralow energy long data storage. Funded by: *ARC Discovery Projects 2017 from (2017 to 2019)*

Light-matter interactions spanning length, time, and frequency (Administered by Monash University). Funded by: *ARC Linkage Infrastructure, Equipment and Facilities (LIEF) Grant 2017 from (2017 to 2017)*

Investigation into a graphene ultra-flat lens array for silicon solar cells breaking the Shockley-Queisser efficiency limit. Funded by: *ARC Discovery Grant 2014 from (2014 to 2016)*

High performance solar cell technology with integrated nanoplasmonic thin film and thermal management systems. Funded by: *CSIRO Science and Industry Endowment Grant pre-2014 from (2013 to 2017)*

ARC Centre of Excellence for Ultra-high bandwidth Devices for Optical Systems (CUDOS). Administered by University of Sydney.. Funded by: *ARC Centre of Excellence via other University pre-2014 from (2011 to 2018)*

Supervisor Projects

Note: Supervision projects since 2004

2 PhD Completions
7 PhD Current Supervisions