

ALEX M. H. WONG

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Assistant Professor,
Dept. of Electrical Engineering,
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83 Tat Chee Ave., Hong Kong SAR, China

EDUCATION

Ph.D., Dept. of Electrical and Computer Engineering, University of Toronto (Sept 2008 – Apr 2014)

Supervisor: Prof. George V. Eleftheriades

Thesis Title: “Sub-Diffraction Imaging Using Superoscillatory Electromagnetic Waves”

M.A.Sc., Dept. of Electrical and Computer Engineering, University of Toronto (Sept 2006 – Jan 2009)

Supervisor: Prof. George V. Eleftheriades

Thesis Title: “Subwavelength Focusing via Holographic Metallic Screens”

B.A.Sc., Faculty of Applied Science and Engineering, University of Toronto (Sept 2002 – Jun 2006)

Program: Engineering Science, Electrical Option

Thesis Supervisor: Prof. Li Qian

Thesis Title: “Two Superior Iterative Fiber Bragg Grating Design Algorithms for Power Efficient shaping of Picosecond Duration Optical Pulses with Arbitrary Waveforms”

RESEARCH INTERESTS

Metasurfaces, metamaterials, applied electromagnetics, antennas, microwave and RF systems, super-resolution imaging, medical imaging, superoscillation, optics.

RESEARCH EXPERIENCE

Assistant Professor – City University of Hong Kong (Jan 2018 – Present)

- **Areas of research:** Metamaterials and Metasurfaces, Super-resolution Imaging, Antennas, Superoscillations, Applied Electromagnetics

Post-Doctoral Researcher –Electromagnetics, University of Toronto (May 2014 – Dec 2017)

- **Areas of research:** super-resolution imaging, superoscillation, metasurfaces, antenna arrays, radar

Graduate Researcher – Electromagnetics, University of Toronto (Sept 2006 – Apr 2014)

- **Areas of research:** super-resolution imaging, superoscillation, near-field antennas, holography, metasurfaces

Research Assistant – Photonics, University of Toronto (Apr 2005 – Aug 2006)

- **Areas of research:** fiber Bragg grating design, optical pulse shaping.

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SELECTED AWARDS AND ACHIEVEMENTS

1. ***IEEE R.W.P. King Award*** (Jul 2012)
Given annually to recognize the best paper published in the *IEEE Transactions on Antennas and Propagation*, authored by an early career researcher of age 36 or younger.
2. ***Alexander Graham Bell Canada Graduate Scholarship (Doctoral) (NSERC CGS D)*** (2009 – 2012)
This national governmental award supports top doctoral students whose fields of research relate to natural science and engineering.
3. ***IEEE MTT-S Graduate Fellowship*** (Jun 2012)
Given by the *IEEE Microwave Theory and Techniques Society*, this award recognizes and supports exceptional graduate students towards a graduate degree in microwave engineering.
4. ***IEEE AP-S Doctoral Research Award*** (Nov 2012)
Given by the *IEEE Antennas and Propagation Society*, this award encourages graduate students to pursue a career in the area of electromagnetics.
5. ***IEEE Society of Antennas and Propagation Symposium (AP-S) 2010: Student Paper Competition Finalist*** (Jul 2010)
The AP-S is a major International symposium for the field of electromagnetics, with well over 1000 participating presenters.
6. ***URSI Young Scientist Award*** (Aug 2017)
7. ***Raj Mittra Travel Grant*** (Jul 2015)
8. ***TICRA Travel Grant*** (Apr 2014)
9. ***Graduate Student Endowment Fund*** (Apr 2013)
10. ***Departmental Doctoral Completion Award*** (2012 – 2013)
11. ***Connections Symposium: 1st Place Award*** (May 2012)
12. ***Ontario Graduate Scholarship (Doctoral) (OGS D)*** (2009 – 2010, Declined)
13. ***IEEE Society of Antennas and Propagation Symposium 2008: Student Paper Competition Honourable Mention*** (Jul 2008)
14. ***Natural Science and Engineering Research Council of Canada: Postgraduate Scholarship (Master) (NSERC PGSM)*** (2007 – 2008)
15. ***Ontario Graduate Scholarship (Master) (OGS M)*** (2007 – 2008, Declined)
16. ***University of Toronto Microwave Design Competition: 2nd Place Award*** (Dec 2006)
17. ***University of Toronto (Elec. & Comp. Engineering) Departmental Summer Undergraduate Research Program: Best Poster Presentation Award*** (Aug 2005)

ACADEMIC CONTRIBUTIONS

Refereed Journal Papers (Citation counts courtesy Google Scholar, Apr. 14th, 2021)

- J23. C. Qi, K.A. Oyesina and **A.M.H. Wong**, “Exploiting discreteness in metasurface design”, Apr. 2021. (Submitted)
- J22. C. Qi and **A.M.H. Wong**, “Discrete Huygens’ metasurface: Realizing anomalous refraction and diffraction mode circulation with a robust, broadband and simple design”, Feb. 2021. (Submitted)
- J21. X. He, C. Qi and **A.M.H. Wong**, “Optically transparent Huygens’ metasurface for ultra broadband radar cross-section reduction of millimeter-waves”, Nov. 2020. (Submitted)
- J20. **A.M.H. Wong** and G.V. Eleftheriades, “Active Huygens’ box: Arbitrary electromagnetic Wave generation with an electronically controlled metasurface”, *IEEE Transactions on Antennas and Propagation*, vol. 69, no. 3, pp. 1455-1468, Mar. 2021. [doi.org:10.1109/TAP.2020.3017438](https://doi.org/10.1109/TAP.2020.3017438)
- J19. K.A. Oyesina and **A.M.H. Wong**, “Metasurface-enabled cavity antenna: Beam steering with dramatically reduced fed elements”, *IEEE Antennas and Wireless Propagation Letters*, vol. 19, no. 4, pp. 616-620, Feb. 2020. [doi:10.1109/LAWP.2020.2973507](https://doi.org/10.1109/LAWP.2020.2973507)
- J18. M. Berry, N. Zheludev, Y. Aharonov, F. Colombo, I. Sabadini, D.C. Struppa, J. Tollaksen, E.T.F. Rogers, F. Qin, M. Hong, X. Luo, R. Remez, A. Arie, J.B. Götte, M.R. Dennis, **A.M.H. Wong**, G.V. Eleftheriades, Y. Eliezer, A. Bahabad, G. Chen, Z. Wen, G. Liang, C. Hao, C.W. Qiu, A. Kempf, E. Katzav and M. Schwartz, “Roadmap on superoscillations”, *Journal of Optics*, vol. 21, no. 5, 053002, Apr. 2019. [doi:10.1088/2040-8986/ab0191](https://doi.org/10.1088/2040-8986/ab0191) (*Invited*) (**Cited 59 times**)
- J17. M. Chen, M. Kim, **A.M.H. Wong** and G.V. Eleftheriades, “Huygens’ metasurfaces from microwaves to optics: A review”, *Nanophotonics*, vol. 7, no. 6, pp. 1207-1231, Jun. 2018. [doi:10.1515/nanoph-2017-0117](https://doi.org/10.1515/nanoph-2017-0117) (*Invited*) (**Cited 86 times**)
- J16. **A.M.H. Wong**, P. Christian and G.V. Eleftheriades, “Binary Huygens’ metasurfaces: Experimental demonstration of simple, efficient near-grazing retroreflectors for TE, TM polarizations”, *IEEE Transactions on Antennas and Propagation*, vol. 66, no. 6, pp. 2892-2903, Mar. 2018. [doi:10.1109/TAP.2018.2816792](https://doi.org/10.1109/TAP.2018.2816792) (**Cited 41 times**)
- J15. **A.M.H. Wong** and G.V. Eleftheriades, “Perfect anomalous reflection with a bipartite Huygens’ metasurface”, *Physical Review X*, vol. 8, no. 1, p. 011036, Feb. 2018. [doi:10.1103/PhysRevX.8.011036](https://doi.org/10.1103/PhysRevX.8.011036) (**Cited 146 times**)
- J14. X.H. Dong, **A.M.H. Wong** and G.V. Eleftheriades, “Superresolution far-field imaging of complex objects using reduced superoscillating ripples”, *Optica*, vol. 4, no. 9, pp. 1126-1133, Sept. 2017. [doi:10.1364/OPTICA.4.001126](https://doi.org/10.1364/OPTICA.4.001126) (**Cited 37 times**)
- J13. **A.M.H. Wong** and G.V. Eleftheriades, “Broadband superoscillation brings a wave into perfect three-dimensional focus”, *Physical Review B*, vol. 95, no. 7, p. 075148, Feb. 2017. [doi:10.1103/PhysRevB.95.075148](https://doi.org/10.1103/PhysRevB.95.075148)
- J12. **A.M.H. Wong** and G.V. Eleftheriades, “Superoscillations without sidebands: power efficient sub-diffraction imaging with propagating waves”, *Scientific Reports*, vol. 5, 8449, Feb. 2015. [doi:10.1038/srep08449](https://doi.org/10.1038/srep08449) (**Cited 30 times**)

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- J11. M. Kim, **A.M.H. Wong** and G.V. Eleftheriades, “Optical Huygens’ metasurfaces with independent control of the magnitude and phase of the local reflection coefficients”, *Physical Review X*, vol. 4, no. 4, p. 041042, Dec. 2014. [doi:10.1103/PhysRevX.4.041042](https://doi.org/10.1103/PhysRevX.4.041042) **(Cited 170 times)**
- J10. **A.M.H. Wong** and G.V. Eleftheriades, “An optical super-microscope for far-field, real-time imaging beyond the diffraction limit”, *Scientific Reports*, vol. 3, 1715, Apr. 2013. [doi:10.1038/srep01715](https://doi.org/10.1038/srep01715) **(Cited 98 times)**
- J9. **A.M.H. Wong** and G.V. Eleftheriades, “Advances in imaging beyond the diffraction limit”, *IEEE Photonics Journal*, vol. 4, no. 2, pp. 586-589, Apr. 2012. [doi:10.1109/JPHOT.2012.2189615](https://doi.org/10.1109/JPHOT.2012.2189615) **(Invited)**
- J8. **A.M.H. Wong** and G.V. Eleftheriades, “Superoscillatory radar imaging: improving radar range resolution beyond fundamental bandwidth limitations”, *IEEE Microwave and Wireless Component Letters*, vol. 22, no. 3, pp. 147-149, Mar. 2012.
- J7. **A.M.H. Wong** and G.V. Eleftheriades, “Sub-wavelength focusing at the multi-wavelength range using superoscillations: an experimental demonstration”, *IEEE Transactions on Antennas and Propagation*, vol. 59, no. 12, pp. 4766-4776, Dec. 2011. **(R.W.P. King Award paper) (Cited 52 times)**
- J6. **A.M.H. Wong** and G.V. Eleftheriades, “Temporal pulse compression beyond the Fourier transform limit”, *IEEE Transactions on Microwave Theory and Techniques*, vol. 59, no. 9, pp. 2173-2179, Sept. 2011. **(Cited 34 times)**
- J5. **A.M.H. Wong** and G.V. Eleftheriades, “Adaptation of Schelkunoff’s superdirective antenna theory or the realization of superoscillatory antenna arrays”, *IEEE Antennas and Wireless Propagation Letters*, vol. 9, pp. 315-318, Apr. 2010. **(Cited 65 times)**
- J4. Y. Wang, **A.M.H. Wong**, L. Markley, A.S. Helmy and G.V. Eleftheriades, “Plasmonic meta-screen for alleviating the trade-offs in the near-field optics”, *Optics Express*, vol. 17, pp. 12351-12361, Jul. 2009. **(Cited 33 times)**
- J3. L. Markley, **A.M.H. Wong**, Y. Wang and G.V. Eleftheriades, “Spatially shifted beam approach to subwavelength focusing”, *Physical Review Letters*, vol. 101, no. 11, p. 113901, Sept. 2008. **(Cited 97 times)**
- J2. G.V. Eleftheriades and **A.M.H. Wong**, “Holography-inspired screens for sub-wavelength focusing in the near field”, *IEEE Microwave and Wireless Component Letters*, vol. 18, no. 4, pp. 236-238, Apr. 2008. **(Cited 64 times)**
- J1. **A.M.H. Wong**, C.D. Sarris and G.V. Eleftheriades, “Metallic transmission screen for sub-wavelength focusing”, *IET Electronics Letters*, vol. 43, no. 25, pp. 1402-1404, Dec. 2007. **(Cited 27 times)**

Refereed Conference Proceedings

- C34. C. Qi and **A.M.H. Wong**, “Aggressively discretized Huygens’ metasurface: Realizing efficient anomalous refraction with a simple design,” *15th International Congress on Artificial Materials for Novel Wave Phenomena - Metamaterials 2021*, New York, Aug. 2021. (Submitted)
- C33. A. Sharma, C. Qi, K.A. Oyesina and **A.M.H. Wong**, “Coarsely discretized Huygens’ metasurface: Manipulating EM waves with simplicity,” *IEEE International Conference on Electronics, Computing and Communication Technologies 2021 (IEEE CONECCT)*, Bangalore, Jul. 2021. (Submitted)

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- C32. **A.M.H. Wong**, C. Qi and X. He, “Improving efficiency, bandwidth and tolerance with aggressively discretized metasurfaces,” *2021 International Conference on Microwave and Millimeter Wave Technology*, Nanjing, May 2021. (**Invited**) (Accepted)
- C31. C. Xue and **A.M.H. Wong**, “A wide-angle series-fed active metasurface”, *2020 Asia-Pacific Microwave Conference (APMC)*, Hong Kong, Dec. 2020. (Convened Online)
- C30. K. A. Oyesina and **A.M.H. Wong**, “Metamaterial-loaded Huygens’ box antenna: Highly-directive beam steering with very few phasing elements”, *2020 Asia-Pacific Microwave Conference (APMC)*, Hong Kong, Dec. 2020. (Convened Online)
- C29. A. Sharma and **A.M.H. Wong**, “Sparsely discretized refracting dielectric Huygens’ metasurface at 28 GHz”, *2020 Asia-Pacific Microwave Conference (APMC)*, Hong Kong, Dec. 2020. (Convened Online)
- C28. **A.M.H. Wong**, “Controlling electromagnetic waves with passive dielectric Huygens’ metasurfaces”, *IEEE Asia-Pacific Conference on Antennas and Propagation (APCAP)*, Xiamen, China, Aug. 2020. (Convened Online) (**Invited**)
- C27. A. Sharma and **A.M.H. Wong**, “Controlling wavefront using a coarsely discretized dielectric Huygens’ metasurface”, *IEEE International Symposium on Antennas and Propagation (AP-S)*, Montreal, Canada, Jul. 2020. (Convened Online)
- C26. C. Xue, G.G.L. Zhou and **A.M.H. Wong**, “Improving homogeneity for MRI RF field at 3T using a Huygens’ box”, *IEEE International Symposium on Antennas and Propagation (AP-S)*, Montreal, Canada, Jul. 2020. (Convened Online)
- C25. T.A. Khan and **A.M.H. Wong**, “Achieving wideband beam-splitting with an ultrathin discrete Huygens’ metasurface”, *IEEE International Symposium on Antennas and Propagation (AP-S)*, Montreal, Canada, Jul. 2020. (Convened Online)
- C24. A. Sharma and **A.M.H. Wong**, “Towards efficient EM wave manipulation using a discrete dielectric Huygens’ metasurface”, *2020 European Conference on Antennas and Propagation (EuCAP)*, Copenhagen, Denmark, Jun. 2020. (Convened Online)
- C23. C. Qi and **A.M.H. Wong**, “A coarsely discretized Huygens’ metasurface for anomalous transmission”, *2019 Asia-Pacific Microwave Conference (APMC)*, Singapore, Dec. 2019.
- C22. C. Qi and **A.M.H. Wong**, “Circulating spin angular momentum nodes using a discretized metasurface”, *2019 Asia-Pacific Microwave Conference (APMC)*, Singapore, Dec. 2019.
- C21. K.A. Oyesina and **A.M.H. Wong**, “The Huygens’ Box antenna: Metasurface-based directive antenna beam-steering with dramatically reduced elements”, *IEEE International Symposium on Antennas and Propagation (AP-S)*, Atlanta, USA, Jul. 2019. (**Honourable Mention**)
- C20. **A.M.H. Wong**, “Discretized Huygens’ metasurface: motivation and progress”, *The 9th International Multidisciplinary Conference on Optofluidics (IMCO2019)*, Hong Kong SAR, China, Jun. 2019. (**Invited**)
- C19. P. Ang, **A.M.H. Wong** and G.V. Eleftheriades, “Equivalence-principle-based active metasurfaces”, *URSI Commission B International Symposium on Electromagnetic Theory (URSI EMTS)*, San Diego, USA, May 2019. (**Invited**)

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- C18. **A.M.H. Wong** and K.A. Oyesina, “Building simple and effective metasurfaces by coarse discretization”, *The sixth IEEE MTT-S International Wireless Symposium (IEEE IWS)*, Guangzhou, China, May 2019. **(Invited)**
- C17. K.A. Oyesina, O.Z. Aly, G.G.L. Zhou and **A.M.H. Wong**, “Active Huygens’ box: Arbitrary synthesis of EM waves in metallic cavities”, 2019 *International Applied Computational Electromagnetic Society (ACES) Symposium*, Miami, USA, Apr. 2019. **(Invited)**
- C16. **A.M.H. Wong** and G.V. Eleftheriades, “Experimental demonstration of the Huygens’ box: Arbitrary waveform generation in a metallic cavity”, *IEEE International Symposium on Antennas and Propagation (AP-S)*, Boston, USA, Jul. 2018.
- C15. **A.M.H. Wong**, “Arbitrary beamforming with a discretized Huygens’ metasurface”, *International Workshop on Antenna Technology*, Nanjing, China, Mar. 2018. **(Invited)**
- C14. **A.M.H. Wong** and G.V. Eleftheriades, “Perfect anomalous reflection with an aggressively discretized Huygens’ metasurface”, *32nd URSI General Assembly & Scientific Symposium*, Paper B20-3, Montreal, Canada, Aug. 2017. **(Young Scientist Award Winner)**
- C13. X.H. Dong, **A.M.H. Wong** and G.V. Eleftheriades, “Super-resolution far-field imaging of structured objects using superoscillations”, *IEEE International Symposium on Antennas and Propagation (AP-S)*, San Diego, USA, Jul. 2017.
- C12. **A.M.H. Wong**, P. Christian and G.V. Eleftheriades, “Binary Huygens’ metasurface: a simple and efficient retroreflector at near-grazing angles”, *UNSC-URSI National Radio Science Meeting*, Paper B1-1, Boulder, USA, Jan. 2017. **(Invited)**
- C11. **A.M.H. Wong** and G.V. Eleftheriades, “Active Huygens’ metasurfaces for RF waveform synthesis in a cavity”, *IEEE Mediterranean Electrotechnical Conference (MELECON)*, Track T6.1, Limassol, Cyprus, Apr. 2016.
- C10. **A.M.H. Wong** and G.V. Eleftheriades, “A simple active Huygens source for studying waveform synthesis with Huygens metasurfaces and antenna arrays”, *IEEE International Symposium on Antennas and Propagation (AP-S)*, Paper WE-A2.1P.6. Vancouver, Canada, Jul. 2015. **(Raj Mittra Travel Grant Winner)**
- C9. A. Ludwig, J.P.S. Wong, A. Epstein, **A.M.H. Wong**, G.V. Eleftheriades and C.D. Sarris, “Focusing and steering for medical applications with magnetic near-field arrays and metasurfaces”, *European Conference on Antennas and Propagation (EuCAP)*, Lisbon, Portugal, Apr. 2015. **(Invited)**
- C8. **A.M.H. Wong** and G.V. Eleftheriades, “Superdirectivity-based superoscillatory waveform design: a practical path to far-field sub-diffraction imaging”, *European Conference on Antennas and Propagation (EuCAP)*, The Hague, Netherlands, Apr. 2014. **(TICRA grant winner)**
- C7. G.V. Eleftheriades, L. Markley and **A.M.H. Wong**, “Sub-wavelength focusing and imaging using shifted-beam and super-oscillation antenna arrays”, *IEEE International Symposium of Antenna Technology and Applied Electromagnetics (ANTEM)*, Toulouse, France, Jun. 2012. **(Invited)**
- C6. **A.M.H. Wong** and G.V. Eleftheriades, “Superoscillatory antenna arrays for sub-diffraction focusing at the multi-wavelength range in a waveguide environment”, *IEEE International Symposium on Antennas and Propagation (AP-S)*, Paper 230.5. Toronto, Canada, Jul. 2010. **(Student paper competition finalist)**

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- C5. G.V. Eleftheriades, A.K. Iyer and **A.M.H. Wong**, “Transmission-line metamaterial lenses and metascreens for free-space superlensing”, *2nd International Congress on Advanced Electromagnetic Materials in Microwave and Optics*. Pamplona, Spain, Sept. 2008.
- C4. Y. Wang, **A.M.H. Wong**, A.S. Helmy and G.V. Eleftheriades, “Plasmonic nano-slot antennas for optical sub-wavelength focusing”, *General Assembly of the International Union of Radio Science (URSI GA)*, Paper No. 2573. Chicago, USA, Aug. 2008.
- C3. **A.M.H. Wong** and G.V. Eleftheriades, “Experimental verification of subwavelength focusing via a holographic metallic screen”, *IEEE International Symposium on Antennas and Propagation (AP-S)*, Paper 302.2. San Diego, USA, Jul. 2008. (**Invited paper with honourable mention**)
- C2. L. Qian, **A.M.H. Wong**, S.A. Neata and X. Gu, “Simple and efficient optical pulse shaping: new algorithm and experimental demonstration”, *Conference on Lasers and Electro-optics (CLEO 2006)*, paper JWB33. Long Beach, USA, May 2006.
- C1. S.A. Neata, **A. Wong**, L. Qian, X. Gu and P.W.E. Smith, “Versatile optical pulse shaping using a linearly chirped fiber Bragg grating and an amplitude mask”, *Photonics North*, Paper 5970B-94. Toronto, Canada, Sept. 2005.

Non-refereed Contributions

- M35. **A.M.H. Wong**, “Metasurfaces: Controlling Electromagnetic Waves”, Invited Presentation to Huawei Technology Co. Ltd., Hong Kong SAR, China, May 2020. (Online)
- M34. **A.M.H. Wong**, “Employing discreteness in metasurface design”, *Invited Talks*, Nanjing University, Southeast University and Zhejiang University, Nanjing and Hangzhou, China, Nov. 2019. (4 talks)
- M33. X. He and **A.M.H. Wong**, “Anomalous reflection with a transparent coding metasurface”, *IEEE SZ/HK AP/MTT Postgraduate Conference*, Southern University of Science and Technology, Shenzhen, China, Nov. 2019.
- M32. G.G.L. Zhou and **A.M.H. Wong**, “Improving illumination uniformity for magnetic resonance imaging using a Huygens’ box”, *IEEE SZ/HK AP/MTT Postgraduate Conference*, Southern University of Science and Technology, Shenzhen, China, Nov. 2019.
- M31. **A.M.H. Wong**, “Building Antennas and Imaging Devices with Discrete Metasurfaces”, EM Talks, University of Toronto, Toronto, Canada, Jul. 2019.
- M30. **A.M.H. Wong**, “Discretized Huygens’ Metasurface: Motivation and Progress”, Invited Talk, Nazarbayev University, Nur-Sultan, Kazakhstan, Jun. 2019.
- M29. **A.M.H. Wong**, “Manipulating Electromagnetic Waves at will with Passive and Active Discretized Huygens’ Metasurfaces” Invited Talk, Hong Kong University of Science and Technology, Hong Kong SAR, China, Dec. 2018.
- M28. **A.M.H. Wong**, “Coarsely-Discretized Huygens’ Metasurfaces for Imaging and Antenna Systems”, Joint SKLTMW-XLIM Workshop on Electronic Science, City University of Hong Kong, Hong Kong SAR, China, Dec. 2018.
- M27. **A.M.H. Wong**, “Invisibility Cloaks and Super-Resolution Nanoscopes: Seeing Things with EM Waves”, Lecture Series on Science and Technology, City University of Hong Kong, Hong Kong SAR, China, Nov. 2018 - May. 2019. (4 talks)

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- M26. K.A. Oyesina, O.Z. Aly, G.G.L. Zhou and **A.M.H. Wong**, “Huygens’ Box: Generating Arbitrary Waveforms Inside Metallic Cavities”, IEEE HK AP-MTT Postgraduate Student Conference, Chinese University of Hong Kong, Hong Kong, China, Nov. 2018.
- M25. **A.M.H. Wong**, “Arbitrary Electromagnetic Wave Manipulation with a Huygens’ Metasurface”, Advanced Photonics Conference: Greater Bay Area Symposium for Wave Functional Materials, Southern University of Science and Technology, Shenzhen, China, Jun. 2018.
- M24. **A.M.H. Wong**, “Superoscillations and Metasurfaces: Ideas for Arbitrary Wave Manipulation”, Electronic Engineering Multidisciplinary Forum, City University of Hong Kong, Hong Kong, China, Mar. 2018.
- M23. **A.M.H. Wong**, “Discrete Huygens’ Metasurfaces and the Huygens’ Box: Frontiers in Electromagnetic Metasurfaces”, Invited Talk, Huazhong University of Science and Technology, Wuhan, China, Mar. 2018.
- M22. **A.M.H. Wong**, “Bipartite Huygens’ Metasurfaces and the Huygens’ Box: Frontiers in Electromagnetic Metasurfaces”, Invited Talk, Zhejiang University, Hangzhou, China, Mar. 2018.
- M21. **A.M.H. Wong**, “Imaging Beyond the Diffraction Limit with Superoscillatory Electromagnetic Waves”, Invited Talk, Zhejiang University, Hangzhou, China, Mar. 2018.
- M20. **A.M.H. Wong**, “Discrete Huygens’ Metasurface and Huygens’ Box: One-Sided Electromagnetic Metasurfaces”, Area of Excellence Young Members Presentation, City University of Hong Kong, Hong Kong, China, Feb. 2018.
- M19. **A.M.H. Wong**, “Discrete Huygens’ Metasurfaces: Motivations and Progress”, EM Talks, University of Toronto, Dec. 2017.
- M18. **A.M.H. Wong**, “Superoscillation and Metasurfaces: Their Design and Applications”, Electro-optics and Microelectronics Seminar, Technion – Israel Institute of Technology, Haifa, Israel, Nov. 2017.
- M17. **A.M.H. Wong**, X.H. Dong and G.V. Eleftheriades, “An Antenna Array Approach to Optical Super-Oscillation Microscopy”, The Physics and Technology of Superoscillations Conference, Institute of Physics, London, United Kingdom, Oct 2017.
- M16. **A.M.H. Wong**, “Active Metasurfaces: Electromagnetic Cloaking and Related Applications”, Presentation of behalf of Eleftheriades Research Group to Huawei Corp., Toronto, Oct 2018.
- M15. **A.M.H. Wong**, “Turning physics around with metamaterials”, Invited Research Presentation, Class of ECE259, Department of Electrical and Computer Engineering, University of Toronto, Feb 2017.
- M14. **A.M.H. Wong**, “Superoscillation and metasurfaces: electromagnetic engineering connecting science and technology”, Invited Seminar, City University, Hong Kong, Hong Kong, China, Jan. 2017.
- M13. **A.M.H. Wong**, “Super-resolution imaging with superoscillation EM waves”, EM Talks, University of Toronto, Nov. 2016.
- M12. **A.M.H. Wong**, “On super-resolution imaging and electromagnetic metasurfaces”, Invited Lecture, City University, Hong Kong, China, Sept. 2016.
- M11. **A.M.H. Wong**, “Engineering superoscillatory EM waves”, IEEE Invited Lecture, Hong Kong University, Hong Kong, China, Apr. 2015.

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- M10. **A.M.H. Wong**, “Engineering superoscillatory EM waves”, IEEE Invited Lecture, City University of Hong Kong, Hong Kong, China, Apr. 2015.
- M9. G.V. Eleftheriades and **A.M.H. Wong**, “Feasibility Study of a High-Resolution on-Train Radar”, Technical Lecture to Thales Corp., Toronto, Canada, Jan 2015. (Presented by **A.M.H. Wong**)
- M8. **A.M.H. Wong**, “Superoscillation-based optical sub-diffraction microscopy”, Electromagnetics-Photonics Graduate Seminar, Department of Electrical and Computer Engineering, University of Toronto, May 2013. (*3rd place presentation*)
- M7. **A.M.H. Wong**, “Optical Super-Microscope: imaging beyond the diffraction limit”, Connections 2013: Departmental Graduate Symposium, Department of Electrical and Computer Engineering, University of Toronto, May. 2013.
- M6. **A.M.H. Wong**, “Temporal superoscillations: faster than Fourier?”, Connections 2012: Departmental Graduate Symposium, Department of Electrical and Computer Engineering, University of Toronto, May. 2012. (*Best presentation winner*)
- M5. **A.M.H. Wong**. “Research on metamaterials and related fields”, Electromagnetics Group Introduction Meeting, Department of Electrical and Computer Engineering, University of Toronto, Sept. 2011.
- M4. **A.M.H. Wong**. “Sub-diffraction focusing with propagating waves”, Electromagnetics-Photonics Graduate Seminar, Department of Electrical and Computer Engineering, University of Toronto, May 2011.
- M3. **A.M.H. Wong**, “Squeezing electromagnetic waves: motivations, challenges and potential solutions”, Connections 2010: Departmental Graduate Symposium, Department of Electrical and Computer Engineering, University of Toronto, May 2010.
- M2. **A. Wong**, “Picosecond pulse shaping using Fiber Bragg gratings”, Poster presentation (with verbal component), Departmental Summer Undergraduate Research Program, Department of Electrical and Computer Engineering, University of Toronto, Aug. 2005. (*Best poster presentation winner*)
- M1. **A. Wong**, “Optical pulse shaping for performance improvement in an AFP switch”, Poster presentation (with verbal component), Engineering Science Research Day, University of Toronto, Aug. 2005.

Intellectual Property Disclosures

- I3. A. Green, P. Timmermans, W. Kinio, **A.M.H. Wong**, P. Christian and G. V. Eleftheriades, “Near-Grazing Retroreflectors for Polarization”, US Patent US 2020/0028272 A1, Thales Canada Inc., Jan. 2020.
- I2. **A.M.H. Wong**, P. Christian and G. V. Eleftheriades, “Binary Retroreflective Metasurface”, Invention Disclosure No. 10003506, University of Toronto Nov. 2017.
- I1. G.V. Eleftheriades and **A.M.H. Wong**, “Far-Field Optical Super-Microscope”, Intellectual Property Disclosure No. 10002553, University of Toronto, Feb. 2013.

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TEACHING EXPERIENCE

- **Microwave Circuits for 5G Wireless Product Design (EE4107) , City Univ. of Hong Kong:**
 - **Class Size:** About 10-20 students
 - **Role:** Course Instructor (2019 – Present)
- **Applied Electromagnetics (EE3109) , City Univ. of Hong Kong:**
 - **Class Size:** About 30-60 students
 - **Role:** Course Instructor (2019 – Present)
- **Microwave Circuits (ECE424/ECE1256) , Univ. of Toronto:**
 - **Class Size:** around 20 students in lecture
 - **Role:** Substitute lecturer (2017)
- **Microwave and mm-Wave Techniques (ECE1243) , Univ. of Toronto:**
 - **Class Size:** around 15 students in lecture
 - **Role:** Substitute lecturer (2016)
- **Electromagnetic Fields (ECE357) , Univ. of Toronto:**
 - **Class Size:** around 30 students in tutorial
 - **Role:** Tutorial Instructor (2011)
- **Fields and Waves (ECE320) , Univ. of Toronto:**
 - **Class Size:** tutorial attendance ranges from 10-30 students
 - **Roles:** Substitute Lecturer (2013-2016), Tutorial Instructor (2009-2011, 2013), Laboratory Supervisor (2012), Grader (2007)
- **Fundamentals of Optics (ECE318) , Univ. of Toronto:**
 - **Class Size:** tutorial attendance ranges from 10-30 students
 - **Role:** Tutor (2008-2012, 2014)
- **Electric and Magnetic Fields (ECE221) , Univ. of Toronto:**
 - **Class Size:** lab sessions were attended by approximately 50 students
 - **Role:** Laboratory Supervisor (2007)
- **Fundamentals of Electric Circuits (ECE159) , Univ. of Toronto:**
 - **Class Size:** lab session attendance range from 10 – 40 students
 - **Role:** Laboratory Supervisor (2010)

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PROFESSIONAL ACTIVITIES

- **Academic Societal Participation:** Senior Member, IEEE (AP, MTT and Phot. Societies)
- **Active reviewer for academic journals, which include:**
 - *Light: Science and Applications*
 - *Nature Communications*
 - *Nature Physics Review*
 - *Optica*
 - *ACS Photonics*
 - *Applied Physics Letters*
 - *IET Electronics Letters*
 - *IEEE Transactions on Antennas and Propagation*
 - *IEEE Transactions on Microwave Theory and Techniques*
 - *IEEE Antennas and Wireless Propagation Letters*
 - *IEEE Transactions on Signal Processing*
 - *Journal of the Optical Society of America B*
 - *Microwave and Optical Technology Letters*
 - *PIER Journal of Electromagnetic Waves and Applications*
- **Service in International Conferences and Workshops:**
 - Technical Program Committee vice chair:
 - 2020 Asia-Pacific Microwave Conference (Hong Kong SAR, China)
 - Guest Co-Editor:
 - IEEE Transactions on Microwave Theory and Techniques: 2020 APMC Special Issue
 - Technical and/or review committee member:
 - 2017-2020: IEEE International Symposium on Antennas and Propagation
 - 2016 USNC-URSI Radio Science Meeting (Puerto Rico, USA)
 - 2016 IEEE Conference on Computational Electromagnetics (Guangzhou, China)
 - Workshop Organizer:
 - 2020 Asia-Pacific Microwave Conference (Hong Kong SAR, China)
 - Session chair:
 - 2020 Asia-Pacific Conference on Antennas and Propagation (Xiamen, China)
 - 2020 IEEE International Symposium on Antennas and Propagation (Montreal, Canada)
 - 2019 Asia Pacific Microwave Conference (Singapore)
 - 2019 IEEE International Wireless Symposium (Guangzhou, China)
 - 2018 IEEE International Workshop on Antenna Technology (Nanjing, China)
 - 2017 IOP Workshop on The Physics and Technology of Superoscillations (London, UK)
 - 2015 IEEE International Symposium on Antennas and Propagation (Vancouver, Canada)
 - Technical judge:
 - Best Student Paper Competition: 2020 UK/Europe-China Workshop on Millimetre-Waves and Terahertz Technologies (Tianjin, China, Convened online)
 - Best Poster Competition: 2019 IEEE International Wireless Symposium (Guangzhou, China)
 - Best Paper Competition: 2018 IEEE HK AP-MTT Postgraduate Student Conference (Hong Kong, China)
 - Volunteer: 2010 IEEE International Symposium on Antennas and Propagation (Toronto, Canada)
- **Service for the IEEE AP/MTT Hong Kong Chapter:**
 - Planner and host for the IEEE Microwave Distinguished Lectures and Virtual Seminars (2020)
 - Chapter Secretary (2021)
- **University Institutional Service**
 - Undergraduate Admission Tutor (CityU HK, 2018 – Present)
 - Co-organizer of the First International CityU EE Conference (CityU HK, Nov 2018)
 - Co-ordinator for Electronic Engineering Multidisciplinary Forum (CityU HK, Mar-Sep 2018)
- **Community Service**
 - Technical Judge, Mass Transit Railway (HK) STEM Challenge (2019)
 - Appeal Board Panel Member, Electrical and Mechanical Services Department (EMSD), Government of Hong Kong (2018 – present)