

PERSONAL INFORMATION

Name: Lay-Kee Ang (Ricky)
Nationality: Singaporean (Married with 2 children)
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Fellow, IEEE (2022)
Fellow, UK Institute of Physics IOP (2020)
IEEE NPSS Distinguished lecturer (2018)
Singapore Public Administration Medal (Bronze) (2017)
Top 2% Scientists (Applied Physics) by Stanford University report (since 2021)
Jury Panel (Physical Science), Falling Walls (2022, 2023) [link](#)
Journal editorial board member : AIP Physics of Plasmas, IOP Nano Express

EDUCATION

LANL Director Postdoctoral Fellowship, 9/1999 – 8/2001
Applied Physics Division,
Los Alamos National Laboratory (LANL), USA

Ph.D. (Plasma Physics and Applied Physics), June 1999, MSc June 1996
Department of Nuclear Engineering and Radiological Sciences,
University of Michigan, Ann Arbor, MI 48109 USA
(Ranked as the #1 Graduate School in Nuclear Engineering in USA)

Graduate Student Research Assistant, 9/1994 – 7/1999
Nuclear Engineering and Radiological Sciences (NERS)
University of Michigan, Ann Arbor, USA

B.Sc., June 1994

Nuclear Engineering and Engineering Physics (now as Engineering and System Science)
National Tsing Hua University (NTHU), Hsinchu, Taiwan, R.O.C.

Microwave Linear Accelerators course, by USA Particle Accelerator School, 1999
Certificate of MAGIC Particle-In-Cell code, by Mission Research Corporation, 1997

SUTD APPOINTMENTS

Associate Provost (International Relations)	4/2023 – now
Ng Teng Fong Chair Professor (Asia Engagement)	6/2016 – now
Professor, SMT and EPD	1/2016 – now
Founding Head*, Science, Mathematics & Technology (SMT)	6/2018 – 3/2023
Acting Head*, Engineering Product Development (EPD)	9/2017 – 6/2019
<i>* Reporting to Provost (SMT = 34 faculty members, EPD = 25 faculty members)</i>	
Director, Office of Graduate Studies, SUTD	1/2015 – 12/2017
SUTD PhD program Director (setting up SUTD PhD programme)	3/2012 – 12/2014
Associate Professor (tenured), EPD, SUTD	11/2011 – 12/2015

NTU APPOINTMENTS

Visiting Associate Professor, NTU	11/2011 – 5/2013
Assistant and tenured Associate Professor, Division of Microelectronics, School of EEE Nanyang Technological University (NTU), Singapore	9/2001 – 10/2011
Director, NTU-TUM self-finance MSc (Microelectronics)	9/2009 – 6/2011
Associate Fellow, Institute of Advanced Studies, NTU	2007 – 2010
NTU Hall Fellow (Hall 2)	7/2005 – 10/2011
Adjunct Professor	4/2006 – 10/2011
Computational Electronics and Photonics (CEP) group Institute of High-Performance Computing (IHPC), A*STAR	

VISITING POSITIONS

Visiting Professor, National Central University, Taiwan	2010
Visiting Scientist, University of Michigan, USA	2007
Visiting Scientist, Los Alamos National Laboratory, USA	2003 – 2006, 2011

NATIONAL AND NOTABLE UNIVERSITY LEVEL SERVICES

MOE Advanced University Leaders Programme (AULP) committee	7/2023 – now
SUTD Risk Management Steering Committee (RMSC), EXCO	5/2023 – now
Advisory Board, Anderson Serangoon Junior College	4/2023 – now
Advisor Board, School of Math and Science, Singapore Poly	7/2019 – now
Aviation Studies Institute (ASI) Council, SUTD and CAAS	4/2019 – now
SUTD Short Immersion Trip Committee (SIT Com), Chair	3/2019 – now
SUTD-LTA Transport Research Centre, EXCO member	4/2018 – now
Steering committee, Singapore Science and Engineering Fair (SSEF)	2017 – 2023
Singapore 6 th CROSS-SECTOR LEADERS PROGRAMME (CSLP)	1/2019
MOE-AU Scholarship committee for SUTD	2016 – 2022
SUTD university curriculum Committee (UCC)	2017 – 2022
MOE University Engineering Scholarship Interview panel (for Poly)	2021 – 2022
Advisor Board, School of MAE, Singapore Poly	7/2012 – 6/2021
Learning and Research Governance Sub-Committee under IT	2018 – 2020
SUTD committee for Library and information Service	6/2015 – 5/2019
SUTD hall fellow, Blue stair-case student hostel	5/2012 – 12/2014
NTU MOE Autonomous Universities Milestone Program	12/2012
NTU MOE Syllabus Review Committee of A-level Physics	8/2009
NTU WKD representative appointed by NTU office of research	9/2006
NTU representative for NRF SAB liaison officer	4/2006

SELECTED PROFESSIONAL SERVICES

Fellow (2022)	USA IEEE	1995 – now
Fellow (2020)	UK Institute of Physics	2020 – now
Committee H	URSI (UNION RADIO-SCIENTIFIQUE INTERNATIONALE)	2017 – now
Senior member	Institution of Engineers Singapore (IES)	2017 – now
Vice Chair	USA IEEE NPSS PSAC EXCO	2023 – now
ExCom member	USA IEEE NPSS PSAC EXCO	2020 – 2022

Chair	Singapore IEEE NPSS chapter	2022 – now
Vice chair / others	Singapore NPSS chapter	2015 – 2021
Founding Chair	Singapore IEEE NPSS chapter	2013 – 2014
Editorial Board	AIP – Physics of Plasmas	2024 – now
Jury Panel	Falling Walls Prize (Physical Science)	2022 – now
Editorial Board	IOP Nano Express journal	2020 – now
Guest Editor	IEEE Transaction on Plasma Science	2016 – now
Editorial Board	MPDI – Plasma journal	2017 – 2018
Editorial board	The Open Journal of Plasma Physics	2007 – 2015

INDIVIDUAL RESEARCH AWARDS

Top 2% Scientist (0.5% Applied Physics, 2021) by Stanford U	Oct 2023
Top 2% Scientist (0.6% Applied Physics, 2021) by Stanford U	Oct 2022
Fellow, IEEE	Nov 2021
Top 2% Scientists (1.1% Applied Physics, 2020) by Stanford U	Oct 2021
Fellow, Institute of Physics, UK	June 2020
IEEE NPSS Distinguished Lecturer	2018
The Public Administration Medal (Bronze), Singapore	2017
SUTD Faculty Excellence Award (Professional Service)	2015
USA AFOSR Window of Science (WOS) Travel Award (4X)	7/2018, 11/2015, 1/2012, 3/2007
USA ONR Global Visiting Scientist Award (2X)	7/2017, 11/2009
American Physical Society DPP annual meeting, Invited Speaker	2005, 2012, 2022
Finalist, 2010 NTU-EEE Teaching Excellent Award	2010
World Knowledge Dialogue (WKD) Young Scientist Award	Sep 2006
USA DOE LANL Director Postdoctoral Fellowship	1999 to 2001
Excellent Foreign Student Award by Taiwan, R.O.C.	1991 and 1993
Outstanding Academic Award by NTHU, Taiwan, R.O.C.	1991 and 1993

GROUP Members (PhD students and postdocs) AWARDS

International level

IEEE NPSS PSAC Igor Alexeff Outstanding Student: Mei Er Pan (PhD)	Nov 2020
IEEE NPSS Graduate Fellowship: Shijun Liang (PhD)	March 2016
IEEE IVNC Shoulder-Gray-Spindt award: Shijun Liang (PhD)	July 2015
USA OCPA-APS best poster award-first in plasma: Yingbin Zhu (PhD)	June 2014
USA OCPA-APS best poster award-third in photonics: Kelvin Ooi (PhD)	June 2014
IEEE NPSS Graduate Fellowship: Yingbin Zhu (PhD)	April 2014
IEEE ICOPS Best paper award (finalist): Wu Lin (PhD)	June 2007

National or University level awards

SUTD Best PhD Dissertation Award: Shijun Liang (PhD)	Oct 2018
SUTD Research excellent award (#1): Yee Sin Ang (Postdoc)	July 2017
Industry Award, SUTD industry workshop: Shijun Liang (PhD)	July 2017
Industry Award, SUTD industry workshop: Huang Wei (PhD)	July 2017
Institute of Physics Singapore best poster award: Yee Sin Ang (postdoc)	March 2016
SUTD Research excellence award (top 3): Shijun Liang (PhD)	July 2016

RESEARCH INTERESTS

His research interests are in the development of theoretical scaling laws and models for broad areas in Applied Physics, Electrical Engineering, and computational modeling. His current research focuses on electron emission in applied physics, charge injection and transport of electrical contacts, quantum-materials based electronics and photonics, AI-based design, and fractional modeling in complexity. His research projects had been funded by Singapore (NRF, A*STAR, MOE, MINDEF) and the US Department of Defense (AFOSR and ONR). Total funding that he had secured as PI is about S\$15M (Singapore) and US\$615k (USA).

He is a pioneer in the development of the quantum scaling law for Child-Langmuir law and new electron emission law (thermionic, field and photoemission) for novel two-dimensional (2D) materials and operation at ultrashort pulse time scale. These research works have constituted his multiple fellowships: fellow of USA IEEE, a fellow of UK Institute of Physics, and IEEE NPSS Distinguished Lecturer.

12 of his former group members are currently faculty members (2 in Singapore, 1 in Malaysia, 1 in USA, 1 in Pakistan and 7 in China). 4 of his junior group members (Research Assistants or MEng student) continued (completed or ongoing) their subsequent PhD in top USA universities (MIT, Harvard, Stanford, and U of Michigan). Out of his 15 graduated PhD students, 7 of them are local (4 SC and 3 SPR).

Interdisciplinary Education (Technology + Design) to nurture future STEM talents

He has a strong belief that future education should be interdisciplinary and promoting self-directed learning on fast evolving skills that a broad and inspiring curriculum (beyond classroom) is more important to prepare versatile STEM talents, which are important for future economy and sustainability problem for the world and Singapore.

Since 2022, he has expanded his time to promote STEM careers by conducting a STEAM x Design workshop funded by MOE. This effort eventually became a component of the MOE Engineering Technology Research Programme (ETRP), where the first batch of 200 scholars have been presented by Minister of Education in NUS on 24 July 2023. The 2023 STEAM x Design workshop for 100 JC students can be found in this [video](#).

He also secured a recent MOE development grant as the PI (started in April 2023) to develop 6 suitable design projects for students (from Sec 3 to JC1, 14 to 16 years old) to promote STEAM x D hand-on interdisciplinary learning.