

**Yee Ka Wong, Ph.D.**

Division of Environment and Sustainability  
 The Hong Kong University of Science and Technology  
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**APPOINTMENTS**

**Research Scientist, The Hong Kong University of Science and Technology** 2026/02–Present  
 Division of Environment and Sustainability

*Research interests: 1) Development of total organics measurement techniques for atmospheric applications; 2) Long-term evolution of atmospheric particulate matter composition.*

**Researcher (Part-time), University of Toronto** 2025/12–2026/01  
 Department of Chemical Engineering & Applied Chemistry

**Postdoctoral Fellow, University of Toronto** 2023/03–2025/11  
 Department of Chemical Engineering & Applied Chemistry

*Research interests: 1) Study of traffic-related non-exhaust emissions using field measurement and modeling; 2) Development and application of low-cost sensors for air pollution characterization.*

**Postdoctoral Fellow, The Hong Kong University of Science and Technology** 2022/05–2023/01  
 RGC Postdoctoral Fellowship Scheme (now renamed as RGC Junior Research Fellow Scheme)  
 Division of Environment and Sustainability

*Research interests: Sources and health effects of toxic air pollutants.*

**Postdoctoral Fellow, The Hong Kong University of Science and Technology** 2020/03–2022/04  
 Division of Environment and Sustainability

*Research interests: Sources and health effects of particulate matter air pollution.*

**EDUCATION**

**Ph.D. Environmental Science, Policy and Management** 2016/09–2020/02  
 The Hong Kong University of Science and Technology  
 Advisors: Dr. Jian Zhen Yu, Dr. Alexis Kai Hon Lau  
 Thesis: Quantifying vehicular emission contributions to PM<sub>2.5</sub> in Hong Kong using receptor models

**M.Phil. Atmospheric Environmental Science** 2014/09–2016/08  
 The Hong Kong University of Science and Technology  
 Advisor: Dr. Jian Zhen Yu  
 Thesis: Incorporating molecular marker degradation into chemical mass balance source apportionment of PM<sub>2.5</sub>

**B.Sc. Chemistry (First Class Honor)** 2011/09–2014/06  
 The Hong Kong University of Science and Technology

**HONORS AND AWARDS**

Postdoctoral Fellowship Scheme, Research Grants Council of Hong Kong 2022–2023  
 Interdisciplinary Programs Office Best Research Award (HKUST) 2020  
 Hong Kong PhD Fellowship Scheme, Research Grants Council of Hong Kong 2016–2020  
 Postgraduate Studentship, HKUST 2014–2016  
 Dean's List (in recognition of high academic attainment) 2013–2014

**PUBLICATIONS (GOOGLE SCHOLAR)**

14. Jeong, C. -H., **Wong, Y. K.**, Trieu, N., & Evans, G. J. (2026). Urban contrasts in traffic-related PM<sub>2.5</sub> resolved through high-time-resolution analysis of exhaust and non-exhaust emissions. *Atmospheric Environment*, 382, 122178, <https://doi.org/10.1016/j.atmosenv.2026.122178>.
13. **Wong, Y. K.**, Liu, K. M., Yeung, C., Leung, K. K. M., & Yu, J. Z. (2026). Source apportionment of fine and coarse particulate matter in Hong Kong and its implications to PM<sub>10</sub> air quality management. *Atmospheric Environment*, 368, 121763, <https://doi.org/10.1016/j.atmosenv.2025.121763>.
12. Edwards, T. D., **Wong, Y. K.**, Jeong, C. -H., Wang, J. M., Su, Y., & Evans, G. J. (2025). Comparison of methods for resolving the contributions of local emissions to measured concentrations. *Atmospheric Measurement Techniques*, 18, 2201–2240, <https://doi.org/10.5194/amt-18-2201-2025>.
11. **Wong, Y. K.**, Chan, W. W., Gu, D. S., Yu, J. Z., & Lau, A. K. H. (2024). Tracking source variations of inhalation cancer risks and ozone formation potential in Hong Kong over two decades (2000–2020) using toxic air pollutant monitoring data. *Environment and Health*, 2, 411–421, <https://doi.org/10.1021/envhealth.3c00209>.
10. **Wong, Y. K.**, Chan, W. W., Gu, D. S., Wong, T. W., Chan, K. J. D., Yu, J. Z., & Lau, A. K. H. (2023). Characterization of toxic air pollutants in Hong Kong, China: Two-decadal trends and health risk assessments. *Atmospheric Environment*, 314, 120129, <https://doi.org/10.1016/j.atmosenv.2023.120129>.
9. Yu, X., **Wong, Y. K.**, & Yu, J. Z. (2023). Abundance and sources of organic nitrogen in fine (PM<sub>2.5</sub>) and coarse (PM<sub>2.5-10</sub>) particulate matter in urban Hong Kong. *Science of the Total Environment*, 165880, <https://doi.org/10.1016/j.scitotenv.2023.165880>.
8. Lai, D. E., **Wong, Y. K.**, Xu, R. S., Xing, S. N., Ng, S. I. M., Kong, L., Yu, J. Z., Huang, D. D., & Chan, M. N. (2023). Significant conversion of organic sulfur from hydroxymethanesulfonate to inorganic sulfate and peroxydisulfate ions upon heterogeneous OH oxidation. *Environmental Science and Technology Letters*, 10, 773–778, <https://doi.org/10.1021/acs.estlett.3c00472>.
7. Xu, R. S., Ng, S. I. M., Chow, W. S., **Wong, Y. K.**, Wang, Y. C., Lai, D. E., Yao, Z. P., So, P. K., Yu, J. Z., & Chan, M. N. (2022). Chemical transformation of  $\alpha$ -pinene-derived organosulfate via heterogeneous OH oxidation: implications for sources and environmental fates of atmospheric organosulfates. *Atmospheric Chemistry and Physics*, 22, 5685–5700, <https://doi.org/10.5194/acp-22-5685-2022>.
6. **Wong, Y. K.**, Liu, K. M., Yeung, C., Leung, K. K. M., & Yu, J. Z. (2022). Measurement report: Characterization and source apportionment of coarse particulate matter in Hong Kong: Insights into the constituents of unidentified mass and source origins in a coastal city in southern China. *Atmospheric Chemistry and Physics*, 22, 5017–5031, <https://doi.org/10.5194/acp-22-5017-2022>.
5. **Wong, Y. K.**, Huang, X. H. H., Cheng, Y. Y., & Yu, J. Z. (2021). Estimating primary vehicular emission contributions to PM<sub>2.5</sub> using the Chemical Mass Balance model: Accounting for gas-particle partitioning of organic aerosols and oxidation degradation of hopanes. *Environmental Pollution*, 291, 118131, <https://doi.org/10.1016/j.envpol.2021.118131>.
4. **Wong, Y. K.**, Huang, X. H. H., Louie, P. K. K., Yu, A. L. C., Chan, D. H. L., & Yu, J. Z. (2020). Tracking separate contributions of diesel and gasoline vehicles to roadside PM<sub>2.5</sub> through online monitoring of volatile organic compounds and PM<sub>2.5</sub> organic and elemental carbon: A 6-year study in Hong Kong. *Atmospheric Chemistry and Physics*, 20, 9871–9882, <https://doi.org/10.5194/acp-20-9871-2020>.

3. **Wong, Y. K.**, Huang, X. H. H., & Yu, J. Z. (2019). Incorporating hopane degradation into chemical mass balance model: Improving accuracy of vehicular source contribution estimation. *Atmospheric Environment*, 210, 211–219, <https://doi.org/10.1016/j.atmosenv.2019.04.055>.
2. **Wong, Y. K.**, Huang, X. H. H., Cheng, Y. Y., Louie, P. K. K., Yu, A. L. C., Tang, A. W. Y., Chan, D. H. L., & Yu, J. Z. (2019). Estimating contributions of vehicular emissions to PM<sub>2.5</sub> in a roadside environment: A multiple approach study. *Science of the Total Environment*, 672, 776–788, <https://doi.org/10.1016/j.scitotenv.2019.03.463>.
1. Wang, Q. Q., Huang, X. H. H., Tam, C. V. F., Zhang, X. X., Liu, K. M., Yeung, C., Feng, Y. M., Cheng, Y. Y., **Wong, Y. K.**, Ng, W. M., Wu, C., Zhang, Q. Y., Zhang, T., Lau, N. T., Yuan, Z. B., Lau, K. H. A., & Yu, J. Z. (2019). Source apportionment of fine particulate matter in Macao, China with and without organic tracers: A comparative study using positive matrix factorization. *Atmospheric Environment*, 198, 183–193, <https://doi.org/10.1016/j.atmosenv.2018.10.057>.

#### MANUSCRIPTS UNDER REVIEW/PREPARATION

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4. **Wong, Y. K.**, Jeong, C. -H., Wang, J. M., Trieu, N., Jose, C., Wang, X., Su, Y., Celo, V., & Evans, G. J. Long-term characterization of non-exhaust particulate concentrations at two contrasting near-road sites: source contributions and real-world emission factors. *Under review*.
3. Jeong, C. -H., **Wong, Y. K.**, Trieu, N., Jose, C., Wang, X., Xu, J., Saeedi, M., Su, Y., Charron, C., Chan, A., Hatzopoulou, M., & Evans, G. J. Spatial variations of non-exhaust emissions across seasons using fixed-site and mobile measurements. *Under review*.
2. **Wong, Y. K.**, Lim, N. B. Y., Morris, E. A., Liu, X., Jeong, C. -H., Iorio, K., Wang, J. M., Edwards, T. D., Trieu, N., Jose, C., Wang, X., Roussy, S. S., Adams, M. D., Su, Y., Brook, J. R., & Evans, G. J. Recognizing and addressing the limitations of electrochemical sensors to resolve intra-city and localized spatiotemporal variability in atmospheric NO<sub>2</sub> and O<sub>3</sub>. *Under preparation*.
1. **Wong, Y. K.**, Morris, E. A., Liu, X., Jeong, C. -H., Wang, J. M., Su, Y., & Evans, G. J. Characterization of spatiotemporal variability of traffic-related air pollution in Toronto, Canada using a low-cost sensor network. *Under preparation*.

#### RESEARCH REPORTS

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5. Evans, G. J., Jeong, C. -H., **Wong, Y. K.**, Trieu, N., Wang, X., Jose, C., Roussy, S., Pay-Perez, M., Xu, J., Tu, R., Iorio, K., Adams, M., Chan, A., Franklin, M., Hatzopoulou, M. *Improved assessment and characterization of traffic related particulate emissions (IMPACT)*. Research report submitted to U.S. Health Effects Institute. *Under review*.
4. Lau, A. K. H., Yu, J. Z., Gu, D. S., **Wong, Y. K.**, Chan, W. W., Yeung, D., Wong, H. Y., & Wong, T. W. (2023). *Review and integrated data analysis of toxic air pollutants over Hong Kong*. Study report submitted to Hong Kong Environmental Protection Department.
3. **Wong, Y. K.** & Yu, J. Z. (2023). *Speciation and source apportionment of particulate matter in Hong Kong*. Study report submitted to Hong Kong Environmental Protection Department.
2. **Wong, Y. K.** & Yu, J. Z. (2021). *Speciation and source apportionment of coarse particulate matter in Hong Kong*. Study report submitted to Hong Kong Environmental Protection Department.
1. Yu, J. Z. & **Wong, Y. K.** (2018). *Characterization of vehicle emission in selected roadside and ambient environment in Hong Kong*. Study report submitted to Hong Kong Environmental Protection Department.

## TECHNICAL REPORTS

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4. **Wong, Y. K.** & Yu, J. Z. (2022). *West New Territories landfill fine particulate matter sampling and chemical analysis (2021–2022)*. Data report submitted to Hong Kong Environmental Protection Department.
3. **Wong, Y. K.** & Yu, J. Z. (2021). *Gravimetric analysis and elemental speciation of particulate matter on samples from construction sites in Hong Kong*. Data report submitted to Hong Kong Environmental Protection Department.
2. **Wong, Y. K.** & Yu, J. Z. (2021). *West New Territories landfill fine particulate matter sampling and chemical analysis*. Data report submitted to Hong Kong Environmental Protection Department.
1. Yu, J. Z., **Wong, Y. K.**, & Zhang, T. (2020). *Chemical speciation of PM<sub>2.5</sub> filter samples – January 1 through December 21, 2019*. Data report submitted to Hong Kong Environmental Protection Department.

## RESEARCH PROJECTS

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### The Hong Kong University of Science and Technology

5. Research Grants Council - Theme-based Research Scheme, 2026 – Present, “*Chemical weather observations of carbon chemistry in Greater Bay Area*”. (Roles: analytical method development, data analysis)
4. Hong Kong Environmental Protection Department, 2021 – 2023, “*Review and integrated data analysis of toxic air pollutants over Hong Kong*”. (Roles: investigation, formal analysis)
3. Hong Kong Environmental Protection Department, 2021 – 2023, “*Speciation and source apportionment of particulate matter in Hong Kong*”. (Roles: project administration, investigation, formal analysis)
2. Hong Kong Environmental Protection Department, 2019 – 2021, “*Speciation and source apportionment of coarse particulate matter in Hong Kong*”. (Roles: project administration, investigation, formal analysis)
1. Hong Kong Environmental Protection Department, 2015 – 2018, “*Characterization of vehicle emission in selected roadside and ambient environment in Hong Kong*”. (Roles: project administration, investigation, formal analysis)

### University of Toronto

3. U.S. Health Effects Institute, 2022 – 2025, “*Improved characterization of the real-world contributions and impacts of non-tailpipe particulate matter emissions*”. (Roles: investigation, formal analysis)
2. Environment and Climate Change Canada, 2023 – 2025, “*Study of winter air pollution in Toronto*”. (Roles: investigation, formal analysis)
1. City of Toronto, 2021 – 2023, “*Air quality assessment for construction hubs*”. (Roles: data curation)

## CONFERENCE PRESENTATIONS

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7. **Wong, Y. K.**, Jeong, C. -H., Morris, E. A., Su, Y., Galarneau, E., Wang, J. M., Brook, J. R., & Evans, G. J., “*Study of traffic-related air pollution using a low-cost sensor network in Toronto, Canada*” (2025). European Aerosol Conference, Lecce, Italy (Platform)
6. **Wong, Y. K.**, Jeong, C. -H., Celio, V., Wang, J. M., Su, Y., & Evans, G. J., “*Contributions of non-tailpipe emissions to ambient particulate matter near a major highway in Toronto, Canada*” (2025). European Aerosol Conference, Lecce, Italy (Platform)
5. **Wong, Y. K.**, Jeong, C. -H., Roussy, S., Trieu, N., Wang, X., Pay, M. T., Chan, A. W. H., Brook, J. R., Adams, M. D., & Evans, G. J., “*Evaluating the intra-city variability of traffic-related air pollutants in Toronto using complementary field measurement approaches*”

- (2024). International Society of Exposure Science Annual Meeting, Montreal, Canada (Platform)
4. **Wong, Y. K.**, Huang, X. H. H., & Yu, J. Z., “*Tracking vehicular emission contributions to roadside PM<sub>2.5</sub> through online monitoring of volatile organic compounds, PM<sub>2.5</sub> organic and elemental carbon: a six-year study in Hong Kong*” (2019). European Aerosol Conference, Gothenburg, Sweden (Platform)
  3. **Wong, Y. K.** & Yu, J. Z., “*Impact of diesel container truck emissions on carbonaceous aerosols in a unique roadside environment in Hong Kong*” (2018). 10<sup>th</sup> International Aerosol Conference, Missouri, United States (Platform)
  2. **Wong, Y. K.** & Yu, J. Z., “*Hourly measurement of carbonaceous aerosols in a roadside environment in Hong Kong*” (2017). 5<sup>th</sup> International Symposium on Regional Air Quality Management in Rapidly Developing Economic Regions, Guangzhou, China (Poster)
  1. **Wong, Y. K.**, Huang, X. H. H., & Yu, J. Z., “*Hopane degradation: new observational evidence and their incorporation into chemical mass balance source apportionment of PM<sub>2.5</sub>*” (2017). General Assembly of European Geoscience Union, Vienna, Austria (Poster)

### PEER REVIEW SERVICE

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Academic Journals: Atmospheric Chemistry and Physics, Environmental Science & Technology, Atmospheric Environment, Journal of the Air & Waste Management Association, Atmospheric Research, Environmental Science and Pollution Research, Environmental Research: Infrastructure and Sustainability

### SUPERVISORY AND MENTORSHIP ACTIVITIES

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#### University of Toronto

13. Lim, N. B. Y. (Undergraduate researcher, Summer 2025): “*Calibrating low-cost NO<sub>2</sub> and O<sub>3</sub> sensor data using deep learning*”
12. Lim, N. B. Y. (Undergraduate researcher, Summer 2024): “*Improving low-cost sensor data accuracy for air quality monitoring*”

#### The Hong Kong University of Science and Technology

11. Lee, R. (Undergraduate researcher, Spring 2022): “*Characterization of chemical composition and sources of particulate matter in Hong Kong*”
10. Lee, C. C. (Undergraduate researcher, Fall 2021): “*Comparison of ionic composition in fine particulate matter between an urban and landfill site*”
9. Kwok, C. T. (Undergraduate researcher, Summer 2021): “*Assessing the oxidative potential of particulate matter samples in Hong Kong*”
8. Tang, C. F. (Undergraduate researcher, Spring & Summer 2021): “*Chemical composition and oxidative potential of particulate matter in Hong Kong*”
7. Wong, Y. C. (Undergraduate researcher, Spring 2021): “*Chemical composition and sources of atmospheric coarse particulate matter in Hong Kong*”
6. Cheung, K. Y. (Undergraduate researcher, Fall 2017 & Spring 2018): “*Analysis of hourly carbonaceous aerosol and volatile organic compound data*”
5. Chow, W. S. (Summer researcher, Summer 2018): “*Analysis of non-polar organic source tracers using gas chromatography-mass spectrometry*”
4. Lee, H. W. (Undergraduate researcher, Spring 2018): “*Analysis of non-polar organic source tracers using gas chromatography-mass spectrometry*”
3. Ngan, L. L. (Undergraduate researcher, Spring 2017): “*Analysis of non-polar organic source tracers using gas chromatography-mass spectrometry*”
2. Chan, C. H. (Undergraduate researcher, Fall 2016): “*Analysis of non-polar organic source tracers using gas chromatography-mass spectrometry*”

1. Leung, T. Y. A. (Undergraduate researcher, Fall 2016): “*Analysis of non-polar organic source tracers using gas chromatography-mass spectrometry*”

**TEACHING ASSISTANT**

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**The Hong Kong University of Science and Technology**

Advanced Environmental Chemistry (Postgraduate level)	2019 (38 students)
Atmospheric Chemistry (Postgraduate level)	2018 (22 students)
Life Cycle Analysis (Undergraduate level)	2018 (18 students)
Introduction to Atmospheric Aerosols (Postgraduate level)	2017 (23 students)
Advanced Environmental Chemistry (Postgraduate level)	2017 (43 students)
Introduction to Atmospheric Science (Undergraduate level)	2017 (46 students)