

Xiujie Li

Curriculum Vitae, Oct. 2024

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RESEARCH POSITIONS

Oct. 2023-Present	Postdoctoral Fellow	Hong Kong Polytechnic Univeristy
	Advisor: Prof. Cheuk Ming MAK.	

EDUCATION

Sep. 2020-Aug. 2023	Hong Kong Polytechnic University, Hong Kong
	Doctor of Philosophy (Built Environment)
Sep. 2016-Jun. 2019	Peking University, Beijing, China
	Master of Natural Science
Sep. 2012-Jun. 2016	Chang'an University, Xi'an, China
	Bachelor of Engineering

RESEARCH PROJECTS

Sep. 2023- Present	Development of Particle Image Velocimetry-Fast Simulation (PIV-FS) Framework for Restoring Global Dental Service After Pandemic
Team Leader	Advisors: Prof. Cheuk Ming MAK, and Prof. Hai Ming Wong. Funding: Hong Kong General Research Fund (GRF) & Postdoc Matching Fellowship <ul style="list-style-type: none">• Conducting on-site aerosolization measurements to assess airborne particle decay;• Developing a fast and reliable approach for assessing the bio-aerosol distribution;• Determining minimum required fallow time and the concerned disinfection areas.
Sep. 2021- Jul. 2022	Dynamics and Time Scales of Airborne Transmission in Short-term and Steady-state Exposure Events
Team Leader	Supervisors: Prof. Zhengtao Ai. Funding: National Natural Science Foundation of China <ul style="list-style-type: none">• Focusing on dynamic changes of short-term events when steady state is not reached;• Decoupling direct and indirect airborne transmission routes by numerical modeling;• Numerically examining cross-infection risk (LES model) and developing measures.
Apr. 2021- Aug.2023	Atomization and Propagation of Dental Droplets, Emission and Exposure in Medical Surgery Environments
Team Leader	Supervisors: Prof. Cheuk Ming MAK. Funding: Hong Kong Polytechnic University Foundation <ul style="list-style-type: none">• Visualizing the atomization mechanisms of emitted droplets in dental procedures;• Quantitatively evaluating the performance of recommended mitigation measures;• Assessing the spatial-temporal distribution of droplets and cross-infection risks.
Apr. 2016- Jun. 2019	Developing the Active Daylight Harvesting System for Balancing the Building Energy Consumption
Team Leader	Supervisors: Prof. Peng Jin. Funding: Shenzhen Basic Research Foundation <ul style="list-style-type: none">• Optimizing the optic structure of daylighting tube and solar tracking system;• Evaluating energy performance of the daylight system and human thermal comfort.

PUBLICATION LIST

Journal Papers

- 2024 Two Research Papers are under review
Xiujie Li, Cheuk Ming MAK, Zhengtao Ai, Kuen Wai Ma, Hai Ming Wong. "Propagation and Evaporation of Contaminated Droplets, Emission and Exposure in Surgery Environments Revealed by Laser Visualization and Numerical Characterization". *Journal of Hazardous Materials*, 135338. (Impact factor: 12.2; JCR®Q1)
- 2023 **Xiujie Li**, Cheuk Ming MAK, Zhengtao Ai, Kuen Wai Ma, Hai Ming Wong. "Cross-infection risk assessment in dental clinic: Numerical investigation of emitted droplets during different atomization procedures". *Journal of Building Engineering*, 75 (2023): 106961. (Impact factor: 6.7; JCR®Q1).
Xiujie Li, Cheuk Ming MAK, Zhengtao Ai, Kuen Wai Ma, Hai Ming Wong. "Numerical investigation of the impacts of environmental conditions and breathing rate on droplet transmission during dental service". *Physics of Fluids*, 35 (2023): 043332. (Impact factor: 4.1; JCR®Q1).
- 2022 **Xiujie Li**, Zhengtao Ai, Jinjun Ye, Cheuk Ming MAK, Hai Ming Wong. "Airborne transmission during short-term events: Direct route over indirect route". *Building Simulation*, 15 (2022): 2097-2110. (Impact factor: 5.5; JCR®Q1).
Xiujie Li, Zhengtao Ai, Cheuk Ming MAK, Hai Ming Wong. "Airborne transmission of exhaled pollutants during short-term events: Quantitatively assessing inhalation monitor points", *Building and Environment*, 223 (2022): 109487. (Impact factor: 7.1; JCR®Q1).
- 2021 **Xiujie Li**, Cheuk Ming MAK, Kuen Wai Ma, Hai Ming Wong. "Restoration of dental services after COVID-19: The fallow time determination with laser light scattering". *Sustainable Cities and Society*, 74 (2021): 103134. (Impact factor: 10.5; JCR®Q1)
Xiujie Li, Cheuk Ming MAK, Kuen Wai Ma, Hai Ming Wong. "How the high-volume evacuation alters the flow-field and particle removal characteristics in the mock-up dental clinic". *Building and Environment*, 205 (2021): 108225. (Impact factor: 7.1; JCR®Q1).
Xiujie Li, Cheuk Ming MAK, Kuen Wai Ma, Hai Ming Wong. "Evaluating flow-field and expelled droplets in the mockup dental clinic during the COVID-19 pandemic". *Physics of Fluids*, 33 (2021): 047111. (Impact factor: 4.1; JCR®Q1). **Featured Article**
Ning Zhang, Hui Zhang, Schiller Georg, Haibo Feng, Xiaofeng Gao, Enming Li, **Xiujie Li**. "Unraveling the Global Warming Mitigation Potential from Recycling Subway-Related Excavated Soil and Rock in China Via Life Cycle Assessment". *Integrated Environmental Assessment and Management*, 17 (2021): 639-650. (Impact factor: 3.0; JCR®Q2).
- 2019 **Xiujie Li**, Yeyan Wei, Junbin Zhang, Peng Jin. "Design and analysis of an active daylight harvesting system for building". *Renewable Energy*, 139 (2019): 670-678. (Impact factor: 9.0; JCR®Q1).
- 2017 Biao Chen, Yeyan Wei, **Xiujie Li**, Runze Cao, Peng Jin. "Numerical modeling of tubular daylighting devices". *Optik*, 145 (2017): 95-98. (Impact factor: 3.1; JCR®Q2).

Conference Posters and Presentations

- 2024 **Xiujie Li**, Cheuk Ming MAK, Kuen Wai Ma, Hai Ming Wong, "Propagation and Evaporation of Dental Droplets, Emission and Exposure in Surgery Environments: Preparing for Next "Disease X", *Indoor Air 2024*, Hawaii, United States, July 7-11, 2024

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- 2023 **Xiujie Li**, Cheuk Ming MAK, Hai Ming Wong, “Performance of mitigation measures on emitted droplets in dental atomization procedure”, *11th International Conference on Indoor Air Quality, Ventilation & Energy Conservation in Buildings (IAQVEC2023)*, Tokyo, Japan, May 20-23, 2023
- Xiujie Li**, Cheuk Ming MAK, Hai Ming Wong, “Cross-Infection Risk Analysis in Dental Clinics: Atomization and Transmission Mechanisms of Emitted Droplet”, *PolyU Research Student Conference (PRSC 2023)*, Hong Kong, May 8-10, 2023
- 2022 **Xiujie Li**, Cheuk Ming MAK, Zhengtao Ai, Kuen Wai Ma, Hai Ming Wong, “The Airborne Lifetime and Spatial–Temporal Distribution of Emitted Droplets in Dental Procedures”, *5th International Conference on Building Energy and Environment (COBEE 2022)*, Montreal, Canada, July 25-29, 2022
- 2018 **Xiujie Li**, Yeyan Wei, Junbin Zhang, Peng Jin. “Assessing the energy performance of an active daylight harvesting system for building”, *11th International Conference on Sustainable Energy and Environmental Protection (SEEP 2018)*, Paisley, United Kingdom, May 8-11, 2018
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Invited Talks

- 2024 **Xiujie Li** (Jun. 17th 2024). “Nosocomial Infections in medical healthcare centres”, invited by Chong Qing University, China.
- Xiujie Li** (Sep. 21st 2024). “Atomization and propagation of contaminated droplets through the particle image velocimetry measurement”, *2th International Symposium for Young Scholars in Fluids*, University of Oxford, United Kingdom.
- Xiujie Li** (Nov. 3rd 2024). “Revealing the dynamics of airborne transmission in short-term exposure events”, invited by Dalian University of Technology, China.

AWARDS & HONORS

- Apr. 2023 Occupational Safety and Health Best Project Award, Hong Kong.
- Jan. 2023 Outgoing Hong Kong Polytechnic University Scholarship.
- Oct. 2018 Award for Academic Excellence in Peking University.
- Jun. 2018 Peking University Conference and Exchange Award.
- Sep. 2016 Postgraduate Student Academic Scholarship in Peking University.
- Dec. 2014 Second Prize in China Mathematical Contest in Modeling.

TECHNICAL SKILLS

- CAD/CAE Catia, AutoCAD, SketchUp
- Meshing ICEM, Fluent Meshing
- CFD ANSYS-Fluent, and postprocessing in Tecplot, CFD-post
- Data analysis Origin, Excel-VBA
- Experiments Particle Image Velocimetry (PIV), Thermal Breathing Manikin, Tracer Gas, Particle Generation and Particulate Sampling, Aerosol Sampling, Thermal Camera, Sub-scaled Experiment Design, Field Measurement of Air Quality and Thermal Environment, Low-cost Sensors, Sensor Calibration.
- Programming MATLAB, C/C++
- Language English, Chinese

TEACHING EXPERIENCE

<i>Feb. 2024–Sep. 2024</i>	Thesis Teaching Fellow Department of Building Environment and Energy Engineering, HK PolyU <ul style="list-style-type: none">• Clarify the scientific research methods and examine the application.• Offer extensive feedback on collecting, presenting, and analyzing data.	BSE 3713 Research Methods
<i>Feb. 2022–Jun. 2022</i>	Heat Research Experience Instructor Department of Building Environment and Energy Engineering, HK PolyU <ul style="list-style-type: none">• Designed and led eight laboratory sessions on convection heat transfer.• Answer questions, grade assignments & exams, and guide student projects.	BSE2217 Heat and Mass Transfer
<i>Sep. 2021–Jan. 2022</i>	Undergraduate Teaching Assistant Department of Building and Real Estate, HK PolyU <ul style="list-style-type: none">• Tutorials on human thermal sensation and thermal comfort.• Answer questions, grade assignments & exams, and guide student projects.	BRE 349 Building Services I

PROFESSIONAL SOCIETIES

<i>Jun. 2024–Present</i>	The International Society of Indoor Air Quality and Climate (ISIAQ), Member
<i>May. 2023–Present</i>	The Indoor Air Quality, Ventilation & Energy Conservation Association (IAQVEC), Member
<i>Jul. 2023–Present</i>	Hong Kong Institution of Science (HKIS), Member

JOURNAL REVIEWER

<i>Peer Reviewer</i>	<i>Building and Environment</i> (ISSN: 0360-1323), <i>Environmental International</i> (ISSN: 0160-4120), <i>Buildings</i> (ISSN: 2075-5309)
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