Professors

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Professor
B.Eng, PhD (Nottingham), CEng, CPhys, MIEEE, MSPIE, MOSA

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Research Interests:

Nano-materials for photonic and sensor applications, Surface plasmon resonance biosensors, Nanophotonics, Optical instrumentation, Lab-on-a-d

Research Highlights

Resume of Career

Professor Aaron H.P. Ho received his B.Eng. and Ph.D. in Electrical and Electronic Engineering from the University of Nottingham in 1986 and 1990 respectively. He has held academic positions as Associate Dean of Engineering, CUHK (2007-2010), Assistant Professor in the Department of Physics and Materials Science, City University of Hong Kong (1996-2002).

Prior to returning to Hong Kong, Aaron was with Hewlett-Parkard (1994-1996). His responsibility was process development for high-volume production of InGaAs PIN diodes and InGaAsP buried multiquantum well heterostructure 1300/1550nm lasers. His industrial experience covers metal-organic vapour phase epitaxial growth (MOVPE), wafer scale InP device fabrication and packaging of telecom photonic products.

After completing his Ph.D. thesis entitled Zinc Diffusion Enhanced Disordering in AlAs-GaAs Superlattices, Aaron did 5 years of post-doc (1989-1994) at University of Nottingham and University of Leeds, UK. He was involved in two research projects: (i) giant magneto-resistance of Co/Cu superlattices prepared by molecular beam epitaxy (MBE), (ii) laser ultrasound generation and detection for non-destructive evaluation of ceramic coatings (sponsored by Rolls-Royce aircraft engine division). The intensive exposure in solid-state physics, thin-film material science and laser optics has been very instrumental in preparing Aaron's subsequent academic career.

Aaron's publication covers 120 peer-reviewed journal papers, 120 conference presentation, 4 book chapters, 5 US and 16 Chinese patents.

Current Research Interests

Nano-materials for photonic and sensor applications, Surface plasmon resonance biosensors, Nanophotonics, Optical instrumentation, Lab-on-a-disc

Highlights of Recent Achievements

- Keynote Presentation at IEEE Sensor 2011, Limerick, Ireland, 28-31 October 2011.
- RGC Collaborative Research Fund: "Functional Plasmonics with Energy Localization for Sensing, Nano-Actuation and Optoelectronics" (HK$5M), 2013-2016.

Taught Courses

- Basic Circuit Theory
- Microelectronic Devices
- Digital Circuits and Systems
- Engineering Electronics
- Understanding Electronics
- Biophotonics
- Bionanotechnology

Honors and Awards

- Department Exemplary Teaching Award in 2005-6 and 2007-8.
- Team supervisor of CUHK's Vice Chancellor's Cup of Student Entrepreneurship (VCCE) competition (2007, 2009, 2010); the 2007 team won the VCCE Champion and subsequently the 2nd Runner-up of the Hong Kong Youth Development Council E-Challenge Business Plan Competition, and "Best Emerging Market Award" in the Moot Corp Competition held in Univ. of Texas, Austin.
- Distinguished Service Award, IEEE ED/SSC Hong Kong Chapter.

External Service in Recent 3 Years

- Council Member of The Technological and Higher Education Institute of Hong Kong (THEi), Vocational Training Council (VTC) (2012-To date).
- Advisory Board Member of VTC Higher Education Advisory Committee, Vocational Training Council (VTC) (2012-To date).
- Chairman (2010-12) and Vice Chairman (2012-To date) of Hong Kong Optical Engineering Society.
- Member of Biomedical Engineering Discipline Committee, HKIE (2007-To date).
- Honorary Professor, College of Optoelectronic Engineering, Nanjing University of Telecommunications and Posts, China (2011-To date).
- Visiting Professor, College of Electrical and Electronic Engineering, University of Nottingham, UK (2012-To date).
- Project Proposal Advisor, Hong Kong Student Science Project Competition (2003-To date).
- Organizer of Conferences/Workshops:
  - General Co-Chair, 7th International Conference on Nanophotonics, 17-20 May 2013, Hong Kong.
  - Symposium Chair, Plasmonics and Metamaterials, Photonics Global 2012, 13-16 December 2012, Singapore.
  - General Co-Chiar, Hong Kong Optical Engineering International Conference, 25-26 November 2011.
  - Symposium Chair, Plasmonics and Metamaterials, Photonics Global 2010, 14-16 December 2010, Singapore.
  - Symposium Co-Chair,Workshop on Plasmonics Technology and Applications, The 3rd International Photonics and Opto Electronics Meeting (POEM 2010), 3-5 November 2010, Wuhan, China.

Publications for the past 3 years

1. Jacky F.C. Loo, P.M. Lau, **H.P. Ho**, S.K. Kong, An Aptamer-based Bio-barcode Assay with Isothermal Recombinase Polymerase Amplification for Cytochrome-c Detection and Anti-cancer Drug Screening, Talanta (in press).
2. Yonghong Shao, Yan Li, Dayong Gu, Kai Zhang, Junle Qu, Jianan He, Xuejin Li, Shu-Yuen Wu, **Ho-Pui Ho**, Michael G. Somekh, and Hanben Niu, Wavelength-multiplexing phase-sensitive surface plasmon imaging sensor, Optics Letters, 38 (2013), 1370-1372.
3. C. Wang, **H.P. Ho** and P. Shum, High Performance Spectral-Phase Surface Plasmon Resonance Biosensors based on Single- and Double-layer Schemes, Optics Communications 291 (2013), 470-475.
4. Y.H. Huang, **H.P. Ho**, S.K. Kong, A.V. Kabashin, Phase-Sensitive Surface Plasmon Resonance Biosensors: Methodology, Instrumentation and Applications, Annalen der Physik 524 (2012), 637-662.
5. X.H. Li, H.F. Lu, W.E.I. Sha, **H.P. Ho** and W.C.H. Choy, Efficiency Enhancement of Organic Solar Cells by Using Shape Dependent Broadband Plasmonic Absorption in Metallic Nanoparticles, Advanced Functional Materials DOI:10.1002/adfm.201202476.
6. Shuwen Zeng, Xia Yu, Wing-Cheung Law, Yating Zhang, Rui Hu, Xuan-Quyen Dinh, **Ho-Pui Ho**, Ken-Tye Yong, Size dependence of Au NP-enhanced surface plasmon resonance based on differential phase measurement, Sensors & Actuators B, 176 (2013), 1128-1133.
7. Heifei Lu, Zhiwen Kang, Haixi Zhang, Zhili Xie, Guanghui Wang, Xia Yu, Huiyu Zhang, Ken-Tye Yong, Perry Ping Shum, **Ho-Pui Ho**, Synthesis of silver nanodecahedrons and their application for core-shell surface enhanced Raman scattering (SERS) tags, RSC Advances 3 (2013), 966-974.
8. Zhiwen Kang, Haixi Zhang, Haifei Lu, and **Ho-Pui Ho**, Double-layered metal nano-strip antennas for sensing applications, Plasmonics DOI 10.1007/s11468-012-9388-7. (27 May 2012).
9. K. Cheung, H. Chen, Q.L. Chen, J. Wang, H.P. Ho, C.K. Wong, S.K. Kong, CTAB-coated gold nanorods elicit allergic response through degranulation and cell death in human basophils, Nanoscale, 4 (2012), 4447-4449.
10. Xing Lu, Chi Ming Lee, Shu Yuen Wu, **Ho Pui Ho** and Kei May Lau, GaN-based S0-wave Sensors on Silicon for Chemical and Biological Sensing in Liquid Environments, IEEE Sensors Journal 13 (2013), 1245-1251.
11. Zhiwen Kang, Haixi Zhang, Haifei Lu, Jianbin Xu, Hock-Chun Ong, Ping Shum, **Ho-Pui Ho**, Plasmonic optical trap having very large active volume realized with nano-ring structure, Optics Letters, 37(2012), 1748-1750.
12. Haixi Zhang, Haifei Lu, **Ho-Pui Ho**, Yanyan Zhou, Xia Yu, Feng Luan, Diffraction coupling of localized plasmon resonances through gain-assisted propagating surface plasmons, Applied Physics Letters, 100 (2012), 161904 - 161907.
13. Q.L. Chen, K.L. Cheung, S.K. Kong, J.Q. Zhou, Y.W. Kwan, and C.K. Wong, **H.P. Ho**, An integrated lab-on-a-disc for automated cell-based bioassays - Examination of IgE-allergen and non-IgE mediated degranulation, Talanta 97 (2012), 48 - 54.
14. Tao Yang, Chianchiu Li, Zewen Wang, **Ho-pui Ho**, An Ultra Compact Spectrometer Based on the Optical Transmission Through a Micro Interferometer Array, Optik (In press).
15. I.P. Lau, H. Chen, J. Wang, H.C. Ong, K.C. Leung, **H.P. Ho** and S.K. Kong, In vitro effect of CTAB- and PEG-coated gold nanorods on the induction of eryptosis in human erythrocytes, Nanotoxicology DOI:10.3109/17435390.2011.625132.
16. Haifei Lu, Haixi Zhang, Xia Yu, Ken-Tye Yong, **Ho-Pui Ho**, Seed-mediated Plasmon-driven Regrowth of Silver

Nanodecahedrons (NDs), Plasmonics, 7(2012), 167-173.

17. Ken-Tye Yong, Shuwen Zeng, Xia Yu, Xuan-Quyen Dinh, **Ho Pui Ho**, Yennan Liang, Haifei Lu, Libo Wang, Synthesis of Symmetrical Hexagonal-shape PbO Nanosheets using Gold Nanoparticles, Materials Letters, 67(2012), 74-77.
18. Kai-Chun Cheng, Wing-Cheung Law, Ken-Tye Yong, Jeremy S. Nevins, David F. Watson, **Ho-Pui Ho**, Paras N. Prasad, Synthesis of Near-Infrared Silver-Indium-Sulfide ($AgInS_2$) Quantum Dots as Heavy-Metal free Photosensitizer for Solar Cell Applications, Chemical Physics Letters, 515(2012), 254-257.
19. X. Yu, D. Yong, H. Zhang, H. Li, Y. Zhang, C.C. Chan, **H.P. Ho**, Plasmonic enhanced fluorescence spectroscopy using side-polished microstructure optical fiber, Sensors and Actuators B, 160(2011), 196 - 201.
20. Y.H. Huang, **H.P. Ho,** S.Y. Wu, S.K. Kong, Detecting Phase Shifts in Surface Plasmon Resonance: A Review, Advances in Optical Technologies, 2012(2012), 471957 (12 pages).
21. Y. H. Huang, **H. P. Ho,** S. Y. Wu, S. K. Kong, W. W. Wong, and P. Shum, Phase sensitive SPR sensor for wide dynamic range detection, Optics Letters, 36(2011), 4092-4094.
22. T. Yang and **H.P. Ho**, Phase Change Associated with Resonant Surface Plasmon Polariton-Assisted Transmission in Nanohole Arrays, Applied Physics A: Materials Science & Processing, 103(2011), 731-734.
23. C-.P. Chak, L.H. Chau, S.Y. Wu, **H.P. Ho**, W. Li, P. Mendes, K. Leung, Simultaneous Purification and Surface Plasmon Resonance Characterization of Discretely Functionalized Gold Nanoparticles, Journal of Materials Chemistry, 21(2011), 8317-8323. **I.F. 5.101, 16/225 Materials Science, Multi-disciplinary**.
24. C.C.W. Poon, S.W. Seto, A.L.S. Au, Q. Zhang, R.W.S. Li, W.Y.W. Lee, S.W. Chan, G.P. Leung, S.K. Kong, J.H.K. Yeung, S.M. Ngai, **A.H.P. Ho**, S.M.Y. Lee, Y.W. Kwan, Mitochondrial monoamine oxidase A-mediated hydrogen peroxide generation enhances 5-hydroxytryptamine-induced contraction of rat basilar artery, British Journal of Pharmacology, 161(2010), 1086-1098.
25. G. Wang, **H.P. Ho**, P. Shum, X. Yu, D.J.J. Hu, L. Tong, C. Lin, Modelling and Analysis of Localized Biosensing and Index Sensing by Introducing Effective Phase Shift in Microfiber Bragg Grating (QFBG), Optics Express 19(2011), 8930-8938.
26. Q.L. Chen, **H.P. Ho**, K.L. Cheung, S.K. Kong, Y.K. Suen, Y.W. Kwan, C.K. Wong, Design and fabrication of automated sedimentation-based separation and siphon-based extraction for detection of allergic reaction on a lab-on-a-disc, Chinese Optics Letters, 8(2010), 957-959.
27. S.P. Ng, C.M.L. Wu, S.Y. Wu and **H.P. Ho**, White-light spectral interferometry for surface plasmon resonance sensing applications, Optics Express, 19(2011), 4521-4527.
28. X. Yu, S. Zhang, Y. Zhang, **H.P. Ho**, P. Shum and D. Liu, An Efficient Approach for Investigating Surface Plasmon Resonance in Asymmetric Optical Fibers Based on Birefringence Analysis, Optics Express, 18(2010), 17950-57.
29. S.P. Ng, C.M.L. Wu, S.Y. Wu, **H.P. Ho** and S.K. Kong, Differential spectral phase interferometry for wide dynamic range surface plasmon resonance biosensing, Biosensors and Bioelectronics, 26(2010), 1593-1598.
30. Q.L. Chen, **H.P. Ho**, K.L. Cheung, S.K. Kong, Y.K. Suen, Y.W. Kwan, W.J. Li and C.K. Wong, A Fluorescence-based Centrifugal Microfluidic System for Parallel Detection of Multiple Allergens, Proceedings of SPIE-The International Society for Optical Engineering - Biophotonics and Immune Responses V, Volume 7565 (2010).
31. K.C.F. Leung, **H.P. Ho**, Y.W. Kwan, S.K. Kong, Immunoassays using polypeptide conjugate binders with tuned affinity, Expert Review of Molecular Diagnostics, 10(2010), 863-867.
32. H.X. Zhang, **H.P. Ho**, Low-loss plasmonic waveguide based on gain-assisted periodic metal nanoparticle chains, Optics Express, 18(2010), 23035-23040.
33. I.P. Lau, E.K. Ngan, J.F Loo, Y.K Suen, **H.P. Ho** and S.K. Kong, Aptamer-based bio-barcode assay for the detection of cytochrome-c released from apoptotic cells, Biochemical and Biophysical Research Communications, 395(2010), 560-564.
34. T. Yang and **H.P. Ho**, Simulation and Analysis of Phase-sensitive Surface Plasmon Resonance Sensor Based on the Enhanced Optical Transmission through Arrays of Nanoholes in Silver Films, Chinese Journal of Applied Optics, 3(2010), 57-63.
35. T. Yang and **H.P. Ho**, Novel Ultra Compact and High Resolution Spectrometer Based on the Optical Transmission through a Submicron Interferometer Array, Chinese Journal of Applied Optics, 3(2010), 38-44.