Chen Chen, PhD

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Education

2022.4 Ph.D. Environmental science and engineering, Tsinghua University

2016.6 B.S. Environmental science, Renmin University of China

Appointments

2022.6- Post-doctoral Fellow, Department of Urban Planning and Design, The University of Hong Kong

2024.7-2024.8 Visiting Research Fellow, Department of Engineering, The University of Cambridge

Research Interests

- **Simulation and regulation of urban resource metabolism:** Complex system analysis, cycling of carbon, nitrogen and phosphorus; spatial modelling of human-environment interactions.
- **Land use change and sustainable land management:** remote sensing, land use transformation and spatial-environmental impacts, multi-objective optimization.

Selected Publications

[1] **Chen, C.,** Zhang, X., Webster, C. (2025). Truncation in scaling of urban pollution control. *npj Urban Sustainability*, 5: 9.

[2] **Chen, C.,** Zhang, X., Webster, C. (2025). Scaling of urban environmental performance in Chinese cities. *Environment and Planning B: Urban Analytics and City Science*, 1-10.

[3] **Chen, C.,** Zhang, X., Webster, C. (2025). Spatio-temporal impact of land use changes on nitrogen emissions in the Guangdong-Hong Kong-Macao Greater Bay Area. *Journal of Industrial Ecology*, 1-15.

[4] **Chen, C.**, Zhang, X., Webster, C. (2024). Spatially explicit impact of land use changes in bay area on anthropogenic phosphorus emissions and freshwater eutrophication potential. *Environmental Science & Technology*, 58, 18701-18712.

[5] **Chen, C.,** Wen, Z., Sheng, N., & Song, Q. (2024). Uneven agricultural contraction within fast-urbanizing urban agglomeration decreases the nitrogen use efficiency of crop production. *Nature Food*, 5: 390–401.

[6] **Chen, C.,** Wen, Z. (2023). The dynamic characteristics of multi-media carbon pollution and their spatial influencing factors: A case study of the Greater Bay Area of China. *Journal of Industrial Ecology*, 28: 130–143.

[7] **Chen, C.**, Wen, Z. (2023). Cross-media transfer of nitrogen pollution in the fast-urbanized Greater Bay Area of China: Trends and essential control paths. *Journal of Environmental Management*, 326: 116796.

[8] **Chen, C.**, Wen, Z., Wang, Y., Zhang, W., Zhang, T. (2022). Multi-objective optimization of technology solutions in municipal solid waste treatment system coupled with pollutants cross-media metabolism issues. *Science of the Total Environment*, 807:150664.

[9] **Chen, C.**, Yao, Z., Wen, Z., Sheng, N. (2021). Impact of city characteristics on its phosphorus metabolism in the bay area: A comparative analysis of cities in the Greater Bay Area of China. *Journal of Cleaner Production*, 286: 124925.

[10] **Chen, C.**, Wen, Z., Wang, Y. (2020). Nitrogen flow patterns in the food system among cities within urban agglomeration: A case study of the Pearl River Delta region. *Science of the Total Environment*, 703: 135506.

[11] Doan, Q., **Chen, C.,** He, S., Zhang, X. (2024). How urban air quality affects land values: Exploring

non-linear and threshold mechanism using explainable artificial intelligence. *Journal of Cleaner Production*. 434: 140340.

[12] Beck, M., **Chen, C.**, Walker, R., Wen, Z., Han, J. (2023). Multi-sectoral analysis of smarter urban nitrogen metabolism: A case study of Suzhou, China. *Ecological Modelling*, 478: 110286.

[13] Wang, Y., **Chen, C.,** Tao, Y., Wen, Z., Chen, B., Zhang, H. (2019). A many-objective optimization of industrial environmental management using NSGA-III: A case of China's iron and steel industry. *Applied Energy*, 242: 46-56.

[14] Wen, Z., **Chen, C.,** Ai, N., Bai, W., Zhang, W., Wang, Y. (2019). Environmental impact of carbon cross-media metabolism in waste management: A case study of municipal solid waste treatment systems in China. *Science of the Total Environment*, 674: 512-523.

Funded Research Grants

PI. "Life-cycle metabolism of municipal solid waste (MSW) in Hong Kong and intelligent optimization of technical schemes". *Jockey Club Global STEM Post-doctoral Fellowship for Translational Research and Application*, 2024.9-2028.9, HK$ 2,640,000 (personal emoluments contained).

PI. "Study on the scaling law mechanism and regulation strategy of key urban resources metabolism and their environmental effects". *Young Scientists Fund of the National Natural Science Foundation of China (NSFC)*, 2024.1-2026.12, CNY 300,000.

Participated Research Grants

2023-2025	"Research on metabolic mechanism of multi-source solid waste and its optimization pathway of pollution and carbon reduction in Guangdong-Hong Kong-Macao Greater Bay Area". NSFC.
2020-2021	"Analysis of critical implementation paths and management policy in the construction of Zero Waste City". Tsinghua-Volvo Project for Green Economy and Sustainable Development.
2018-2021	"Simulation of nitrogen cross-media metabolism in municipal solid waste treatment system and study on the optimization of technology policy". NSFC.
2017-2021	"Simulation of urban agglomeration metabolism and prediction techniques of ecological risk". National Key Research and Development Project of China.

Prizes and Fellowships

2023	Doris Zimmern HKU-Cambridge Hughes Hall Fellowships 2023-24
2021	Tsinghua's Friend - Xie Zhenhua energy and environment scholarship
2020	Management science prize (Academic), Society of Management Science of China (4/8)
2020	Tsinghua's Friend - IHI scholarship

Book Chapter

[1] Wen, Z. **Chen, C.** (2018). Environmental effects of sustainable management of urban nitrogen metabolism. In: He, J. Eds., Green development and low-carbon transformation in the new era. Beijing: Tsinghua University Press.

Software Copyright

[1] Wen, Z. **Chen, C.** (2021). Software for simulation of resource metabolism in urban agglomerations (2021SR1209708)

[2] Wen, Z. **Chen, C.** (2021). Integrated database for simulation of resource metabolism urban agglomerations (2021SR1324726)