YONGJIE LI

Curriculum Vitae

Contact Information

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Department of Civil and Environmental Engineering
& Department of Ocean Science and Technology
Faculty of Science and Technology
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Research Interests

Aerosol Chemistry: Lab simulation of secondary aerosol formation and transformation
Aerosol Microphysics: Characterization of hygroscopicity, optical property, and phase state
Aerosol Characterization: Real-time measurements and source analysis of atmospheric aerosols

Education

The Hong Kong University of Science and Technology (HKUST), Hong Kong, China
Ph.D., Environmental Engineering
Obtained in: 2010
Thesis: Characterization of products in secondary organic aerosol formation using mass spectrometric techniques
Advisor: Prof. Chak K. Chan

Peking University (PKU), Beijing, China
B.Sc., Analytical Chemistry
Obtained in: 2004
Thesis: Determination of sulfite in food products (in Chinese)
Advisor: Prof. Meiping Zhao

Honors and Awards

2023/2024 Incentive Scheme for Outstanding Academic Staff, University of Macau **2024**

2022/2023 Incentive Scheme for Outstanding Academic Staff, University of Macau **2023**

Asian Young Aerosol Scientist Award, Asian Aerosol Research Assembly **2022**

Research Excellence Award, Faculty of Science and Technology, University of Macau **2020**

China Aerosol Young Scientist Award, Chinese Society of Particuology **2019**

Research Excellence Award, Faculty of Science and Technology, University of Macau **2017**

Best Young Researcher Award, The 4th International Workshop on Regional Air Quality in Rapidly Economic Developing Regions (4RAQM), Hong Kong **2014**

Young Scientist Support and **Young Scientist Poster Award**, International Global Atmospheric Chemistry (IGAC) Science Conference, Beijing **2012**

Overseas Research Award, The Hong Kong University of Science and Technology **2008**

Academic Experience

University of Macau, Macau, China. *Associate Professor* **Aug., 2021 - present**

University of Macau, Macau, China. *Assistant Professor* **Aug., 2015 - Aug., 2021**

Harvard University, Cambridge, MA, USA. *Postdoctoral Fellow* **Apr., 2014 - Jul., 2015**

HKUST, Hong Kong, China. *Post-doc Fellow and Research Associate* **Sep., 2010 - Mar., 2014**

Harvard University, Cambridge, MA, USA. *Visiting Scholar* **Jan., 2009 - May, 2009**

Peking University, Beijing, China. *Research Assistant* **Sep., 2004 - Jul., 2005**

Journal Publications

Table 1: Citation Metrics

Source	Total Publications	Total Citations	h-index
Google Scholar	124	5700+	46
Web of Science	114	4500+	41
Scopus	115	4400+	39

Note: student/post-doc; * = corresponding author

1. Lei R., Sha Y., Meng H., Huang Y., Ye J., Huang D.D., Zhang Y., Wu Y., **Li Y.J.**, Ge X.*, Aqueous Phase Photolysis of 4-Nitrocatechol: Reaction Kinetics, Evolutions of Chemical Composition, Light Absorption and Oxidation Potential, ***Atmos. Environ.***, **2025**, 343: 120981; DOI: 10.1016/j.atmosenv.2024.120981.
2. Liu Y., Huang R.J.*, Lin C.*, Yuan W., **Li Y.J.**, Zhong H., Yang L., Wang T., Huang W., Xu W., Huang D.D., Huang C., Nitrate-Photolysis Shortens the Lifetimes of Brown Carbon Tracers From Biomass Burning, ***Environ. Sci. Technol.***, **2025**, 59: 640-649.
3. Lai D.E., Schaefer T., Zhang Y.M., **Li Y.J.**, Herrmann H.*, Chan M.N.*, Oxidation Kinetics of Alkyl Sulfates and Sulfonates by Sulfate Radical (SO4) in the Aqueous Phase: Deactivating Role of Sulfur Functional Groups, ***ACS Earth Space Chem.***, **2025**, 9: 158-168.
4. Lai R.W.S., Qiu T., Zhang X., Wang Y., Hao T., Ge X., Du L., Tang M., Hoi K.I., Mok K.M., **Li Y.J.***, Deciphering the Key Drivers of Oxidative Potential During Ammonium Nitrate-Mediated Aqueous-Phase Photoreaction of Methoxyphenols, ***Atmos. Environ.***, **2025**, 340: 120895; DOI: 10.1016/j.atmosenv.2024.120895.
5. Jiang S.J., Wang Y.Y., Huang X.P., Liu B., Nie D.Y., Ge Y.L., Ma L.Q., Wang Q.Y., Wang J.F., Ma Y.J., Jiang S.T., Shu Z.F., Zhang Y.M., Sun J.Y., Wu C., Ge X.L., Zhu L., Shen H.Z., Wang C., Zheng Y., Fu T.M., Yang X., **Li Y.J.**, Chen Q., Ye J.H.*, Characteristics of Nocturnal Boundary Layer Over a Subtropical Forest: Implications for the Dispersion and Fate of Atmospheric Species, ***Environ. Sci. Technol.***, **2024**, 58: 23075-23087.
6. Liang Z., **Li Y.J.**, Go B.R., Chan C.K.*, Complexities of Photosensitization in Atmospheric Particles, ***ACS ES&T Air***, **2024**, 11: 1333-1351.
7. Mabato B.R.G., **Li Y.J.**, Huang D.D., Chan C.K.*, Aqueous-Phase Photoreactions of Mixed Aromatic Carbonyl Photosensitizers Yield More Oxygenated, Oxidized, and Less Light-Absorbing Secondary Organic Aerosol (SOA) Than Single Systems, ***Environ. Sci. Technol.***, **2024**, 58: 7924-7936.
8. Wu L., Wu C.*, Deng T., Wu D., Li M., **Li Y.J.**, Zhou Z., Field Comparison of Dual- and Single-Spot Aethalometers: Equivalent Black Carbon, Light Absorption, Ångström Exponent and Secondary Brown Carbon Estimations, ***Atmos. Meas. Tech.***, **2024**, 17: 2917-2936.
9. Lai D., Schaefer T., Zhang Y., **Li Y.J.**, Xing S., Herrmann H.*, Chan M.N.*, Deactivating Effect of Hydroxyl Radicals Reactivity by Sulfate and Sulfite Functional Groups in Aqueous Phase-Atmospheric Implications for Small Organosulfur Compounds, ***ACS ES&T Air***, **2024**, 1: 678-689.
10. Li F., Huang D.D., Tian L., Yuan B., Tan W., Zhu L., Ye P.L., Worsnop D., Hoi K.I., Mok K.M., **Li Y.J.***, Response of Protonated, Adduct, and Fragmented Ions in Vocus Proton-Transfer-Reaction Time-of-Flight Mass Spectrometer (PTR-ToF-MS), ***Atmos. Meas. Tech.***, **2024**, 17: 2415-2427.
11. Wu B., Wu C.*, Ye Y., Pei C., Deng T., **Li Y.J.**, Lu X., Wang L., Hu B., Li M., Wu D., Long-Term Hourly Air Quality Data Bridging of Neighboring Sites Using Automated Machine Learning: A Case Study in the Greater Bay Area of China, ***Atmos. Environ.***, **2024**, 321: 120347; DOI: 10.1016/j.atmosenv.2024.120347

12. Cheng X., **Li Y.J.***, Zheng Y., Liao K., Koenig T.K., Ge Y., Zhu T., Ye C., Qiu X., Chen Q.*, Oxygenated Organic Molecules Produced by Low-NO_x Photooxidation of Aromatic Compounds: Contributions to Secondary Organic Aerosol and Steric Hindrance, ***Atmos. Chem. Phys.***, **2024**, 24: 2099-2112.

13. Gong Y., Huang R.J.*, Yang L., Wang T., Yuan W., Xu W., Cao W., Wang Y., **Li Y.J.**, Measurement Report: Brown Carbon Aerosol in Polluted Urban Air of the North China Plain – Day–night Differences in the Chromophores and Optical Properties, ***Atmos. Chem. Phys.***, **2023**, 23: 15197-15207.

14. Jia T., Ge Y. Liu B., Sun J., Wu W., Ye J., Wu C., **Li Y.J.**, Fu T.M., Chen Q.*, Pollution Characteristics of Volatile Organic Compounds Above Subtropical Forest Canopy in Lingnan and the Influence of Regional Anthropogenic Emissions, ***Journal of Environmental Engineering Technology***, **2023**, 13: 473-482 (In Chinese).

15. Tian X., Zhang R., Wei B., Wang Y., **Li Y.J.**, Chan C.K.*, Monoethanolamine Decay Mediated by Photolysis of Nitrate in Atmospheric Particles: A Brown Carbon and Organic Phase Formation Pathway, ***Environ. Sci.: Atmos.***, **2023**, 3: 1541-1551.

16. Wang Y., Qiu T., Zhang C., Hao T., Mabato B.R.G., Zhang R., Gen M., Chan M.N., Huang D.D., Ge X., Wang J., Du L., Huang R.J., Chen Q., Hoi K.I., Mok K.M., Chan C.K., **Li Y.J.***, Co-Photolysis of Mixed Chromophores Affects Atmospheric Lifetimes of Brown Carbon, ***Environ. Sci.: Atmos.***, **2023**, 3: 1145-1158.

17. Li, F., Huang D.D., Nie W., Tham Y.J., Lou S., Li Y., Tian L., Liu Y., Zhou M., Wang H., Qiao L., Wang H., Wang Z.*, Huang C.*, **Li Y.J.***, Observation of Nitrogen Oxide-Influenced Chlorine Chemistry and Source Analysis of Cl_2 in the Yangtze River Delta, China, ***Atmos. Environ.***, **2023**, 306: 119829; DOI: 10.1016/j.atmosenv.2023.119829.

18. Gu Y., Huang R.J.*, Duan J., Xu W., Lin C., Zhong H., Wang Y., Ni H., Liu Q., Xu R., Wang L., **Li Y.J.**, Multiple Pathways for the Formation of Secondary Organic Aerosol in the North China Plain in Summer, ***Atmos. Chem. Phys.***, **2023**, 23: 5419–5433.

19. Shen T., **Li Y.J.**, Hu H., Lu X., Wang L., Tang Y.*, P/Pb Transport at the Interface of Water and Al-Substituted Ferrihydrite: Effect of P/Pb Loading Sequence, ***Chemosphere***, **2023**, 325: 138374; DOI: 10.1016/j.chemosphere.2023.138374.

20. Mabato B.R.G., **Li Y.J.**, Huang D.D., Wang Y., Chan C.K.*, Comparison of Aqueous Secondary Organic Aerosol (aqSOA) Product Distributions From Guaiacol Oxidation by Non-Phenolic and Phenolic Methoxybenzaldehydes as Photosensitizers in the Absence and Presence of Ammonium Nitrate, ***Atmos. Chem. Phys.***, **2023**, 23: 2859-2875.

21. Tian L., Huang D.D.*, Wang Q.Q., Zhu S.H., Wang Q., Yan C., Nie W., Wang Z., Qiao L.P., Liu Y.L., Qiao X.H., Guo Y.S., Zheng P.G., Jing S., Lou S.R., Wang H.L., Yu J.Z., Huang C., **Li Y.J.***, Underestimated Contribution of Heavy Aromatics to Secondary Organic Aerosol Revealed by Comparative Assessments Using New and Traditional Methods, ***ACS Earth Space Chem.***, **2023**, 7: 110-119.

22. Tian L., Huang D.D.*, **Li Y.J.***, Yan C., Nie W., Wang Z., Wang Q., Qiao L., Zhou M., Zhu S., Liu Y., Guo Y., Qiao X., Zheng P., Jing S., Lou S., Wang H., Huang C., Enigma of Urban Gaseous Oxygenated Organic Molecules: Precursor Type, Role of NO_x, and Degree of Oxygenation, ***Environ. Sci. Technol.***, **2023**, 57: 64-75.

23. Liang Y., Wu C.*, Wu D., Liu B., **Li Y.J.**, Sun J., Yang H., Mao X., Tan J., Xiao R., Deng T., Li M., Zhou Z., Vertical Distributions of Atmospheric Black Carbon in Dry and Wet Seasons Observed at a 356-M Meteorological Tower in Shenzhen, South China, ***Sci. Total Environ.***, **2022**, 853: 158657; DOI: 10.1016/j.scitotenv.2022.158657.

24. Zeng L., Huang D.D.*, Zhu S., Li F., Zhou M., Qiao L., Wang Q., Wang Q., Ma Y., Lou S., Shi H., Hoi K.I., Mok K.M., Ge X., Wang H., Yu J.Z., Huang C., **Li Y.J.***, The

Interplays Among Meteorology, Source, and Chemistry in High Particulate Matter Pollution Episodes in Urban Shanghai, China, ***Sci. Total Environ.***, **2022**, 853: 158347; DOI: 10.1016/j.scitotenv.2022.158347.

25. Wang Y., Huang R.J.*, Xu W., Zhong H.B., Duan J., Lin C.S., Gu Y.F., Wang T., **Li Y.J.**, Ovadnevaite J., Ceburnis D., O'Dowd C., Staggered-Peak Production Is a Mixed Blessing in the Control of Particulate Matter Pollution, ***npj Clim. Atmos. Sci.***, **2022**, 5: 99; DOI: 10.1038/s41612-022-00322-X.

26. Yu Y., Cheng P.*, **Li Y.J.***, Gu J., Gong Y., Han B., Yang W., Sun J., Wu C., Song W., Li M., The Association of Chemical Composition Particularly the Heavy Metals With the Oxidative Potential of Ambient $PM_{2.5}$ in a Megacity (Guangzhou) of Southern China, ***Environ. Res.***, **2022**, 113489; DOI: 10.1016/j.envres.2022.113489.

27. Nie W., Yan C., Huang D.D., Wang Z., Liu Y., Qiao X., Guo Y., Tian L., Zheng P., Xu Z., Li Y., Xu Z., Qi X., Sun P., Wang J., Zheng F., Li X., Yin R., Dallenbach K.R., Bianchi F., Petaja T., Zhang Y., Wang M., Schervish M., Wang S., Qiao L., Wang Q., Zhou M., Wang H., Yu C., Yao D., Guo H., Ye P., Lee S., **Li Y.J.**, Liu Y., Chi X. Kerminen V.M., Ehn M., Donahue N.M., Wang T., Huang C., Kulmala M., Worsnop D., Jiang J.*, Ding A.*, Secondary Organic Aerosol Formed by Condensing Anthropogenic Vapours Over China's Megacities, ***Nat. Geosci.***, **2022**, 15: 255–261.

28. Wang Y., Huang W., Tian L., Wang Y., Li F., Huang D.D., Zhang R., Mabato B.R.G., Huang R.J., Chen Q., Ge X., Du L., Ma Y.G., Gen M., Hoi K.I., Mok K.M., Yu J.Z., Chan C.K., Li X., **Li Y.J.***, Decay Kinetics and Absorption Changes of Methoxyphenols and Nitrophenols During Nitrate-Mediated Aqueous Photochemical Oxidation at 254 and 313 nm, ***ACS Earth Space Chem.***, **2022**, 6: 1115–1125.

29. Shen L., Cheng Y., Bai X., Dai H., Wei X., Sun L., Yang Y., Zhang J., Feng Y., **Li Y.J.**, Chen D.R., Liu J., Gui H.*, Vertical Profile of Aerosol Number Size Distribution During a Haze Pollution Episode in Hefei, China, ***Sci. Total Environ.***, **2022**, 814: 152693; DOI: 10.1016/j.scitotenv.2021.152693.

30. Qin Y.*, Ye J., Ohno P., Liu P., Wang J., Fu P., Zhou L., **Li Y.J.**, Martin, S.T., Chan C.K.*, Assessing the Nonlinear Effect of Atmospheric Variables on Primary and Oxygenated Organic Aerosol Concentration Using Machine Learning, ***ACS Earth Space Chem.***, **2022**, 6: 1059–1066.

31. Zhang R., Gen M., Liang Z., **Li Y.J.**, Chan C.K.*, Photochemical Reactions of Glyoxal During Particulate Ammonium Nitrate Photolysis: Brown Carbon Formation, Enhanced Glyoxal Decay, and Organic Phase Formation, ***Environ. Sci. Technol.***, **2022**, 56: 1605–1614.

32. Mabato B.R.G., Lyu Y., Ji Y., **Li Y.J.**, Huang D.D., Li X., Nah T., Lam C.H., Chan C.K.*, Aqueous Secondary Organic Aerosol Formation From the Direct Photosensitized Oxidation of Vanillin in the Absence and Presence of Ammonium Nitrate, ***Atmos. Chem. Phys.***, **2022**, 22: 273–293.

33. Yang Z., Du L.*, **Li Y.J.**, Ge X., Secondary Organic Aerosol Formation From Monocyclic Aromatic Hydrocarbons: Insights From Laboratory Studies, ***Environ. Sci.: Process. Impacts***, **2022**, 24: 351-379.

34. Huang R.J.*, Yang L., Shen J., Yuan W., Gong Y., Ni H., Duan J., Yan J., Huang H., You Q., **Li Y.J.**, Chromophoric Fingerprinting of Brown Carbon From Residential Biomass Burning, ***Environ. Sci. Technol. Lett.***, **2021**, 2022, 9: 102–111.

35. Wang Y., Huang D.D., Huang W., Liu B., Chen Q., Huang R.J., Gen M., Mabato B.R.G., Chan C.K., Li X., Hao T., Tan Y., Hoi K.I., Mok K.M., **Li Y.J.***, Enhanced Nitrite Production From the Aqueous Photolysis of Nitrate in the Presence of Vanillic Acid and Implications for the Roles of Light-Absorbing Organics, ***Environ. Sci. Technol.***, **2021**, 55: 15694–15704.

36. Gonzalez-Fialkowski J.M., Wang L., **Li Y.J.**, Xu X.G.*, Nano-Chemical and Mechanical Mapping of Fine and Ultrafine Indoor Aerosols With Peak Force Infrared Microscopy, ***Anal. Chem.***, **2021**, 93: 16845-16852.

37. Liao K.R., Chen Q.*, Liu Y., **Li Y.J.**, Lambe A.T., Zhu T., Huang R.J., Zheng Y., Cheng X., Miao R.Q., Huang G.C., Khuzestani R.B., Jia T.J., Secondary Organic Aerosol Formation of Fleet Vehicle Emissions in China: Potential Seasonality of Spatial Distributions, ***Environ. Sci. Technol.***, **2021**, 55: 7276-7286.

38. Cheng X., Chen Q.*, **Li Y.J.**, Huang G., Liu Y., Lu S., Zheng Y., Qiu W., Lu K., Qiu X., Bianchi F., Yan C., Yuan B., Shao M., Wang Z., Canagaratna M.R., Zhu T., Wu Y., Zeng L., Secondary Production of Gaseous Nitrated Phenols in Polluted Urban Environments, ***Environ. Sci. Technol.***, **2021**, 55: 4410-4419.

39. Cheng X., Chen Q.*, **Li Y.J.***, Zheng Y., Liao K., Huang G.C., Highly Oxygenated Organic Molecules Produced by the Oxidation of Benzene and Toluene in a Wide Range of OH Exposure and NO_x Conditions, ***Atmos. Chem. Phys.***, **2021**, 21: 12005-12019.

40. Wu C.*, Liu B., Wu D., Yang H.L., Mao X., Tan J., Liang Y., Sun J.Y., Xia R., Sun J.R., He G.W., Li M., Deng T., Zhou Z., **Li Y.J.***, Vertical Profiling of Black Carbon and Ozone Using a Multicopter Unmanned Aerial Vehicle (UAV) in Urban Shenzhen of South China, ***Sci. Total Environ.***, **2021**, 801: 149689; DOI: 10.1016/j.scitotenv.2021.149689.

41. Yuan W., Huang R.J.*, Yang L., Wang T., Duan J., Guo J., Ni H.Y., Chen Y., Chen Q., **Li Y.J.**, Dusek U., O'Dowd C., Hoffmann T., Measurement Report: $PM_{2.5}$-Bound Nitrated Aromatic Compounds in Xi'an, Northwest China - Seasonal Variations and Contributions to Optical Properties of Brown Carbon, ***Atmos. Chem. Phys.***, **2021**, 21, 3685-3697.

42. Wang J., Ye J., Zhang Q., Zhao J., Wu Y., Li J., Liu D., Li W., Zhang Y., Wu C., Xie C., Qin Y., Lei Y., Huang X., Guo J., Liu P., Fu P., **Li Y.J.**, Lee H.C., Choi H., Zhang J., Liao H., Chen M., Sun Y., Ge X.*, Martin S.T., Jacob D.J.*, Aqueous Production of Secondary Organic Aerosol From Fossil-Fuel Emissions in Winter Beijing Haze, ***Proc. Natl. Acad. Sci. U.S.A.***, **2021**, 118: E2022179118; DOI: 10.1073/pnas.2022179118.

43. Xu X., Zeng J.F., Jin D.D., Huang Z.X., Li L., Wexler A.S., Chan M.N., Zhou Z., **Li Y.J.***, Li X*, Insights on the Working Principles of Secondary Electrospray Ionization High-Resolution Mass Spectrometry for Quantitative Analysis of Aerosol Chemical Composition, ***Aerosol Sci. Eng.***, **2021**, 5: 147–155.

44. Li Y.W., Liu B., Ye J., Jia T., Khuzestani R.B., Sun J.Y., Cheng X., Zheng Y., Li X., Wu C., Xin J., Wu Z., Tomoto M.A., McKinney K.A., Martin S.T., **Li Y.J.***, Chen Q.*, Unmanned Aerial Vehicle Measurements of Volatile Organic Compounds Over a Subtropical Forest in China and Implications for Emission Heterogeneity, ***ACS Earth Space Chem.***, **2021**, 5: 247-256.

45. Liang Y., Wu C.*, Jiang S., **Li Y.J.**, Wu D., Li M., Cheng P., Yang W., Cheng C., Li L., Deng T., Sun J.Y., He G., Liu B., Yao T., Wu M., Zhou Z., Field Comparison of Electrochemical Gas Sensor Data Correction Algorithms for Ambient Air Measurements, ***Sens. Actuators B Chem.***, **2021**, 327: 128897.

46. Kasthuriarachchi N.Y., Rivellini L.H., Chen X., **Li Y.J.**, Lee A.K.Y.*, Effect of Relative Humidity on Secondary Brown Carbon Formation in Aqueous Droplets, ***Environ. Sci. Technol.***, **2020**, 54: 13207-13216; 10.1016/j.scitotenv.2020.139666.

47. Zhong H., Huang R.J.*, Duan J., Lin C., Gu Y., Wang Y., **Li Y.J.**, Zheng Y., Chen Q., Chen Y., Dai W., Ni H., Chang Y., Worsnop D.R., Xu W., Ovadnevaite J., Ceburnis D., O'Dowd C.D., Seasonal Variations in the Sources of Organic Aerosol in Xi'an, Northwest China: The Importance of Biomass Burning and Secondary Formation, ***Sci. Total Environ.***, **2020**, 737: 139666.

48. Huang R.J.*, He Y., Duan J., **Li Y.J.**, Chen Q., Zheng Y., Chen Y., Hu W., Lin C., Ni H., Dai W., Cao J., Wu Y., Zhang R., Xu W., Ovadnevaite J., Ceburnis D., Hoffmann T., O'Dowd C. D., Contrasting Sources and Processes of Particulate Species in Haze Days With Low and High Relative Humidity in Wintertime Beijing, ***Atmos. Chem. Phys.***, **2020**, 20: 9101-9114.

49. Gen M., Zhang R., **Li Y.J.**, Chan C.K.*, Multiphase Photochemistry of Iron-Chloride Containing Particles as a Source of Aqueous Chlorine Radicals and Its Effect on Sulfate Production, ***Environ. Sci. Technol.***, **2020**, 54: 9862-9871.

50. Wang T., Huang R.J.*, **Li Y.J.**, Chen Q., Chen Y., Yang L., Guo J., Ni H., Hoffmann T., Wang X., Mai B., One-Year Characterization of Organic Aerosol Markers in Urban Beijing: Seasonal Variation and Spatiotemporal Comparison, ***Sci. Total Environ.***, **2020**, 743: 140689; DOI: 10.1016/j.scitotenv.2020.140689.

51. Zhang H., Gu W., **Li Y.J.***, Tang M., Hygroscopic Properties of Sodium and Potassium Salts as Related to Saline Mineral Dusts and Sea Salt Aerosols, ***J. Environ. Sci.***, **2020**, 95: 65-72.

52. Huang R.J.*, Yang L., Shen J.*, Yuan W., Gong Y., Guo J., Cao W., Duan J., Ni H., Zhu C., Dai W., **Li Y.J.**, Chen Y., Chen Q., Wu Y., Zhang R., Dusek U., O'Dowd C., Hoffmann T., Water-Insoluble Organics Dominate Brown Carbon in Wintertime Urban Aerosol of China: Chemical Characteristics and Optical Properties, ***Environ. Sci. Technol.***, **2020**, 54: 7836-7847.

53. Gu Y., Huang R.J.*, **Li Y.J.**, Duan J., Chen Q.*, Hu W., Zheng Y., Lin C., Ni H., Dai W., Cao J., Liu Q., Chen Y., Chen C., Ovadnevaite J., Ceburnis D. O'Dowd C., Chemical Nature and Sources of Fine Particles in Urban Beijing: Seasonality and Formation Mechanisms, ***Environ. Int.***, **2020**, 140: 105732; DOI: 10.1016/j.envint.2020.105732.

54. Lin C., Huang R.J.*, Xu W., Duan J., Zheng Y., Chen Q., Hu W., **Li Y.J.**, Ni H., Wu Y., Zhang R., Cao J., O'Dowd C., Comprehensive Source Apportionment of Submicron Aerosol in Shijiazhuang, China: Secondary Aerosol Formation and Holiday Effects, ***ACS Earth Space Chem.***, **2020**, 4: 947-957.

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56. Zheng Y., Cheng X., Liao K., Li Y., **Li Y.J.**, Huang R.J., Hu W.W., Liu Y., Zhu T., Chen S., Zeng L., Worsnop D., Chen Q.*, Characterization of Anthropogenic Organic Aerosols by ToF-ACSM With the New Capture Vaporizer, ***Atmos. Meas. Tech.***, **2020**, 13: 2457-2472.

57. Yuan W., Huang R.J.*, Yang L., Guo J., Chen Z., Duan J., Wang M., Wang T., Ni H., Han Y., **Li Y.J.**, Chen Q., Chen Y., Hoffmann T., and O'Dowd C., Characterization of the Light-Absorbing Properties, Chromophores Composition and Sources of Brown Carbon Aerosol in Xi'an, Northwest China, ***Atmos. Chem. Phys.***, **2020**, 20: 5129-5144.

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59. Sun J. Y., Wu C.*, Wu D.*, Cheng C., Li M., Li L., Deng T., Yu J. Z., **Li Y.J.**, Zhou Q., Liang Y., Sun T., Song L., Cheng P., Yang W., Cen Y., Zhou Z.*, Pei C., Chen Y., and Nian H., Amplification of Black Carbon Light Absorption Induced by Atmospheric Aging: Temporal Variation at Seasonal and Diel Scales in Urban Guangzhou, ***Atmos. Chem. Phys.***, **2020**, 20: 2445-2470.

60. Sun T., Wu C.*, Wu D.*, Liu B., Sun J.Y., Mao X., Yang H., Deng T., Song L., Li M., **Li Y.J.**, Zhou Z.*, Time-Resolved Black Carbon Aerosol Vertical Distribution Measurements Using a 356-M Meteorological Tower in Shenzhen, ***Theor. Appl. Climatol.***, **2020**, 140: 1263-1276.

61. Zhang R., Gen M., Huang D.D., **Li Y.J.**, Chan C.K.*, Enhanced Sulfate Production by Nitrate Photolysis in the Presence of Halide Ions in Atmospheric Particles, ***Environ. Sci. Technol.***, **2020**, 54: 3831-3839.

62. Shen T., **Li Y.J.***, Liu Y., Hu H., Tang Y.*, An Experimental Study About the Effects of Phosphorus Loading in River Sediment on the Transport of Lead and Cadmium at Sediment-Water Interface, ***Sci. Total Environ.***, **2020**, 720: 137535; DOI: 10.1016/j.scitotenv.2020.137535.

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64. Liu B., Wu C., Ma N., Chen Q., Li Y., Ye J., Martin S.T., **Li Y.J.***, Vertical Profiling of Fine Particulate Matter and Black Carbon by Using Unmanned Aerial Vehicle in Macau, China, ***Sci. Total Environ.***, **2020**, 709: 136109; DOI: 10.1016/j.scitotenv.2019.136109.

65. Yao T., Li Y.*, Gao J., Fung J.C.H., Wang S., **Li Y.J.**, Chan C.K., Lau A.K.H., Source Apportionment of Secondary Organic Aerosols in the Pearl River Delta Region: Contribution From the Oxidation of Semi-Volatile and Intermediate Volatility Primary Organic Aerosols, ***Atmos. Environ.***, **2020**, 222: 117111; DOI: j.atmosenv.2019.117111.

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Conference Presentations

Note: student/post-doc; * = corresponding author

1. **Li Y.J.***, Aqueous-Phase Co-Photolysis of Nitrate and Brown Carbon (BrC) Chromophores. the 13th Asian Aerosol Conference, Sarawak, Malaysia, Nov., 2024.

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3. **Li Y.J.***, Contribution of Aromatic Precursors to Urban Secondary Organic Aerosols: A Perspective From the Formation of Highly Oxygenated Organic Molecules (OOMs). the 7th International Workshop on Regional Air Quality Management in Rapidly Developing Economic Regions (7RAQM), Guangzhou, China, May, 2024.

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14. **Li Y.J.***, Huang W., Tian L., Wang Y., Huang D.D., Ma Y., Gen M., Yu J.Z., Chan C.K., Nitrate Enhances Near-UV/visible Absorption of Brown Carbon (BrC) Model Compounds During Aqueous-Phase Photolysis. European Aerosol Conference, Gothenburg, Sweden, Aug., 2019.
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32. Liu P.F., **Li Y.J.**, Wang Y., Bateman A., Zhang Y., Gong Z.H., Gilles M., Martin S.T.*, How Glassy States Affect Brown Carbon Production? AGU Fall Meeting, San Francisco, CA, U.S., Dec., 2015.

33. Liu P.F., **Li Y.J.**, Wang Y., Bateman A., Zhang Y., Gong Z.H., Gilles M., Martin S.T.*, Physical State of Secondary Organic Material Affects the Production of Brown Carbon. AAAR 34th Annual Conference, Minneapolis, MN, U.S., Oct., 2015.

34. Martin S.T.*, **Li Y.J.**, Liu P.F., Gong Z.H., Wang Y., Bateman A.P., What Is the Meaning of "Non-Liquid" or "Liquid" Applied to Secondary Organic Material? Highlighting Differences in the Effects of Absorbed Water on Physical Properties Compared to Chemical Reactivity. AAAR 34th Annual Conference, Minneapolis, MN, U.S., Oct., 2015.

35. **Li Y.J.**, Lee B.Y.L., Yu J.Z., Ng N.L., Chan C.K.*, Evaluating the Degree of Oxygenation of Organic Aerosols During Foggy Days and Hazy Days in Springtime in Hong Kong Using High-Resolution Time-of-Flight Aerosol Mass Spectrometry (HR-ToF-AMS). The 4th International Workshop on Regional Air Quality in Rapidly Economic Developing Regions (4RAQM), Hong Kong, Jan., 2014.

36. **Li Y.J.**, Huang D.D., Cheung H.Y., Lee A.K.Y., Chan C.K.*, Aqueous-Phase Photochemical Oxidation and Direct Photolysis of Vanillin—a Model Compound of Methoxy-Phenols

From Biomass Burning. The 4th International Workshop on Regional Air Quality in Rapidly Economic Developing Regions (4RAQM), Hong Kong, Jan., 2014.

37. **Li Y.J.**, Cheung H.Y., Huang D.D., Chan C.K.*, Aqueous-Phase Chemistry of Vanillin as a Model Compound of Methoxy-Phenols From Biomass Burning. European Aerosol Conference, Prague, Czech Republic, Sep., 2013.
38. Cheng W.J., Weng L.T., **Li Y.J.**, Lau A.P.S., Chan C.K., Chan C.M.*, Surface Chemical Composition of Size-Fractionated Urban Walkway Aerosols Determined by XPS and ToF-SIMS. European Geosciences Union (EGU) General Assembly, Vienna, Austria, Apr., 2013.
39. **Li Y.J.**, Lee B.Y.L., Chan C.K.*, Evaluating the Degree of Oxygenation of Organic Aerosols During Foggy Days and Hazy Days in Springtime in Hong Kong Using High-Resolution Time-of-Flight Aerosol Mass Spectrometry (HR-ToF-AMS). AAAR 31st Annual Conference, Minneapolis, MN, U.S., Oct., 2012.
40. Lee B.Y.L., **Li Y.J.**, Chan C.K.*, Yu J.Z., Louie P., Characteristics of Ambient Aerosol at a Suburban Site in Hong Kong During Springtime Using Aerosol Mass Spectrometry. AAAR 31st Annual Conference, Minneapolis, MN, U.S., Oct., 2012.
41. Lee B.Y.L., **Li Y.J.**, Chan C.K.*, Intercomparison of Particle Sizing Between AMS, SMPS and FMPS. AAAR 31st Annual Conference, Minneapolis, MN, U.S., Oct., 2012.
42. Chan K.M, Huang D.D., **Li Y.J.**, Chan M.N., Seinfeld J. H., Chan C.K.*, Characterization of Oligomers Products From Heterogeneous Acid-Catalyzed Reaction of Methyl Vinyl Ketone and Their Formation Reaction Mechanisms. AAAR 31st Annual Conference, Minneapolis, MN, U.S., Oct., 2012.
43. **Li Y.J.**, Lee B.Y.L., Chan C.K.*, Evaluating the Degree of Oxygenation of Organic Aerosols During Foggy and Hazy Days in Hong Kong Using High-Resolution Time-of-Flight Aerosol Mass Spectrometry. International Global Atmospheric Chemistry (IGAC) Science Conference, Beijing, China, Sep., 2012.
44. Chen Q., **Li Y.J.**, McKinney K., Kuwata M., Martin S.T*, Particle-Phase Chemistry of Secondary Organic Material: Modeled Compared to Measured O:C and H:C Elemental Ratios Provide Constraints. AGU Fall Meeting, San Francisco, CA, U.S., Dec., 2011.
45. **Li Y.J.**, Chan C.K.*, Multi-Generation and Multi-Phase Reactions in SOA Formation: Oxidation and Acid-Catalyzed Reactions as Examples. the 3rd International Workshop on Regional Air Quality in Rapidly Economic Developing Regions, Guangzhou, China, Nov., 2011.
46. **Li Y.J.**, Chan C.K.*, Characterization of Organic Particles From Incense Burning Using an Aerodyne High-Resolution Time-of-Flight Aerosol Mass Spectrometer. AAAR 30th Annual Conference, Orlando, FL, U.S., Oct., 2011.
47. Lee B.Y.L., **Li Y.J.**, Chan C.K.*, Laboratory Study of Collection Efficiency of Mixed Organic-Inorganic Particles by the Aerodyne HR-ToF-AMS. AAAR 30th Annual Conference, Orlando, FL, U.S., Oct., 2011.
48. **Li Y.J.**, Chan C.K.*, Characterization of Organic Particles From Incense Burning Using an Aerodyne High-Resolution Time-of-Flight Aerosol Mass Spectrometer. Asian Aerosol Conference, Xi'an, China, Aug., 2011.
49. **Li Y.J.**, Chan C.K.*, Characterization of Particles From Incense and Mosquito Coil Burning With Aerosol Mass Spectrometry. Pacifichem 2010, Honolulu, Hawaii, U.S., Dec., 2010.
50. **Li Y.J.**, Chan C.K.*, Acid-Catalyzed Reactions of Volatile Organic Compounds in the Formation Organic Aerosols. the 17th National Conference on Atmospheric Environmental Science and Technology, Shanghai, China, Oct., 2010.
51. **Li Y.J.**, Cheong G.Y.L., Lau A.P.S., Chan C.K.*, Relative Humidity as a Critical Parameter in Reactive Uptake of Limonene and Terpineols by Acidic Particles. International Aerosol Conference, Helsinki, Finland, Sep., 2010.

52. **Li Y.J.**, Cheong G.Y.L., Lee A.K.Y., Lau A.P.S., Chan C.K.*, Acid-Catalyzed Reactions of Limonene and Terpineol and Their Implication in Secondary Organic Aerosol (SOA) Formation. European Aerosol Conference, Karlsruhe, Germany, Sep., 2009.
53. **Li Y.J.**, Lee A.K.Y., Lau A.P.S., Chan C.K.*, Accretion Reactions of Octanal Catalyzed by Sulfuric Acid: Product Identification, Reaction Pathways and Atmospheric Implications. AAAR 27$^{\text{th}}$ Annual Conference, Orlando, FL, U.S., Oct., 2008.
54. Lee A.K.Y., **Li Y.J.**, Lau A.P.S., Chan C.K.*, Uptake of Octanal Vapor in the Presence of Acidic Seed Particles. AAAR 27$^{\text{th}}$ Annual Conference, Orlando, FL, U.S., Oct., 2008.

Invited Talks

Southern University of Science and Technology, Shenzhen, China

Secondary Organic Aerosol Formation From Aromatic Volatile Organic Compounds **Dec., 2024**
National Cheng Kung University, Tainan, Taiwan, China

Atmospheric Environment, Climate Change, and Carbon Neutrality **Oct., 2024**
King Abdullah University Of Science And Technology, Thuwal, Saudi Arabia

Secondary Organic Aerosol Formation From Aromatic Volatile Organic Compounds; *Aqueous-Phase Co-Photolysis of Nitrate and Brown Carbon Chromophores* **Jun., 2024**
Shandong University, Qingdao, China

Introduction to Secondary Organic Aerosol **Jul., 2019**
Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou, China

Introduction to Secondary Organic Aerosol **Nov., 2018**
Shandong University, Qingdao, China

Real-time Chemical Characterization of Particulate Matter in China **Jul., 2018**
Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou, China

Real-time Chemical Characterization of Particulate Matter in China **Jan., 2018**
City University of Hong Kong, Hong Kong, China

Aerosol Mass Spectrometric Characterization of Fine Particulate Matters **Jul., 2016**
The Hong Kong Polytechnic University, Hong Kong, China

Aerosol Mass Spectrometric Characterization of Fine Particulate Matters **Jul., 2016**
Jinan University, Guangzhou, China

Semi-solidity and Reactivity of Aerosol Particles **Mar., 2016**
The Hong Kong University of Science and Technology, Hong Kong, China

Semi-solidity and Reactivity of Aerosol Particles **Aug., 2015**

Grants

Note: 1 USD ≈ 8 MOP ≈ 7 RMB

External

- **National Natural Science Foundation of China (NSFC)** and **Science and Technology Development Fund (FDCT)**, Macau SAR Joint Project: *Laboratory and Field Investigations on Aqueous-Phase Oxidation of Atmospheric Organic Compounds Based on Bulk-Solution, Single-Particle, and Suspended-Aerosol Experiments*, 2023.12-2026.11, MOP 2,039,000, PI.
- **Science and Technology Development Fund (FDCT)**, Macau SAR: *Investigations of Brown Carbon and Aerosol and Sea Spray Aerosol Photolysis by Single-Particle Levitation Coupled With Raman Spectroscopy and Mass Spectrometry*, 2023.12-2026.12, MOP 1,919,000, PI.
- **Environmental Protection Bureau (DSPA)**, Macau SAR: *An Assessment Study on the Efficiency of Air Quality Improvement*, 2023.06-2023.12, MOP 378,000, PI.
- **Science and Technology Development Fund (FDCT)**, Macau SAR: *Impacts of Different Commercial Silane Coatings to Algal Toxicity of Metal Nanoparticle Mixtures*, 2023.04-2026.04,

MOP 670,000, Co-I.

- **Science and Technology Development Fund (FDCT)**, Macau SAR: *Modification of an Electrodynamic Balance and Application to Study Hygroscopic Behavior and Phase State of Saccharides in Marine Aerosols*, 2021.10-2024.09, MOP 1,775,000, PI.
- **Science and Technology Development Fund (FDCT)**, Macau SAR: *Effects of Anthropogenic and Marine Aerosol Inorganic Salts on the Aqueous-Phase Photolysis of Atmospheric Nitro-Phenolic Compounds*, 2020.09-2023.08, MOP 1,855,000, PI.
- **Environmental Protection Bureau (DSPA)**, Macau SAR: *An Assessment Study on the Control Policies for Stationary Air Pollution Sources*, 2020.07-2020.12, MOP 380,000, PI.
- **Environmental Protection Bureau (DSPA)**, Macau SAR: *Study on Effectiveness of Air Quality Improvement Policies and Site Selection of Air Pollutants Monitoring*, 2018.06-2018.12, MOP 360,000, PI.
- **Science and Technology Development Fund (FDCT)**, Macau SAR: *Effects of Phase State of Atmospheric Particulate Matter (PM) on Gas-Particle Conversion of Glyoxal and Formation of Secondary Organic Aerosols (SOA)*, 2017.08-2020.09, MOP 1,035,000, PI.
- **Science and Technology Development Fund (FDCT)**, Macau SAR: *Effects of Secondary Organic Aerosol Formed via Nitrate-Mediated Aqueous-Phase Oxidation on the Physical Properties of Atmospheric Particulate Matter*, 2017.03-2020.04, MOP 1,178,000, PI.
- **National Natural Science Foundation of China (NSFC)**: *Laboratory Studies on the Effects of Nitrate on Secondary Organic Aerosol Formation*, 2017.01-2020.12, RMB 710,000, PI.

Internal

- **MYRG**: *Toxicity and Absorptivity of Secondary Organic Aerosol (SOA) From Naphthalene Oxidation*, 2025.01-2026.12, MOP 680,000, PI.
- **Multi-Year Research Grant (MYRG)**, University of Macau Research Council: *Effects of Light-Absorbing Organic Components on Nitrous Acid (HONO) Production From Nitrate Photolysis on Simulated Urban Grime*, 2024.01-2025.12, MOP 640,000, PI.
- **Multi-Year Research Grant (MYRG)**, University of Macau Research Council: *Co-Photolysis of Atmospheric Particulate Nitrate and Brown Carbon (BrC) Chromophores and Implications on Atmospheric Chemistry and Health Effects*, 2023.01-2024.12, MOP 432,500, PI.
- **Multi-Year Research Grant (MYRG)**, University of Macau Research Council: *Chemical Constituents in Atmospheric Fine Particulate Matter (PM) and Health-Related Reactive Oxygen Species (ROS) Generation*, 2019.01-2021.12, MOP 1,497,500, PI.
- **Multi-Year Research Grant (MYRG)**, University of Macau Research Council: *Measurement of Vertical Profiles for Particulate Matters in Suburban and Pristine Environments Using an Unmanned Aerial Vehicle Platform*, 2017.09-2020.082, MOP 733,700, PI.
- **Start-Up Research Grant (SRG)**, University of Macau Research Council: *A Pilot Test of an Unmanned Aerial Vehicle (UAV) System for Vertical Distribution Measurements of Atmospheric Particulate Matter (PM)*, 2016.01-2018.12, MOP 150,000, PI.

Teaching

Course

- Undergrad: *Environmental Engineering I* (Fall, 2015-present, student rating: average 4.1/5.0)
- Postgrad: *Air Pollution Chemistry and Meteorology* (Fall, 2015-present, average 4.5/5.0)
- Postgrad: *Air Pollution Control* (Spring, 2016-2019, average 4.5/5.0)

Supervision

PhD

- Qianying Liu (on-going)
- Lulu Zeng (on-going)
- Yue Liang (on-going)
- Fangbing Li (graduated 08/2024)
- Yalin Wang (graduated 05/2023)
- Xi Chen (graduated 12/2022)
- Linhui Tian (graduated 12/2022)
- Ben Liu (graduated 11/2020)
- Tingting Shen (graduated 11/2020)

MSc

- Haolin Zhou (on-going)
- Xinrui Han (on-going)
- Jingwen Wu (on-going)
- Tian Qiu (on-going)
- Xuyang Zhang (on-going)
- Lulu Zeng (graduated 07/2022)
- Qianying Liu (graduated 07/2022)
- Wanyi Wang (graduated 06/2020)
- Jacky Weng Chun Choi (graduated 12/2018)
- Mandy Minle He (graduated 12/2018)
- Wanjin Li (graduated 12/2018)
- Da Lei (graduated 12/2018)
- Karen Ka Wan Lai (graduated 04/2018)

FYP

- Mingzi Zhu (on-going)
- Haoran Hu (on-going)
- Yuya Xia (graduated 2024)
- Haoming Sun (graduated 2024)
- Iok Kit Hoi (graduated 2023)
- Kin Chit Wong (graduated 2023)
- Sio I Ip (graduated 2023)
- Wan Chi Lok (graduated 2022)
- Hung Tun Man (graduated 2022)
- Seng Hei Che (graduated 2021)
- Hong Chao Li (graduated 2021, Dean's List)
- Raul Quishor Lotlicar (graduated 2021)
- Seng Fong Ip (co-supervised, graduated 2021)
- Ka Lok Wong (co-supervised, graduated 2021)
- Chi Sim Wong (graduated 2020)
- Sung-yuan Huang (graduated 2020)
- Lok Him Chao (graduated 2020)
- Pui Sang Ku (co-supervised, graduated 2020)
- Shumeng Wang (graduated 2019, Dean's List)
- Ka Meng Choi (graduated 2019)
- Chong Neng U (graduated 2019)
- Sin Mei Leong (graduated 2018, Dean's List)
- Ching Ching Wu (graduated 2018)
- Kin Tak Tam (graduated 2018)
- Wei Sen Fang (graduated 2018)
- Jinquan Huang (graduated 2017, Dean's List)
- Weng Sang Iao (graduated 2017)
- Bofei Li (graduated 2017)
- Chi Hou Fok (graduated 2017)
- Chan Tong Tang (graduated 2017)
- Tek Nga Choi (graduated 2016)
- Kam Cheong Leong (graduated 2016)

SERVICE

Professional Service

- Co-chair, KAUST Research Conference on Atmospheric Chemistry & Air Pollution (ACAP2025), Thuwal, Saudi Arabia, Feb., 2025.
- Co-convener of the session Aerosol and Environmental Optics and the session Hong Kong and Macao Environmental Health Forum, The 12th National Conference on Environmental Chemistry

(NCEC), Wuhan, China, Nov., 2023.

- Chair of Local Organizing Committee, The 17th International Symposium on Persistent Toxic Substances & Health (ISPTS), Macau, China, Sep., 2023
- Advisory Board member, *Environmental Science: Advances*, Royal Society of Chemistry
- Guest Editor for *Atmospheric Environment* (2022 - 2023)
- Guest Editor for *Atmos. Chem. Phys.* and *Atmos. Meas. Tech.* joint Special Issue (2017 - 2021)
- Technical Committee member for Asian Aerosol Conference 2019
- Session Chairing in the 13th National Conference for Aerosol Science and Technology (2018), International Aerosol Conference (2018), Asian Aerosol Conference (2019), China Atmospheric Environment Science and Technology Conference (2022) etc.
- Reviewer (>15 journals; >150 articles) for *Chem.*, *Trends Anal. Chem.*, *Environ. Sci. Technol.*, *J. Geophys. Res.-Atmos.*, *Atmos. Chem. Phys.*, *J. Phys. Chem. A*, *Atmos. Environ.*, *Environ. Int.*, *Environ. Sci. Atmos.* etc.
- Reviewer for Outstanding Papers for *Environmental Science: Advances* (2023 - 2024)
- Reviewer for Qatar National Research Fund (2022 - 2023), Swiss National Science Fund (2021), Hong Kong Research Grant Council (2021 - 2023), and Chinese State Key Laboratory grants (2019)

University Service

- Associate Head, Department of Civil and Environmental Engineering (2022 - present)
- Faculty Research Affair Committee member (2019 - present)
- Faculty Graduate Studies Committee member (2019 - 2022)
- Departmental representative for Honours College (2019 - 2023)
- Affiliate of residential college: Henry Fok Pearl Jubilee College (2017 - present)
- Faculty Advisor of UM ASCE International Student Group (2016 - 2019)
- Departmental Advisor for student exchange program (2016 - present)

Community Service

- Examination committee member for Environmental Engineer license, Macau SAR (2022-present)
- Referee for competitions by Macau Innovation and Invention Association (MIIA) (2019-present)
- Referee for competitions by The Macau Institute of Engineers (AEM) (2019-present)
- Referee for competitions on STEM by Macau Life Science Institute (MLSI) (2019)
- Referee for the China Adolescents Science and Technology Innovation Contest (CASTIC) (2019)
- Referee for Environmental Teaching Plan Competition by DSPA, Macao SAR (2016 - present)
- Seminar on air pollution in The Macau Institute of Engineers (AEM) (2020)
- Seminar on air pollution in Macau Life Science Institute (MLSI) (2019)
- Seminar on air pollution in Macau Laboratory Technologist Association (MLTA) (2018)