

**2024 Joint ISIE**  
**Socio-Economic Metabolism**  
**and Asia-Pacific Conference**

**Programme**



**Beijing, China**

**2024.08.24-2024.08.27**

## Welcome Address

Dear industrial ecology colleagues and friends:

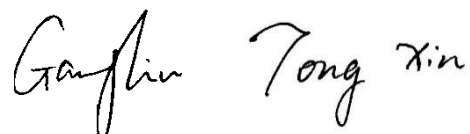
It is with our great pleasure to welcome you to the 2024 Joint ISIE Socio-Economic Metabolism (SEM) and Asia-Pacific (AP) Conference and to Peking University! This conference is a collaborative effort from the International Society for Industrial Ecology (ISIE), China Society of Natural Resources, Japan Society of Civil Engineers, Chinese Society for Industrial Ecology, and the College of Urban and Environmental Sciences of Peking University. We thank all our esteemed partners, advisory board, scientific committee, organizing committee, and YOU all to have made this possible!

This conference will feature a rich lineup of 8 keynote talks, 28 parallel oral presentation sessions, 3 poster presentation sessions, and 3 interactive sessions (roundtable, panel, world café). These together will address critical issues in industrial ecology and socioeconomic metabolism, such as built environment, urban sustainability, circular economy and policy, sustainable agrifood systems, industrial sustainability, value and supply chains, AI and digitalization, energy transitions, and more. You can find more details from the program on the conference website: <https://isiesem2024.net/Program/>.

We are expecting over 300 participants, creating a dynamic environment for networking, collaboration, and the exchange of innovative ideas. We are particularly happy that many early-career researchers show enthusiasm and engagement, and have tried our best to give them space for presentations and will organize best oral and poster presentations for them. We also aim to bring together researchers from related fields such as geography, urban planning, climate change, and environmental system engineering and practitioners from industry and policy arena.

Thank you for joining us in Beijing! We look forward to a productive and inspiring conference that will propel the field of industrial ecology forward.

With warm regards,

Handwritten signature of Gang Liu and Xin Tong in black ink.

Gang Liu and Xin Tong  
Conference Chairs, ISIE-SEM/AP 2024

## General overview of the conference

Date	Time	Meeting contents	Location
<b>8.24</b> (Sat.)	09:00-22:00	Arrival and check-in	Zhongguan Xinyuan Global Village #1
<b>8.25</b> (Sun.)	09:00-10:00	Opening Ceremony	Elites Banquet Hall
	10:00-12:00	Keynote talks	
	12:00-14:00	Poster session and lunch	Parallel Session Lakeview D
	14:00-17:40	Parallel oral sessions	Science Lecture Hall Lakeview ABC
<b>8.26</b> (Mon.)	09:00-10:20	Keynote talks Round table discussion	Science Lecture Hall
	10:40-12:00	Parallel oral sessions	Science Lecture Hall Lakeview ABCD
	12:00-14:00	Poster session and lunch ISIE-SEM section meeting	
	14:00-17:40	Parallel sessions	
<b>8.27</b> (Tue.)	09:00-10:20	Keynote talks Editors' Panel	Science Lecture Hall
	10:40-12:00	Parallel sessions	Science Lecture Hall Lakeview ABCD
	12:00-14:00	Poster session and lunch	
	14:00-15:30	Parallel sessions	
	15:05-17:00	Closing Ceremony	Elites Banquet Hall

## Ceremonies and keynote talks agenda

Location: 群英宴会厅 (Elites Banquet Hall)

Date	Time	Topic	Moderator	
8.25 (Sun.)	09:00-09:30 <b>Opening Ceremony</b>	<b>Prof. Canfei He</b> Dean of the College of Urban and Environmental Sciences, Peking University	<b>Gang Liu,</b> Peking University	
		<b>Prof. Ming Xu</b> President of the International Society for Industrial Ecology; Tsinghua University		
		<b>Prof. Hiroki Tanikawa</b> Chair of Environmental System Research, Japan Society of Civil Engineers; Nagoya University		
		<b>Prof. Stefan Pauliuk</b> Chair of ISIE SocioEconomic Metabolism Section; University of Freiburg		
	09:30-10:00	Tea break and group photo		
	10:00-10:30	<b>The Transition to a Circular Economy - Some (In)convenient Truths</b> <b>Prof. Arnold Tukker</b> Institute of Environmental Sciences (CML), Leiden University	<b>Stefan Pauliuk,</b> University of Freiburg	
	10:30-11:00	<b>Weight of the Society - Climate Change and Sustainable Stock-type Society</b> <b>Prof. Hiroki Tanikawa</b> Graduate School of Environmental Studies, Nagoya University		
	11:00-11:30	<b>Resource efficiency and circular economy: policy trends and insights</b> <b>Dr. Li Fang</b> Chief Representative, Beijing Representative Office, World Resources Institute		
11:30-12:00	<b>How Can Asia-Pacific SDGs 2030 Be Addressed: Industrial Ecology Perspectives</b> <b>Prof. Hung-Suck Park</b> Department of Chemical Engineering, University College of Ulsan			

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8.26 (Mon.)	08:30-09:00	<b>Future Material Demand and Greenhouse Gas Emissions Implications for Electrification of the UK Light-Duty Vehicle Fleet</b> <b>Prof. Jon McKechnie</b> University of Nottingham, UK	<b>Seiji Hashimoto,</b> Ritsumeikan University
	09:00-09:30	<b>Innovation &amp; Practice of Chinese Industry in the Field of Plastic Circular Economy</b> <b>Dr. Nanqing Jiang</b> Former UN Environment Programme (UNEP) officer, Founder and Executive Director, Institute of Carbon Neutrality and Circular Economy (ICNCE)	
	09:30-10:20	<b>Roundtable Discussion: Industrial Ecology - Policy and Industry in Actions</b> <ul style="list-style-type: none"> <li>• Fanran Meng (University of Sheffield, UK)</li> <li>• Jon McKechnie (University of Nottingham, UK)</li> <li>• Nanqing Jiang (Institute of Carbon Neutrality and Circular Economy, China/Singapore)</li> <li>• Xin Sun (China Automobile Technology co.)</li> <li>• Tao Dai (China Geological Survey)</li> <li>• Alessandro Manzardo (University of Padua, Italy)</li> </ul>	<b>Fanran Meng,</b> Sheffield University
	12:40-13:30	<b>ISIE-SEM section meeting</b>	<b>Stefan Pauliuk,</b> University of Freiburg
8.27 (Tue.)	08:30-09:00	<b>Urbanization Affects Biodiversity Distribution and Planetary Health</b> <b>Prof. Yonglong Lu</b> Chair Professor and Dean, Xiamen University; Distinguished Professor, Chinese Academy of Sciences	<b>Daniela Perrotti,</b> University of Louvain
	09:00-09:30	<b>Demystifying Publishing in Top-tier Journals</b> <b>Dr. Ruby Xia</b> Senior Editor, Nature	
	9:30-10:20	<b>Editors' Panel: Publishing and Promoting Industrial Ecology and Sustainability Research</b> <ul style="list-style-type: none"> <li>• Junming Zhu (co-Editor-in-Chief, Journal of Industrial Ecology, Wiley)</li> <li>• Ruby Xia (Editor, Nature)</li> <li>• Yonglong Lu (Associate Editor, Science Advances; Editor-in-Chief, Ecosystem Health and Sustainability, a Science partner journal)</li> <li>• Shanshan Zhang (Editor, One Earth, Cell press)</li> <li>• Lu Liu (Editor, Cell Reports Sustainability, Cell press)</li> </ul>	<b>Junming Zhu,</b> Tsinghua University
	15:50-17:00	<b>Closing Ceremony</b> (including Award for Best Oral Presentation and Best Poster Presentation)	<b>Xin Tong,</b> Peking University

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2024/8/25 Sunday					
09:00-09:30	<b>Opening Ceremony 群英宴会厅 (Elites Banquet Hall)</b>				
09:30-10:00	Group Photo				
<b>Keynote Speeches 群英宴会厅 (Elites Banquet Hall)</b>					
10:00-10:30	<b>Arnold Tukker</b> (Leiden University, Netherlands): The transition to a circular economy – some (in)convenient truths				
10:30-11:00	<b>Hiroki Tanikawa</b> (Nagoya University, Japan): Weight of the Society - Climate Change and Sustainable Stock-type Society				
11:00-11:30	<b>Li Fang</b> (World Resource Institute, Beijing Representative Office): Resource efficiency and circular economy: policy trends and insights				
11:30-12:00	<b>Hung-Suck Park</b> (University College of Ulsan, South Korea): How Can Asia-Pacific SDGs 2030 Be Addressed: Industrial Ecology Perspectives				
12:00-13:00	Lunch Break				
13:00-14:00	<b>Poster Presentation Session 1</b>				
	<b>Parallel Session 1 科学报告厅 (Science Lecture Hall) Built Environment</b> Moderator: Maud Lanau	<b>Parallel Session 2 观湖 (A) (Lake View A) Urban Sustainability</b> Moderator: Kangkang Tong	<b>Parallel Session 3 观湖 (B) (Lake View B) Circular Economy &amp; Policy</b> Moderator: Ichiro Daigo	<b>Parallel Session 4 观湖 (C) (Lake View C) Sociometabolic Scales &amp; Methods</b> Moderator: Wu Chen	<b>Poster 观湖 (D) (Lake View D)</b>
14:00-14:20	Jooyoung Park (Seoul National University): Material Intensity of Residential Buildings in Korea	Daniella Perrotti (University of Louvain): A conceptual analysis of agency in urban metabolism studies from the standpoint of industrial and social ecology: An exploration of methodological issues	Tomohiro Tasaki (National Institute for Environmental Studies): Circular flow analysis: 20 years of end-of-use circulation in Japan	Danhong Ma (Lanzhou University): The drivers of household energy expenditure in China: a longitudinal and dynamic panel data analysis	
14:20-14:40	Srinivasa Raghavendra Bhuvan Gummididi (University of Southern Denmark): Spatiotemporal comparison of Operational Energy Consumption and Material Stock in Danish Buildings	Kai Fang (Zhejiang University): The Sustainability Assessment Paradox, Solutions and Policy Implications: Lessons from Chinese Cities	Xin Tong (Peking University): Extended producer responsibility to reconstruct the circular value chain	Masatoshi Hasegawa (Nagoya University): Future scenario analysis of Material Stock and Flow toward the Sustainable Society - Focusing on Municipalities in Hokuriku Region Wei Huang (Institute of Urban Environment, Chinese Academy of Sciences): Combining micro survey-based data and macro econometric model to trace footprints of urban food consumption along spatially-explicit global supply chains	
14:40-15:00	Charles Gillott (The University of Sheffield): Material stocks, embodied carbon and circular economy potential in UK buildings	Jianzhao Zhou (The Hong Kong Polytechnic University): A Sustainability-oriented Multi-generation System for Converting Waste into Energy: Process Design, Modelling and Optimization	Guochang Xu (National Institute for Environmental Studies, Japan): Impact of recycling thresholds on sustainability of global decarbonization technologies	Qiumeng Zhong (Guangdong University of Technology): Impacts of global socioeconomic transitions on mercury emissions in China	
15:00-15:20	Ruichang Mao (Technical University of Denmark): Development patterns, material metabolism, and greenhouse gas emissions of high-speed railway in China	Yang Li (University of British Columbia): Reshaping urban futures: Geo-spatial strategies for urban net zero energy buildings	Jie Gao (Qilu University of Technology (Shandong Academy of Sciences)): Impact of Second-Life Batteries on Lithium Metabolism in China's Renewable-Connected Battery Storage System: A Perspective from Dynamic Material Flow Analysis	Fei Liu (Academy of Agriculture Planning and Engineering, Ministry of Agriculture and Rural Affairs of the People's Republic of China (MARA)): Structural Dynamics and Drivers of Global Waste Paper Trade Network	
15:20-15:40	Apoorva Maheshwari (City University of Hong Kong): Addressing and Accessing Spatial Inequity and Sustainability Scores at Building Level in Highly Dense Indian Cities	Kronnaphat Khumvongsa (Nagoya University): How can small local roads lead to significant sustainability challenges in Bangkok? Evidence from the bottom-up approaches	Ichiro Daigo (The University of Tokyo): Can we use circularity indicators in regulation?		
15:40-16:00	Tea Break				
	<b>Parallel Session 5 Built Environment</b> Moderator: Hiroaki Shirakawa	<b>Parallel Session 6 Urban Sustainability</b> Moderator: Weiqiang Chen	<b>Parallel Session 7 Circular Economy &amp; Policy</b> Moderator: Tomohiro Tasaki	<b>Parallel Session 8 Sustainable Business &amp; Economics</b> Moderator: Dami Moon	
16:00-16:20	Georg Schiller (Leibniz Institute of Ecological Urban and Regional Development): How does space matter? Of the importance in spatializing industrial ecology framework for circularity in the built environment	Ursula Cardenas Mamani (UCLouvain): Understanding the Role of Nature in Cities: Enhancing Urban Metabolism and Ecosystem Services Frameworks with Stakeholder Participation	Riccardo Losa (Université libre de Bruxelles & University of Agder): More about the environment than the money: Investigation on the adoption of circular economy practices in the battery market	Lili Jia (University of Cambridge): A lifecycle of sustainable business model	
16:20-16:40	Xin Bian (Chalmers University of Technology): Enhancing Stock Accounting by Predicting Building Structures through Morphological Analysis	Johan Vélez Henao (Freiburg university): Circular economy savings potential for emissions and resources in the Colombian building sector	Yanan Ren (Nanjing University of Aeronautics and Astronautics; Tsinghua University): Compliant measurement of national carbon tariff costs: Methodology and retrospective case study of China	Ranran Li (Yanshan University): Air pollution rebound solution technique for evaluating the challenges of energy transformation	
16:40-17:00	Daniel Grossegger (Empa): Achieving net zero greenhouse gas emissions in road constructions and its impact on material flow and stocks	Riko Hosokawa (Nagoya University): Flood Risk Assessment on the Building Material in Japan Considering Climate and Social Factors	Chenlu Tao (North China Electric Power University): The Spillover Effects of Carbon Emissions Trading Policy on Green Innovation: Insights from Chinese Export Enterprises	Dami Moon (The University of Tokyo): Examining the use of Secondhands Across Product Conditions: Insights from Japanese Online Flea Markets	
17:00-17:20	Zhiwei Liu (Nagoya University): Adaptive Nighttime Light-Based Building Stock Assessment Framework for Future Environmentally Sustainable Management	Lei Chen (Guangzhou Institute of Energy Conversion, Chinese Academy of Sciences): Characterizing residential CO2 emissions with energy metabolic pattern of urban agglomerations: The case of Guangdong-Hong Kong-Macao Greater Bay Area	Han Gao (The University of Tokyo), International Trade's Impact on Consumption-based Recycled Content: Similar Performance among Countries	Li Li (Beijing Information Science & Technology University): The impacts of energy sharing program on enhancing the resilience of buildings in renewable microgrid	
17:20-17:40	Naho Yamashita (The university of Tokyo): Scenario analysis of building retention time on future construction material requirement in Japan	Kangkang Tong (Shanghai Jiao Tong University): City-wide energy-water-carbon nexus features from a multi-infrastructure provisioning perspective	Ruirui Wu (Beijing University of Chemical Technology): Connectedness between carbon and sectoral commodity markets: Evidence from China	Yin Ge (University College London): Key Players and Projects: Unpacking China's Belt and Road Energy Investments from 2013 to 2023	
18:00-20:30	<b>Conference Formal Welcome Dinner (群英宴会厅) (Elites Banquet Hall)</b>				

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2024/8/26 Monday					
Keynote Speeches 科学报告厅 (Science Lecture Hall)					
08:30-09:00	<b>Jon McKechnie</b> (University of Nottingham, UK): Future Material Demand and Greenhouse Gas Emissions Implications for Electrification of the UK Light-Duty Vehicle Fleet				
09:00-09:30	<b>Nanqing Jiang</b> (Institute of Carbon Neutrality and Circular Economy, China/Singapore): Innovation & Practice of Chinese Industry in the field of Plastic Circular Economy				
09:30-10:20	<b>Roundtable Discussion: Industrial Ecology - Policy and Industry in Actions</b> (Moderator: Fanran Meng, University of Sheffield) (10:10-10:20 Releasing Global Secondary Resource Report)				
10:20-10:40	Tea Break				
	<b>Parallel Session 9 科学报告厅 (Science Lecture Hall)</b> <b>Supply &amp; Value Chains</b> Moderator: Heming Wang	<b>Parallel Session 10 观湖 (A) (Lake View A)</b> <b>Sustainable Agrifood Systems</b> Moderator: Alessandro Manzardo	<b>Parallel Session 11 观湖 (B) (Lake View B)</b> <b>Industrial Symbiosis</b> Moderator: Jooyoung Park	<b>Parallel Session 12 观湖 (C) (Lake View C)</b> <b>Environmental Footprints</b> Moderator: Qian Zhang	<b>Poster 观湖 (D) (Lake View D)</b>
10:40-11:00	Xin Sun (University of Groningen): The Global Supply Chain Drivers of Environmental Impacts of Lithium Mining	La Zhuo (Northwest Agriculture and Forestry University): Inputs for staple crop production in China drive burden shifting of water and carbon footprints transcending part of provincial planetary boundaries	Malik Sajawal Akhtar (Ulsan College): Why Industrial Symbiosis and Eco-Industrial Park Development Have Not Much Succeeded Globally? - A Business Model and Financial Perspective	Yosuke Shigetomi (Ritsumeikan University): Detailing the Food Waste and the Related Environmental Footprints across the Households: the Case of Japan	
11:00-11:20	Estefanía Orquera (Tohoku University): Securing Critical Mineral Supplies: Assessing Lithium Dynamics in the Global South	Li Xue (China Agricultural University): Wasted Food, Wasted Resources? Environmental Impact Analysis of Food Loss and Waste	Hui Li (University of Leeds): Uncovering The Evolution of Industrial Symbiosis Facilitation: A Comparative Case Study of the Humber Region of the UK and the Ulsan City of South Korea	Jiahuan Wang (Ritsumeikan University): The relationships between racial diversity and household environmental footprints	
11:20-11:40	Xin Ouyang (Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences): Systematic Risks of the Global Lithium Supply Chain Network: From Static Topological Structure to Cascading Failure Dynamics	Junzhang Wu (University of Padova): Sensor-based solution in retail food waste reduction: an LCA perspective on uncertainties and impacts	Chunlei Du (Xi'an Jiaotong University): Environmental Benefits Assessment of municipal solid waste Departments Based on Urban Symbiosis Measures—A Case Study of Tokyo metropolis	Mohammed Isah (Tohoku University): LCA of palm oil production using Developed Nigeria Ecological Scarcity Method	
11:40-12:00	Zhihui Leng (Hubei University of Economics): NdFeB magnet supply for sustainable development requires both natural and technology resources governance	Zhongxiao Sun (China Agricultural University): Global productivity-weighted agricultural land use driven by human consumption	Jiajia Li (Norwegian University of Science and Technology): Exploring the relationship between urban form and transportation stocks	Zhaoxing Wang (University of Antwerp): Sequestering Carbon for the Long Haul: Evaluating the Carbon Benefits of Lignin-Based Asphalt Pavements	
12:00-13:00	Lunch Break				
13:00-14:00	Poster Presentation Session 2 and ISIE-SEM section meeting				
	<b>Parallel Session 13 科学报告厅 (Science Lecture Hall)</b> <b>Supply &amp; Value Chains</b> Moderator: Chang Yu	<b>Parallel Session 14 观湖 (A) (Lake View A)</b> <b>Sustainable Agrifood Systems</b> Moderator: Zhen Wang	<b>Parallel Session 15 观湖 (B) (Lake View B)</b> <b>Industrial Sustainability</b> Moderator: Huabo Duan	<b>Parallel Session 16 观湖 (C) (Lake View C)</b> <b>Integrated Assessment Models for Industrial Ecology</b> Moderator: Zhi Cao & Yang Ou	
14:00-14:20	Chang Yu (Beijing Forestry University): Unraveling Global Timber Supply Chains Insights from Timber Embodied in Trade	Xiangzheng Deng (Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences): Agricultural land-use system management: research progress and perspectives	Pengfei Zhang (Shandong University): Pathway for flexibility retrofitting of China's coal-fired units under the carbon neutrality target	Stefan Pauliuk (University of Freiburg): Modelling Circular Economy for Climate Change Mitigation – The framework of the EU-funded CIRDOMOD project	
14:20-14:40	Zipeng Lin (Institute of Urban Environment, Chinese Academy of Science (IUE, CAS)): Coordinating National Mining Permits in Lithium Supply for Climate Safe Future	Chen Zeng (Huazhong Agriculture University): Revisited the identification and influencing factors of abandoned cropland in China	Tongyuan Wu (The University of Hong Kong): Integrating supply- and demand-side to decarbonize China's cement sector	Jingyang Song (Nankai University): Marrying integrated assessment modeling with stock-flow analytics to assess the side effects of material efficiency strategies	
14:40-15:00	Haoning Liu (University College London): Assessing global sustainability implications of China's Lithium-ion Battery Supply using Value Chain Analysis	Ying Wang (China University of Geosciences): Estimation of the potential biogas production from crop residue and its contribution to carbon neutrality in China	Kouki Tanaka (Tohoku university): Water requirement in the process of silicon wafer production of semiconductor	Xi Liu (Shandong University): The Escalating Growth of Wind Blade Waste with the Advancement of Global Wind Energy Targets	
15:00-15:20	Xiaohui Wu (Beijing Normal University): Changing production and consumption patterns for win-win of Minamata Convention on Mercury and common prosperity in China	Ling Han (Peking University): A Solution in Household: Is there an alternative pathway beyond the centralized food waste management?	Luke Cullen (University of Cambridge): Uncertainty-aware inference of missing greenhouse gas emissions data	Peng Wang (Institute of Urban Environment): Exploring Pt-Hydrogen Linkages via GCAM model	
15:20-15:40	Ailin Kang (Beijing Normal University): A fine-scale atlas reveals the systematic imbalance between carbon emissions and economic benefits along value chain within China	Jingyu Wang (Zhejiang A & F university): Impact of water-saving irrigation technology on carbon emissions from agricultural irrigation	Guotian Cai (GuangZhou Institute of Energy Conversion, Chinese Academy of Sciences): Temporal and spatial assessment of hydrogen production from offshore wind power in China: a techno-economic analysis	Tao Wang (Peking University): Exploring High-Resolution Geographic Differences in Material Recycling Potential Amidst Automotive Low-Carbon Transition: A Method Combining IAM and GIS Analysis	
15:40-16:00	Tea Break				



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	<b>Parallel Session 17</b> <b>AI and Digitalization</b> Moderator: Xin Tian	<b>Parallel Session 18</b> <b>Sustainable Agrifood Systems</b> Moderator: Guobao Song	<b>Parallel Session 19</b> <b>Green Petrochemical Industry</b> Moderator: Fanran Meng	<b>Parallel Session 20</b> <b>Waste Management</b> Moderator: Toru Hayashi	
<b>16:00-16:20</b>	Guanyu Lu (Waseda University): Does Artificial Intelligence-Driven Energy Management System Reduce Electricity Consumption	Zhen Wang (Huazhong Agricultural University): Human altered soil erosion in China and its drivers	Jonathan Cullen (University of Cambridge): Re-evaluation of end-of-life treatment options for plastics	Xiao Li (Xi'an Jiaotong University): Systemizing industrial waste management for a low-carbon, circular economy	
<b>16:20-16:40</b>	Guangling Zhao (Swansea University): Active Building demonstrator for a low carbon building system	Guofeng Wang & Mengqi Zhao (Shanxi University of Finance and Economic): Reshaping Agriculture Eco-efficiency in China: From Greenhouse Gas Perspective	Fanran Meng (University of Sheffield): Replacing plastics with alternatives is worse for greenhouse gas emissions in most cases	Toru Hayashi (The University of Tokyo): Estimation of the Potential for External Energy Supply from Waste-to-Energy Facilities through Methanation	
<b>16:40-17:00</b>	Pingdan Zhang (Beijing Normal University) : Enterprise digital transformation, carbon emissions and supply chain spillovers	Qingling Wang (Northwest A&F University): Heterogeneous impacts of dietary transition in ageing China on planetary boundaries	Yunhu Gao (University of Cambridge): Mitigating greenhouse gas emissions from end-of-life polymers	Fang Liu (Zhejiang A&F University): Life Cycle Monetization and its Application in Rural Food Waste to Resource Transition	
<b>17:00-17:20</b>	Xinchi Jia (Shanxi University Of Finance and Economics): The Impact of Digital Economy on Urban Ecological Resilience - Causal Inference Based on Dual Machine Learning	Changjun Li (Nanjing Agriculture University): How to make the Chinese residents do food waste sorting? A systematic research from 2012 to 2024	Zhi Cao (Nankai University): Material efficiency strategies to decarbonize the rubber cycle associated with global passenger car fleets	Xi Tian (NanChang University): Influencing Factors and Behavioral Interventions of Urban Residents' Participation in Paid Waste Sorting and Recycling in China	
<b>17:20-17:40</b>	Suiting Ding (Leiden University): The environmental benefits and costs of RFID systems in Li-ion battery supply chains – An ex-ante LCA approach	Yumeng Li (Guangdong University of Technology): Narrowing regional dietary disparities can help reduce methylmercury exposure in China	Ya Zhou (Guangdong University of Technology): Environmental impacts and mitigation potentials of CO2-based biodegradable plastic based on life cycle assessment – a case study of poly(propylene carbonate)	Le Thi Van (Ritsumeikan University): Copper demand, stock, scrap, and secondary reserves of Southeast Asian countries	
<b>18:00-19:30</b>	<b>Dinner</b>				



# 2024 Joint ISIE Socio-Economic Metabolism and Asia-Pacific Conference

2024/8/27 Tuesday				
<b>Keynote Speeches 科学报告厅 (Science Lecture Hall)</b>				
08:30-09:00	<b>Yonglong Lu</b> (Xiamen University and Chinese Academy of Sciences, China): Urbanization Affects Biodiversity Distribution and Planetary Health			
09:00-09:30	<b>Ruby Xia</b> (Nature, UK): Demystifying publishing in top-tier journals			
09:30-10:20	<b>Editors' Panel: Publishing and Promoting Industrial Ecology and Sustainability Research</b> (Moderator: Junming Zhu, Tsinghua University)			
10:20-10:40	Tea Break			
	<b>Parallel Session 21 科学报告厅 (Science Lecture Hall)</b>  <b>Energy</b> Moderator: Chuan Zhang	<b>Parallel Session 22 观湖 (A) (Lake View A)</b>  <b>Water</b> Moderator: Xiaoping Jia	<b>Parallel Session 23 观湖 (B) (Lake View B)</b>  <b>Plastic</b> Moderator: Zhenyang Zhang	<b>Parallel Session 24 观湖 (C) (Lake View C)</b>  <b>Mobility</b> Moderator: Litao Liu
10:40-11:00	Hitoshi Kato (The University of Tokyo): Analysis of residential energy management with heat pumps and storage batteries for balancing power supply and demand	Yiseul Hong (Seoul National University): Lifecycle Energy and GHG Emissions of an Urban Water System in a Water-Stressed City: A Case Study of Paju City	Jiaqi Lu (Shanghai University of Engineering Science): Evaluating the Potential Environmental Benefits of Chemical Recycling of Bio-based Plastic Waste in China	Wu Chen (University of Southern Denmark): Is recycling necessary and sufficient for green mobility transition?
11:00-11:20	Xining Yang (Yanshan University): Rooftop photovoltaic potential to meet electricity demand and reduce carbon emissions in the Dutch residential building sector	Xiaoping Jia (Qingdao University of Science and Technology): Pinch analysis for water-energy nexus in urban water systems	Huijuan Dong (Shanghai Jiao Tong University): Metablism feature and pathways to mitigate China's plastic value chain environmental impact	Huimei Li (University of Freiburg): Provincial disparities in resources and emission savings from material efficiency in Chinese passenger vehicles
11:20-11:40	Peijin Jiang (The University of British Columbia): Revealing Material Requirements and Environmental Impact for Canadian Wind Energy Development Based on Dynamic Material Flow Analysis	Zenghui Xu (Northwest Agriculture and Forestry University): Carbon reduction and water saving potentials for growing corrugated boxes for express delivery services in China	Jieun Lim (Seoul National University): High-resolution plastic flow analysis for Korea	Ohki Katsushima (The University of Tokyo): CO2 reduction effect of electric vehicle sharing system: A case study in Saitama, Japan
11:40-12:00	Binze Wang (Tohoku University): Significant Shifts in Responsibility Distribution of Hidden Flows: The Impact of China's Sustainable Mobility Transition	Yuqin Li (Beijing Normal University): Diversified physical water supplies and virtual water flows for water stress alleviation: A case study in the Beijing-Tianjin-Hebei region, China	Habuer (Okayama University): The Survey of Plastic Waste and Composition of Boathouse Waste in Floating Villages on Tonlé Sap Lake, Cambodia	Pengwei He (University of Shanghai for Science and Technology): Research on critical metals recycling of power batteries for new energy vehicles in megacities: A case study of Shanghai, China
12:00-13:00	Lunch Break			
13:00-14:00	Poster Presentation Session 3			
	<b>Parallel Session 25</b>  <b>Rising Star Session A</b>  Moderator: Peng Wang	<b>Parallel Session 26</b>  <b>Rising Star Session B</b>  Moderator: Ling Han	<b>Parallel Session 27</b>  <b>Rising Star Session C</b>  Moderator: Naho Yamashita	<b>Parallel Session 28</b>  <b>World Café: High Resolution Built Environmental Stock Modelling for Sustainability</b>  Moderator: Menglin Dai & S.R. Bhuvan Gummidi
14:00-14:20	Yihan Wang (The University of Hong Kong): Carbon emission status and mitigation strategies of Hong Kong's building sector: from life cycle perspective	Zirui Cheng (East China University of Science and Technology): Interdependence of the Global Food Trade Network and Its determinants	Hibiki Kiko (Nagoya University): Accumulation and Distribution of Material Stock in Japan's Roadway	Introduction to High-resolution modelling of built environment
14:20-14:40	Meijiang Liu (Shanghai Jiao Tong University): Assessing environmental burdens of cotton textile recycling schemes in China	Xinyao Ding (Shanghai Jiao Tong University): Assessment of nitrogen, phosphorus and potassium flows in China's food system during 2010-2019: Implications for integrated management	Zeyi Jiang (University of Sheffield): Beyond Averages: Accounting for Variation on Construction Standards in Road Material Stocks	Corner 1: Advanced Technology & Data Source
14:40-15:00	Baixin Li (Waseda University): A Non-survey Method to Estimate Japan's Prefectural Non-competitive Import Type Input-Output Table with Scrap and By-products	Jingjing Zhang (Fudan University): Life cycle carbon emissions of sewage sludge and food waste treatment in China	Wenrui Shen (Peking University): Estimation of Resource Utilization Potential of Waste Biomass in China - Perspectives from Demand Sides	Corner 2: Economical and Social
15:00-15:20	Kaixuan Wang (University of Surrey): The Trilateral Effects of Post-Brexit UK Meat Imports: Economic, Environmental, and Animal Welfare	Fernando Chamila Jeewanee (Toyo University): Analysis of household participation on solid waste source separation: A nationwide survey in Sri Lanka	Shiwen Gong (Fudan University): Global Land Carbon Storage Loss driven by Mining Critical Metals for Energy Transition	Corner 3: Environmental & Political
15:20:15:40	Siyi Kan (Senckenberg Biodiversity and Climate Research Centre, The Senckenberg – Leibniz Institution for Biodiversity and Earth System Research): Risk of intact forest landscape loss goes beyond global agricultural supply chains	Huan You (Northeastern University): Study on pollutants and greenhouse gases emissions from open burning of straw in Liaoning Province based on satellite remote sensing	Shuangmei Li (Central South University): Either one-sided supply or demand endeavors cannot decarbonize copper industry chain toward 1.5°C future	Conclusion and Vision for Future
15:40-16:00	Tea Break			
15:50-17:00	Closing Ceremony 科学报告厅 (Science Lecture Hall)			

Poster 观湖 (D)  
(Lake View D)

## 2024 Joint ISIE Socio-Economic Metabolism and Asia-Pacific Conference

Poster Presentation					
Day 1 2024/8/25		Day 2 2024/8/26		Day 3 2024/8/27	
Presenter	Title	Presenter	Title	Presenter	Title
Arata Ida	Evaluation of Climate-change Risk in Japanese Local Municipalities based on Exposure, Sensitivity and Adaptive capacity	Alejandra Acevedo-De-los-Rios	Enhancing Urban Food Security in Informal Settlements: A Multidimensional Framework Using Urban Metabolism Assessments and Sustainability Compass.	Fu, Xukai	Embedding CSR and ESG in Circular Economy: Jinkai's Approach to Sustainable Development
Bai, Yueyang	High-Resolution Mapping of Construction and Demolition Carbon Emissions Across Japan: Trends, Drivers, and Implications	Bu, Miaoling	Nitrous oxide emissions from agricultural sources and scenario simulation in China	Gao, Mengdi	Provincial diet pattern based on multiple GHG mitigation scenarios and heterogeneity of population protein demands in China
Chen, Zian	Uncovering External Drivers of Methane Emissions in China: A Multi-Perspective Input-Output Analysis of Major Emission Sources	Chen, Xiaoyu	Does Energy Policy Always Foster Innovation? Evidence from the Evolution of Wind Energy Technology	Gong, Yongyue	The Evolution of Research at the Intersection of Industrial Ecology and Artificial Intelligence
Divia Jimenez Encarnacion	Everything, everyone, everywhere all at once: How modelling and assessing household product consumption can reveal opportunities for a sustainable sharing economy	Eunjin Moon	A Study on the Life Cycle Assessment Methodology of Activated Carbon using Waste Plastic Pyrolysis By-products	Hyoungwook Lim	Embodied Carbon Emissions and Resource Efficiency Mitigation Scenarios in Korean Residential Buildings
Hou, Lingli	Embodied environmental impacts of 700 Belt and Road Initiative Projects	Gao, Yang	Material flow management in industrial parks: connotation, methods and suggestions	Lee, Hongkwan	Determinants of Decoupling Economic Output from Electricity Carbon Emission according to Power Generation and Economic Output – A Comparison Study between Five Southern Provinces of China and South Korea
Hu, Tianzi	Interpretable machine learning projection revealed future construction land expansions threaten the ecosystem services in China's urban agglomerations	Gao, Zixing	Timber Embodied in Trade in the Belt and Road Region: Based on MRIO and SPA Methods	Liu, Haoning	Mapping the global landscape of lithium supply in the battery sector towards sustainability: An integrated material, geographical, technological, environmental, and economic perspective
Huang, Wenyang	Development of a Dynamic Building Stock Model for Energy System Analysis	Li, Meng	Global coupling coordination and interactions between diet, environment, and human health	Liu, Junxi	Quantifying recycling effects in life cycle assessment using material flow analysis
Huang, Yiqing	A Review of Biodiversity Loss Assessment Methods: Development, Comparison and Application	Liang, Yanan	Unlocking the resources of end-of-life ICEVs: Contributing platinum for green hydrogen production under the IEA-NZE scenario	Luo, Ye	Carbon Monitoring, Reporting and Verification for Cleaner Built Environment: Developing a Photovoltaic Blockchain Tool and Applications in Hong Kong's Building Sector
Huang, Yuzhuo	How do market-oriented environmental policies affect household consumption carbon emissions? —Quasi natural experiment from carbon trading pilot	Liu, Chen	Economic and Environmental Impacts of Biomass Utilization in Local Communities: A Case Study of Minamisanriku Town	Ma, Zijie	Decarbonisation pathways of the global aluminium industry based on the regional aluminium cycle
Lin, Yu	Comprehensive Management of Urban Nitrogen metabolism: A Dynamic Cross-Sectoral and Cross Media Analysis	Qian, Zhuang	Exploring material flow analysis within food domains - a literature review	Malik Sajawal Akhtar	Towards a Sustainable Future: Integrating Circular Economy Principles in Green Hydrogen Production for Climate Action and Economic Development
Liu, Qiyu	Quantifying residential building material stock, flow, and embodied emissions – a building-layer-based approach	Shi, Zhimin	Unlocking the Potential of Sustainable Food Consumption by Addressing Overeating in China	Nakagawa Gaku	Scenario analysis on the utilization of heat from a large-scale municipal solid waste incinerator for an industrial facility
Long, Yuqiong	Scenarios of CO2 emissions reduction potential of buildings sector in Shanghai by 2060	Tang, Linbin	Unraveling the Dynamics of the Global Trade Network of Critical Materials: Insights and Implications	Ren, Kaipeng	Uncovering the dynamic interactions of China's energy-metal nexus from 2005–2020
Song, Mubin	LCA framework for a circular economy: current limitations and future agenda	Tomoya Sugiyama	Responsibility pathways for child labor in the demand of the transport equipment sector	Sun, Yingqi	Spatiotemporal effects of intercity network on water use efficiency in China: A multidimensional proximity perspective
Sota Nagata	Exploring concrete circularity potential from buildings in Japan using high-resolution material stock and flow analysis	Wang, Jian	Disaster Experience and Sustainable behavior: New Evidence from Installment of Solar Photovoltaic in Japan	Wang, Huanyu	Regional Water-Energy-Carbon Footprint in the Context of Sustainable Development Based on EE-MRIO
Stefan Pauliuk	Dematerializing construction: The emissions and resource savings potential for circular economy, lightweight design, and material substitution in the global building sector	Wang, Shuntian	Assessing the Biodiversity Footprint of Global Oil Crops Cultivation: Increased Species Extinction Risks from 1995 to 2020	Wang, Songyan	Low-Carbon Development: Responsibilities and Roles of the Digital Technology Industry
Sun, Wenju	Past Trends and Future Opportunities: Integrating Environmentally Extended Input-Output and Complex Networks	Wu, Yinglei	Promotion of sustainable food consumption by evaluation of environmental burdens, consumer awareness and educational trials	Xu, Linting	Scenario-based material flow analysis of antimony in the context of the energy transition
Sun, Yuhang	Understanding the Dynamics of Urban Just Transitions: an interdisciplinary analysis with natural language processing (NLP)	Xiao, Shijiang	Mapping the global policy landscape of REE: comparative analysis of REE policy framework in the EU, the UK and China	Zhang, Chengyao	Analysis of Japan's plastic waste management and lessons for China towards a circular economy
Wang, Chenyang	Comparative Life Cycle Assessment of Laboratory-Scale Sodium-Ion Batteries and Lithium-Ion Batteries	Yuan, Pengfei	Surging critical material prices delay the clean energy expansion and deepen the energy inequality	Zhang, Yikun	How does urbanization evolve heterogeneously in urbanized, urbanizing, and rural areas of China? Insights from ecosystem service value
Xiao, Yayue	Assessing the Impact of Carbon Tax on Transportation in Japan: A Multi-Regional CGE Analysis	Zhang, Tianyu	End-of-life by-product metals from decommissioned solar cells can significantly support demands from solar photovoltaic deployment	Zhao, Shen	Quantification and Spatial Distribution of In-use Stocks of Electric Motors in the Chinese Mainland
Xie, Yuting	Study of ESG Information Disclosure, Regulation, and Initiatives Development	Zhao, Yifei	Recycling or stacking? Exploring recycling strategies for retired wind turbine blades from a government subsidy perspective	Zhou, Fangzhuo	A Promising Future of Sharing Mobility — The value of car ownership and use in China
Yue, Lufeng	Changes in the patterns of Production-Living-Ecological Space in Yellow River Basin: Spatial conflicts analysis and critical zones identification	Yue, Quanliang	FeliX: An integrated model of climate, economy, environment, and society interactions	Zhu, Sulong	Assessment of Heavy Metal Pollution and Occupational Health Risks in Steel Production Processes: A Case Study



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