

PHILIP W. T. PONG

Ph.D. (Cambridge), FIET, FEI, FIMMM, FNS, CEng, CPhys, Chartered Energy Engineer, R.P.E.

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New Jersey Institute of Technology, Newark, NJ 07102, United States

- **Associate Professor, New Jersey Institute of Technology, United States**
- **ACM Distinguished Speaker (2019 – 2022)**
- **Young Engineer of the Year (awarded by Hong Kong Institution of Engineers)**
- **Over 130 SCI journal publications, ~200 conference publications, ~2300 citations, h-index=25, 4 patents (1 granted, 3 pending)**
- **Over 50 invited talks including 5 plenary speeches and 9 keynote speeches**
- **Graduated 14 PhD and 6 master students (3 by research). Supervising 4 PhD students.**
- **Research papers selected as journal cover page, best paper, best poster**
- **Ph.D. (University of Cambridge, full Cambridge scholarship)**
- **Fellow, The Institution of Engineering and Technology (FIET)**
- **Fellow, The Energy Institute (FEI)**
- **Fellow, The Institute of Materials, Minerals and Mining (FIMMM)**
- **Fellow, The NANOSMAT Society (FNS)**
- **Senior Member, IEEE**
- **Chartered Engineer (CEng)**
- **Chartered Physicist (CPhys)**
- **Chartered Energy Engineer**
- **Registered Professional Engineer (Electrical, Electronics, Energy) (R.P.E.)**
- **Corporate Member of HKIE (Electrical, Electronics, Energy) (MHKIE)**

Research interest: contactless sensing technologies for smart grid and smart living, sensor data analytics with computational intelligence, fabrication and development of magnetic magnetoresistive sensors

Education

2002-2005	Nanoscience Centre, University of Cambridge, United Kingdom (full scholarship from Cambridge)	Ph.D. in Engineering
1999-2002	The University of Hong Kong, Hong Kong First Class Honours (1 st in Dean's Honours List)	Bachelor in Electrical and Electronic Engineering

Research and Teaching Experience

Jan 2021 – Present	Department of Electrical and Computer Engineering, New Jersey Institute of Technology, United States	Associate Professor
Jun 2018 – Nov 2019	Department of Electrical Engineering, Princeton University, United States	Visiting Fellow
Jul 2014 – Dec 2020	Department of Electrical and Electronic Engineering, University of Hong Kong, Hong Kong	Associate Professor
Aug 2008 – Jun 2014	Department of Electrical and Electronic Engineering, University of Hong Kong, Hong Kong	Assistant Professor
Nov 2005 – Jul 2008	Magnetic Materials Group, National Institute of Standards and Technology (NIST), United States	Postdoctoral Researcher
Fall 2006	Department of Electrical and Computer Engineering, University of Maryland College Park	Visiting Lecturer

Major External Competitive Research Grants

GRF, RGC	PI	1 Nov 2017	HK\$600,000	On-going	31 Oct 2020
“Fault classification of distribution power cables by detecting decaying DC components in fault currents with magnetic sensing: a robust non-invasive technique without precalibration” (RGC Project No. 17204617)					
ITF (Tier 3)	PI	1 Jul 2015	HK\$1,393,800	Completed	31 Dec 2016
“Electric vehicle (EV) sensor parts: development of an innovative multifunctional high-speed rotation, temperature and current sensor for monitoring critical components in EVs” (ITS/214/14)					
ITF (Tier 3)	PI	1 Nov 2013	HK\$997,050	Completed	30 Oct 2015
“Development of a Point-Of-Care Early Liver Cancer Detector Using Magnetic Immunoassay (MIA)” (ITS/104/13)					
ITF (Tier 3)	Co-I	1 Mar 2014	HK\$688,505	Completed	31 Aug 2015
“Detection of microwave radiation by nanoscale spintronic device” (ITS/171/13)					
RGC – Area of Excellence	Co-I	1 Jan 2010	HK\$90,008,000	On-going	31 Dec 2020
“Theory, Modeling, and Simulation of Emerging Electronics” (AoE/P-04/08)					
GRF, RGC	PI	12 Oct 2011	HK\$473,333	Completed	11 Apr 2014
“Low-frequency noise study on junction geometry of magnetic tunnel junction (MTJ) sensors for enhancing sensitivity” (RGC Project No. HKU704911P)					
ITF (Tier 3)	PI	14 Nov 2012	HK\$874,000	Completed	13 Nov 2014
“Operation-state monitoring and energization-status identification of underground electricity cables with magnetoresistive sensors” (ITS/112/12)					

Four Most Important Publications (past three years)

K. Zhu, Philip W. T. Pong, “Fault Classification of Power Distribution Cables by Detecting Decaying DC Components with Magnetic Sensing”, IEEE Transactions on Instrumentation and Measurement (accepted)

Zheng et al., “Magnetoresistive Sensor Development Roadmap (Non-Recording Applications)”, IEEE Transactions on Magnetics, vol. 55, 0800130 (2019)

K. Zhu, W. Han, W. K. Lee, and Philip W. T. Pong. “On-Site Non-Invasive Current Monitoring of Multi-Core Underground Power Cables with a Magnetic-Field Sensing Platform at a Substation”, IEEE Sensors, vol. 17, 1837 (2017)

K. Zhu, W. K. Lee, and Philip W. T. Pong. “Non-Contact Capacitive-Coupling-Based and Magnetic-Field-Sensing-Assisted Technique for Monitoring Voltage of Overhead Power Transmission Lines”, IEEE Sensors, vol. 17, 1069 (2016)

Patents

U. S. Patent Application 15/831558: “Apparatus and method for DC-component-based fault classification of three-phase distribution power cables with magnetic sensing”, granted.

China Patent Application 201811479765.2: “Apparatus and method for fault classification of three-phase distribution power cables”, filed December 2018. Patent Pending

China Patent Application 201711246907.6: “A multifunctional sensor protocol for measuring rotation speed, temperature and current in electric vehicles”, filed December 2017. Patent Pending

PCT Patent Application PCT/IB2019/057684: “Anomaly Detection in Energy Systems”, filed September 2019. Patent Pending

University Administrative Experiences

University – Discontinuation Committee

Faculty – Engineering Admission Committee

Faculty – Director of Summer Undergraduate Internship Program in Taiwan

Faculty – High School Ambassador for Engineering
 Department – MSc Program Co-Director
 Department – MSc and Undergraduate Admission
 Department – Summer Camp Coordinator
 Department – EE Program Committee
 Department – Minor Options and Double Degree Coordinator
 Department – Safety Committee
 Department – Research Postgraduate Student Review Panel
 Department – Staff-Student Consultative Committee

Editorship of SCI Journals

2021 – Present *IEEE Access* – Associate Editor
 2007 – Present *International Journal of Modern Physics B* – Editorial Board Member
 2007 – Present *Modern Physics Letters B* – Editorial Board Member
 2016 – Present *IEEE Magnetics Letters* – Editorial Review Board
 2016 – Present *IEEE Transactions on Magnetics* – Editorial Board Member

Editorship of non-SCI Journals

2016 – Present *International Journal of Smart Grid and Clean Energy* – Editorial Board Member

External scientific grant reviewer

2020 Romania – Victor Babes University of Medicine and Pharmacy, Timisoara
 2017 Singapore – Science & Engineering Research Council, Agency for Science, Technology and Research (A*STAR)
 2015 Singapore – Nanyang Technological University

Selected Services to Professional Organizations and Societies (past three years):

Jan 2015 – Present	IEEE Magnetics Society – Administrative Committee	Publicity Chair
Dec 2020 – Present	IEEE Magnetics Society – Standard Subcommittee, current measurement standard on high-voltage power cable based on magnetic field sensing	Convenor
2017 – 2018	IEEE Magnetics Society – Achievement Award Subcommittee	Member
Jan 2015 – Dec 2020	IEEE Magnetics Society - Hong Kong Chapter	Treasurer
Apr 2014 – Dec 2018	IEEE Magnetics Society – Technical Committee, Taskforce on magnetoresistive sensor roadmap development (non-recording applications)	Convenor
Jan 2009 – Dec 2014	IEEE Magnetics Society - Hong Kong Chapter	Founding Chairman
Feb 2009 – Present	IEEE Magnetics Society - Technical Committee	Member
Aug 2017 – Present	Hong Kong Institution of Engineers – Education & Examinations Committee	Appointed Member
Feb 2017 – Present	Hong Kong Institution of Engineers - Electronics Disciplinary Advisory Panel	Appointed Member

Selected Public Services in Hong Kong (past three years):

May 2018 – May 2020 Security Bureau – Civil Celebrant of Marriages Appointment Appeal Board: Deputy Chairperson
 Sep 2016 – Aug 2018 Office of the Communications Authority – Telecommunications Regulatory Affairs Advisory Committee: Member
 Jun 2016 – May 2018 Security Bureau – Civil Celebrant of Marriages Appointment Appeal Board: Member

Dec 2015 – Nov 2018, Dec 2018 – Nov 2021 Planning and Lands Branch Development Bureau Government Secretariat – Appeal Tribunal Panel (Section 45 of the Buildings Ordinance): Member

Jan 2013 – Jan 2015, Jan 2015 – Jan 2017, Jan 2017 – Jan 2019 Development Bureau – Appeal Board Panel (under Construction Workers Registration Ordinance): Member

Apr 2013 – Mar 2015 Education Bureau – Electrical and Mechanical Services Training Board (Vocational Training Council): Member

Apr 2013 – Apr 2015, Apr 2015 – Mar 2017 Education Bureau – Committee on Technologist Training (Vocational Training Council): Member

Selected Services in International Conferences (past three years):

April 2021	SMARTGREENS 2021 – 10 th International Conference on Smart Cities and Green ICT Systems (Virtual)	International Program Committee
April 2021	IEEE International Magnetics Conference (Virtual), Lyon, France	Publicity Chair
May 2020	IEEE International Magnetics Conference, Montreal, Canada	Publicity Chair
May 2020	SMARTGREENS 2020 – 9 th International Conference on Smart Cities and Green ICT Systems, Prague, Czech Republic	International Program Committee
Jan 2020	2 nd International Conference on Smart Grid and Green Energy, Bali, Indonesia	Program Chair
Dec 2019	IEEE Power & Energy Society (PES) Asia-Pacific Power & Energy Engineering Conference APPEEC 2019, Hong Kong	Technical Program Committee
Dec 2019	3 rd Asia Conference on Machine Learning and Computing, Hong Kong	Local Chair
Nov 2019	Annual Conference on Magnetism and Magnetic Materials, Las Vegas, USA	Publicity Chair
Jan 2019	Joint MMM-Intermag Conference, Washington DC, United States	Publicity Chair
Nov 2018	3 rd International Conference on New Energy and Applications, Singapore	Technical Program Chair
Oct 2018	5 th International Conference on Advances in Electronics Engineering, Kuala Lumpur, Malaysia	Technical Program Chair
Jul 2018	International Conference on Magnetism (ICM), San Francisco, United States	Publicity Chair, Program Committee
May 2018	International Conference on Bioenergy and Clean Energy	Program Chair
May 2018	IEEE International Magnetics Conference, Singapore	Publicity Chair, Program Committee
Mar 2018	SMARTGREENS 2018 – 7 th International Conference on Smart Cities and Green ICT Systems, Funchal, Portugal	Program Committee
Nov 2017	2 nd International Conference on New Energy and Applications (ICNEA 2017), Tokyo, Japan	Technical Program Chair

Oct 2017	4th International Conference on Advances in Electronics Engineering (ICAEE 2017), Hong Kong	Technical Chair	Program
Oct 2017	9th International Conference on Software Technology and Engineering (ICSTE 2017), Hong Kong	Technical Chair	Program
Nov 2017	62 nd Annual Conference on Magnetism and Magnetic Materials, Pittsburgh, USA	Publicity Chair	
Apr 2017	IEEE International Magnetics Conference, Dublin, Ireland	Program Committee	
Apr 2017	SMARTGREENS 2017 – 6 th International Conference on Smart Cities and Green ICT Systems, Porto, Portugal	Program Committee	