

CURRICULUM VITAE

NAME: Lu Sun , Professor

Affiliation: Xi'an Jiaotong University, China



DATE of BIRTH: 1990/02/08

OFFICE TEL: +86 18629608260

E-MAIL: sun.lu@xjtu.edu.cn

HOME PAGE: https://www.researchgate.net/profile/Lu_Sun30

Research Subject: Industrial Ecology, Circular economy, Life cycle assessment, Eco-city, Climate change mitigation

EDUCATION:

PhD. Major: Environment Systems

Mar. 2016- Mar. 2019

Department of Environment Systems, GSFS, The University of Tokyo, Japan

M.A. Major: Industrial Ecology

Sep. 2011- July 2014

Institute of Applied Ecology, Chinese Academy of Sciences, Shenyang, China

B.A. Major: Geography

Sep.2007-June 2011

Lu Dong University, Yantai, China, Department of Geography and Urban Planning

PROFESSIONAL EXPERIENCE:

December 2021- present, Professor. School of Human Settlements and Civil Engineering, Xi'an Jiaotong University, China

January 2021- December 2021, Postdoctoral Associate. Smith School of Chemical and Biomolecular Engineering, Cornell University, U.S.

April 2019- January 2021,

Research Associate. Center for Social and Environmental Systems Research, National Institute for Environmental Studies (NIES), Japan

September 2014- March 2016,

Associate Researcher. Center for Social and Environmental Systems Research, NIES, Japan

PUBLICATIONS

1. **Sun, L.**, Kaufman, M., Sirk, E., Durga, S., Mahowald, N., & You, F. (2022). COVID-19 impact on an academic Institution's greenhouse gas inventory: The case of Cornell University. *Journal of Cleaner Production*.
2. Chen, W*, Fujii, M., **Sun, L***. (2022). Feasibility analysis of energy system optimization for a typical manufacturing factory with environmental and economic assessments. *Journal of Cleaner Production*.
3. Maki S, Fujita T., Fujii M, ...**Sun, L.** (2022). A deep reinforced learning spatiotemporal energy demand

estimation system using deep learning and electricity demand monitoring data. **Applied Energy**.

4. Zhao, R.; Sun, L*; Zou, X.; Dou, Y. Greenhouse Gas Emissions Analysis Working toward Zero-Waste and Its Indication to Low Carbon City Development. **Energies**, 2021, 14, 6644.
5. Wang, J., Sun, L*, Fujii, M., Li, Y., Huang, Y., Murakami, S., ... & Li, Z. (2021). Institutional, Technology, and Policies of End-of-Life Vehicle Recycling Industry and its indication on the circular economy-comparative analysis between China and Japan. **Frontiers in Sustainability**, 2, 13.
6. Sun, L., Liu, W., Li, Z., Cai, B., Fujii, M., Luo, X., ... & Le, Y. (2021). Spatial and structural characteristics of CO2 emissions in East Asian megacities and its indication for low-carbon city development. **Applied Energy**, 284, 116400.
7. Sun, L., Gomi, K., Fujii, M., Fujita, T., Maki, S., Gito, I., & Rizaldi, B. (2020). Low carbon development and co-planning mitigation actions to achieve the SDGs targets-a case of Bogor. **Journal of Japan Society of Civil Engineers, Ser. G (Environmental Research)**, 76(6), II_261-II_271.
8. Ruixi Zhao., Lu, Sun*, Minoru, Fujii., ... & Yi, Dou. (2020). Towards a Zero Waste city, analysis from the perspective of energy recovery and landfill reduction-a case of Beijing. **Energy**.
9. Liu, W., Sun, L*, Li, Z., Fujii, M., Geng, Y., Dong, L., & Fujita, T. (2020). Trends and future challenges in hydrogen production and storage research. **Environmental Science and Pollution Research**, 1-13.
10. Sun, L*, Liu, W., Fujii, M., R, J., Li, Z., & Yi, D. (2019). An overview of waste-to-energy: technologies, research features and trends. In **Waste-to-energy**, Elsevier. (Online).
11. Sun, L., Fujii, M., Li, Z., Dong, H., Geng, Y., Liu, Z., ... & Zhang, Y. (2020). Energy-saving and carbon emission reduction effect of urban-industrial symbiosis implementation with feasibility analysis in the city. **Technological Forecasting and Social Change**, 151, 119853.
12. Liu, W., Wang, J*, Sun, L*, Wang, T., Li, C., & Chen, B. (2019). Sustainability evaluation of soybean-corn rotation systems in the Loess Plateau region of Shaanxi, China. **Journal of Cleaner Production**, 210, 1229-1237.
13. Li, Z., Dai, H., Song, J., Sun, L*, Geng, Y., Yabar, H., Lu, K., Hanaoka, T. (2019). Assessment of the carbon emissions reduction potential of China's iron and steel industry based on a simulation analysis. **Energy**, 183, 279-290.
14. Sun, L., Li, Z*, Fujii, M., Hijioka, Y., & Fujita, T. (2018). Carbon footprint assessment for the waste management sector: A comparative analysis of China and Japan. **Frontiers in Energy**, 12(3), 400-410.
15. Sun, L., Fujii, M., Tasaki, T., Dong, H*, & Ohnishi, S. (2018). Improving waste to energy rate by promoting an integrated municipal solid-waste management system. **Resources, Conservation and Recycling**, 136, 289- 296.
16. Sun, L., Li, H., Dong, L*, Fang, K., Ren, J., Geng, Y., ... & Liu, Z. (2017). Eco-benefits assessment on urban industrial symbiosis based on material flows analysis and emergy evaluation approach: a case of Liuzhou city, China. **Resources, Conservation and Recycling**, 119, 78-88.
17. Sun, L., Dong, H., Geng, Y*, Li, Z., Liu, Z., ... & Fujii, M. (2016). Uncovering driving forces on urban metabolism—A case of Shenyang. **Journal of Cleaner Production**, 114, 171-179.
18. Maki S, Ohnishi S, Fujii M, ...Sun, L. Using waste to supply steam for industry transition: Selection of target industries through economic evaluation and statistical analysis. **Journal of Industrial Ecology**, 2022.
19. Maki S, Ohnishi S, Fujii M, ...Sun, L. Technical and economic analysis of potential steam supply from waste treatment plants to industries in Aichi Prefecture, Japan[J]. **Optimization and Engineering**, 2021: 1-28. SCI, IF 2.760
20. Chen, W., Hong, J., Wang, C., Sun, L., Zhang, T., Zhai, Y., & Zhang, Q. (2021). Water footprint

- assessment of gold refining: Case study based on life cycle assessment. *Ecological Indicators*, 122, 107319.
21. Shasha, Z. T., Geng, Y., Sun, H. P., Musakwa, W., & Sun, L. (2020). Past, current, and future perspectives on eco-tourism: a bibliometric review between 2001 and 2018. *Environmental Science and Pollution Research*, 1-15.
 22. Bo, X., Li, Z., Qu, J., Cai, B., Zhou, B., Sun, L., ... & Kan, H. (2020). The spatial-temporal pattern of sintered flue gas emissions in iron and steel enterprises of China. *Journal of Cleaner Production*, 121667.
 23. Wu, F., Geng, Y., Zhang, Y., Ji, C., Chen, Y., Sun, L., ... & Fujita, T. (2019). Assessing sustainability of soybean supply in China: Evidence from provincial production and trade data. *Journal of Cleaner Production*, 119006.
 24. Yu, X., Zheng, H., Sun, L., & Shan, Y. (2019). An emissions accounting framework for industrial parks in China. *Journal of Cleaner Production*, 244,118712.
 25. Fujii, M*, Dou, Y., Sun, L., Ohnishi, S., Maki, S., Dong, H., ... & Chandran, R. (2019). Contribution to a low carbon society from improving exergy of waste-to-energy system by upgrading utilization of waste. *Resources, Conservation and Recycling*, 149, 586-594.
 26. Fang, K*, Zhang, Q., Long, Y., Yoshida, Y., Sun, L., Zhang, H., ... & Li, S. (2019). How can China achieve its Intended Nationally Determined Contributions by 2030? A multi-criteria allocation of China's carbon emission allowance. *Applied Energy*, 241, 380-389.
 27. Li, Z., Dai, H*, Sun, L., Xie, Y., Liu, Z., Wang, P., & Yabar, H. (2018). Exploring the impacts of regional unbalanced carbon tax on CO₂ emissions and industrial competitiveness in Liaoning province of China. *Energy Policy*, 113, 9-19.
 28. Li, Z., Sun, L., Geng, Y*, Dong, H., Ren, J., Liu, Z., ... & Higano, Y. (2017). Examining industrial structure changes and corresponding carbon emission reduction effect by combining input-output analysis and social network analysis: A comparison study of China and Japan. *Journal of Cleaner Production*, 162, 61-70.
 29. You, W., Geng, Y., Dong, H., Wilson, J., Pan, H., Wu, R., Sun L., & Liu, Z. (2018). Technical and economic assessment of RES penetration by modelling China's existing energy system. *Energy*, 165, 900-910.
 30. Dong, H., Liu, Z., Geng, Y., Fujita, T., Fujii, M., Sun, L., & Zhang, L. (2018). Evaluating environmental performance of industrial park development: the case of Shenyang. *Journal of Industrial Ecology*, 22(6), 1402-1412.
 31. Long, Y*, Yoshida, Y., Zhang, R., Sun, L., & Dou, Y. (2018). Policy implications from revealing consumption based carbon footprint of major economic sectors in Japan. *Energy policy*, 119, 339-348.
 32. Han, W., Geng, Y., Lu, Y., Wilson, J., Sun, L., Satoshi, O., ... & Qian, Y. (2018). Urban metabolism of megacities: A comparative analysis of Shanghai, Tokyo, London and Paris to inform low carbon and sustainable development pathways. *Energy*, 155, 887-898.
 33. Ren, J., Dong, L., & Sun, L. (2018). Competitiveness prioritisation of container ports in Asia under the background of China's Belt and Road initiative. *Transport Reviews*, 38(4), 436-456.
 34. Ren J*, Liang H., Dong L., Sun L., et al., Design for Sustainability of Industrial Symbiosis based on Energy and Multi-objective Particle Swarm Optimization. *Science of The Total Environment*, 2016, 562: 789-801.
 35. Yu, X., Geng, Y., Dong, H., Ulgiati, S., Liu, Z., Liu, Z., ... & Sun, L. Sustainability assessment of one industrial region: A combined method of emergy analysis and IPAT (Human Impact Population Affluence

- Technology). *Energy*, 2016, 107, 818-830.
36. Ren, J*, Liang, H., Dong, L., Gao, Z., He, C., Pan, M., & **Sun, L.** (2017). Sustainable development of sewage sludge-to-energy in China: Barriers identification and technologies prioritization. *Renewable and Sustainable Energy Reviews*, 67, 384-396.
 37. Luo, X., Dong, L., Dou, Y., Zhang, N., Ren, J., Li, Y., **Sun, L.**, & Yao, S. (2017). Analysis on Spatial-temporal Features of Taxis's Emission from Big Data Informed Travel Patterns: A Case of Shanghai, China. *Journal of Cleaner Production*, 142, 926-935.
 38. Chen, W., Liu, W., Geng, Y., Ohnishi, S., **Sun, L.**, Han, W., ... & Zhong, S. (2016). Life cycle based emergy analysis on China's cement production. *Journal of Cleaner Production*, 131, 272-279.
 39. Tian, X., Geng, Y., Dong, H., Dong, L., Fujita, T., Wang, Y., ... & **Sun, L.** (2016). Regional household carbon footprint in China: a case of Liaoning province. *Journal of Cleaner Production*, 114, 401-411.
 40. Dong, H., Fujita, T., Geng, Y., Dong, L., Ohnishi, S., **Sun, L.**, ... & Fujii, M. A review on eco-city evaluation methods and highlights for integration. *Ecological Indicators*, 2016, 60, 1184-1191.
 41. Ren, J*, Dong, L., **Sun L.**, et al. Life cycle cost optimization of biofuel supply chains under uncertainties based on interval linear programming. *Bioresour. Technol.*, 2015, 187: 6-13.
 42. Ren, J*, Dong, L., **Sun, L.**, et al. "Supply push" or "demand pull?": Strategic recommendations for the responsible development of biofuel in China. *Renewable and Sustainable Energy Reviews*, 2015, 52: 382-392.
 43. Liu, Z., Geng, Y., Wang, H., **Sun, L.**, Ma, Z., Tian, X., & Yu, X. 2015. Emergy-based comparative analysis of energy intensity in different industrial systems. *Environmental Science and Pollution Research*, 1-12.
 44. Liu, Z., Geng, Y*, Wang, F., Liu, Z., Ma, Z., Yu, X., Tian, X., **Sun, L.**, He, Q., Zhang, L. 2014. Emergy ecological footprint hybrid method analysis on the industrial parks from the geographical and regional perspective. *Environmental Engineering Science*, 2014.

RESEARCH PROJECTS

- ◆ 2023.1-2024.12 National Natural Science Foundation of Shaanxi (General Program), Research on optimization of urban low-carbon buildings and regional energy systems, PI
- ◆ 2022.12-2023.12 National Key Laboratory of Environmental Protection and Eco Industry Foundation, Research on the Development Paths of Carbon Peak and Carbon Neutralization in Eco Industrial Parks, PI
- ◆ 2022.12- 2023.06 Research on the low carbon development evaluation index system of the airport new city, Xi Xian New District, Shaanxi Province, PI
- ◆ 2021.11-2024.11 Qin Chuangyuan High-level Innovation and Entrepreneurship Talent Project, Energy conservation and carbon emissions reduction synergies of smart building and regional energy system, PI
- ◆ 2021- 2022 Research Fund of US EPA: Carbon-neutral energy system construction and optimization, Main member, my work focused on energy system optimization and carbon footprint analysis.
- ◆ 2019-2021 Research Fund of Ministry of the Environment, Japan: The Fourth Environmental Economics Policy Research: Development of indices and assessment systems for comprehensive review of Fifth Basic Environment Plan, (1820BX001), Main member, my work focused on SDGs future city evaluation and indicator quantification.
- ◆ 2018-Present Research Fund of Ministry of the Environment, Japan: Innovative Modelling and Monitoring Research toward Low Carbon Society and Eco-Cities and Regions, (2-1711), Main member, my work focused on materials and energy flow analysis in target area.
- ◆ 2017-Present Research Fund of Environmental Restoration and Conservation Agency, Japan: Research

on technology and social system for advanced regional heat utilization from waste (3-1709), Main member, my work focused on waste and energy flow analysis in Tokyo metropolitan area.

◆ 2014-2016 Research Fund of Ministry of Environment, Japan: Research on municipal waste recovery methods to optimize the cost-effectiveness of material and energy resources (3K143016), Main member, my work focused on Integrated evaluation model for industry, urban and industrial symbiosis.

ACADEMIC ACTIVITIES

Member, International Society for Industrial Ecology (ISIE)

Member, Institute of Life Cycle Assessment, Japan (ILCAJ)

Member, Chinese Society of Industrial Ecology (CSIE)

Member, International Energy Society

Associate Editor, *Environment, Development and Sustainability*

Associate Editor, *Frontiers in Sustainability*

Guest Editor, *Circular Economy and Sustainability; Journal of Material Cycles and Waste Management*

Reviewer expert of *United Nations Centre for Regional Development (UNCRD) report*.

Reviewer expert of *IPCC (AR6) report*.

Reviewer of SCI journals: Applied Energy, Energy, Renewable and Sustainable Energy Reviews, etc.