

RESEARCH SEMINAR

DEPARTMENT OF GEOGRAPHY AND RESOURCE MANAGEMENT
THE CHINESE UNIVERSITY OF HONG KONG

Urban Indoor/Outdoor Air Quality and Refined Exposure Assessment: The Case of Hong Kong

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The accurate quantification of personal and population exposure to air pollutants, typically required by epidemiological, risk assessment, and toxicity studies, remains challenging, especially in high-rise and high-density cities like Hong Kong. Our research conducted refined exposure assessment of subjects to typical air pollutants, including respirable suspended particulates (PM₁₀), fine suspended particulates (PM_{2.5}), nitrogen dioxide (NO₂), and ozone (O₃) using an integrated assessment approach. The methods of portable air quality measurements, the development of statistical and machine learning models, Geographic Information System-based spatial analysis, health risk assessment, and others were combined for the implementation of the research work. The air pollution exposure models of PM₁₀, PM_{2.5}, NO₂, and O₃ for indoor and outdoor environments have been developed, with case studies in Hong Kong to be presented in this seminar. The results of our research offer the potential for more accurate air pollution exposure estimates for use in epidemiological and toxicity studies, and provide insights on formulating effective strategies to reduce air pollution exposure. In addition, future research plans will be briefly discussed.

Dr Zhiyuan Li

Institute of Environment, Energy and Sustainability
The Chinese University of Hong Kong

Dr Zhiyuan Li is currently a postdoctoral fellow at The Chinese University of Hong Kong. He received his PhD degree from Division of Environment and Sustainability, The Hong Kong University of Science and Technology (HKUST). His major research interests include portable air quality measurements, air pollution exposure assessment, and indoor/outdoor air quality modelling. He has published 11 first-author and 15 co-author papers on peer-reviewed international journals, including *Atmospheric Chemistry & Physics*, *Journal of Cleaner Production*, and *Environmental Pollution*. He received several research awards, including HKUST IPO Best Research Award, Elsevier Outstanding Reviewer, and China's 100 Most Influential International Academic Papers.



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