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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 4 th 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. <i>Associate Professor</i> Aug., 2021 - present University of Macau , Macau, China. <i>Assistant Professor</i> Aug., 2015 - Aug., 2021 Harvard University , Cambridge, MA, USA. <i>Postdoctoral Fellow</i> Apr., 2014 - Jul., 2015 HKUST , Hong Kong, China. <i>Post-doc Fellow and Research Associate</i> Sep., 2010 - Mar., 2014 Harvard University , Cambridge, MA, USA. <i>Visiting Scholar</i> Jan., 2009 - May, 2009 Peking University , Beijing, China. <i>Research Assistant</i> Sep., 2004 - Jul., 2005	

Table 1: Citation Metrics

Source	Total Publications	Total Citations	h-index
Google Scholar	118	5300+	44
Web of Science	113	4200+	40
Scopus	110	4100+	38

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

1. 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.
2. 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.
3. 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**, DOI: 10.1021/acsestair.4c00033.
4. 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.
5. 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
6. 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.
7. 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.
8. 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).
9. 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.
10. 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.

11. 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 Cl₂ in the Yangtze River Delta, China, *Atmos. Environ.*, **2023**, 306: 119829; DOI: 10.1016/j.atmosenv.2023.119829.
12. 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.
13. 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.
14. 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.
15. 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.
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17. 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.
18. 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.
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20. 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.
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23. 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.
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 25. 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.
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Note: student/post-doc; * = corresponding author

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INVITED TALKS

Shandong University, Qingdao, China

Introduction to Secondary Organic Aerosol

July, 2019

Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou, China

Introduction to Secondary Organic Aerosol

November, 2018

Shandong University, Qingdao, China

Real-time Chemical Characterization of Particulate Matter in China

July, 2018

Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou, China

Real-time Chemical Characterization of Particulate Matter in China

January, 2018

City University of Hong Kong, Hong Kong, China

Aerosol Mass Spectrometric Characterization of Fine Particulate Matters

July, 2016

The Hong Kong Polytechnic University, Hong Kong, China

Aerosol Mass Spectrometric Characterization of Fine Particulate Matters

July, 2016

Jinan University, Guangzhou, China

Semi-solidity and Reactivity of Aerosol Particles

March, 2016

The Hong Kong University of Science and Technology, Hong Kong, China

GRANTS

Note: 1 USD $\approx$ 8 MOP $\approx$ 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 nitrophenolic 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)

- Wanjin Li (graduated 12/2018)
- Da Lei (graduated 12/2018)
- Karen Ka Wan Lai (graduated 04/2018)

FYP

- 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)

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)

- 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-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)