Xiaomeng Hu, PhD

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EDUCATION

City University of Hong Kong Hong Kong SAR
PhD in Energy and Environment *Sep 2016 – Aug 2021*

- Awarded outstanding academic performance in research studies at CityU.
- Concentrated on environmental assessments, comparative techno-economic analysis, sustainability assessments, and provided recommendations for improving sustainability in various contexts.
- Developed a dynamic Life Cycle Assessment framework and demonstrated the applications for emerging technologies: wastewater treatment, bioconversion, and waste utilization.
- Drafted a research grant proposal for the Hong Kong General Research Fund, successfully securing a grant of 700,000 HKD.

The Hong Kong University of Science and Technology Hong Kong SAR
Master of Science in Chemical and Biomolecular Engineering *Sep 2014 – Jul 2015*

- Independent research project: preparation of porous materials from waste bamboo.
- Demonstrated expertise in experimental techniques and thermal processes, optimizing charred bamboo production and achieving significant material porosity.

South China University of Technology Guangzhou, China
Bachelor of Engineering in Material Science & Engineering *Sep 2009 – Jul 2013*

- Conducted an advanced research project on the mineralization of hydroxyapatite in PLLA nano-fibrous scaffolds, demonstrating expertise in biomaterials synthesis, surface modification techniques. Characterized microstructural analysis and elemental composition.
- Bachelor's thesis titled "Construction and Modification of PLLA Nano-fibrous Scaffolds and Their Properties" - awarded the honor of "Excellent Graduation Paper of 2013".

PROFESSIONAL EXPERIENCE

Tianjin University Tianjin, China
Associate Professor (School of Marine Science and Technology) *May 2026 – present*

- Leading research on marine sustainability and low-carbon transitions in the Bohai Sea region by integrating dynamic Life Cycle Assessment (dLCA), carbon footprint accounting, sustainability strategies, and techno-economic analysis (TEA).
- Bridging advanced environmental assessment methodologies with marine science to support sustainable marine technology development, ocean and coastal ecosystem protection, and regional environmental governance.

City University of Hong Kong Hong Kong SAR
Postdoctoral Research Fellow (ITF-Research Talent Hub) *Apr 2023 – Apr 2026*

- Conducted comprehensive research on carbon-zero policies and energy transition strategies in major Asian cities including Hong Kong, Singapore, Shenzhen, and Tokyo, analyzing current energy mixes, medium and long-term transition plans. Evaluated regulatory frameworks for solar photovoltaic (PV) and wind farm projects. Researched government support for electric vehicles and clean energy in public transportation. Collaborated across teams to categorize policy mechanisms, extract global best practices, and formulate actionable strategies for Hong Kong's sustainable energy future.
- Developed a tailored carbon footprint calculation framework for Hong Kong universities, based on the GHG Protocol, to aid in sustainable energy policies and effective emission management.
- Conducted a techno-economic analysis of dual ammonia removal/recovery from sludge digestate using a novel hollow fiber/flat sheet membrane distillation method.
- Awarded HK Tech 300 Seed Fund (100,000 HKD) for SustainOpedia – an AI-driven ESG/LCA/TEA and IFRS S2 compliance platform for SMEs and listed companies.

City University of Hong Kong Hong Kong SAR
Teaching Instructor – Course leader *Sep 2024 – Dec 2024*

- Environmental, Safety, and Occupational Health Management
  Delivered comprehensive lectures on occupational health fundamentals, industrial hazard recognition, safety program management, and emergency protocols. Covered key topics including ISO14000 series, life-cycle analysis, construction safety, and waste management. Designed and evaluated examinations to assess students' problem-solving abilities in applying course concepts. Effectively instructed on local regulations, emphasizing practical application of environmental and safety principles in various industrial settings.

The University of Hong Kong Hong Kong SAR
Postdoctoral Research Fellow *Oct 2021 – Apr 2023*

- Evaluated environmental and economic implications for wastewater treatment systems.
- Assessed the environmental sustainability of the pilot-scale biofilm reactor system.

The Hong Kong University of Science and Technology Hong Kong SAR
Research assistant *Jul 2015 – Jun 2016*

- Conducted groundbreaking research on core-shell structural nanomaterials for fuel cells, while performing activity tests for the ORR (Oxygen Reduction Reaction) and employing nanoparticle characterization.
- Investigated the impact of anions on ORR kinetics on platinum and palladium surfaces in both acidic and alkaline environments, demonstrating a strong aptitude for electrochemical research and analysis.

RESEARCH PUBLICATIONS *(Journal impact factor % based on JCR 2021)*

1. **Hu, X.;** Subramanian, K.; Sharma, M.; Liu, D.; Kaur, G.; Chopra, S. S. *, **2026**
   Environmental sustainability of digestate-derived Rhamnolipids: Life cycle assessment approach. *Biomass and Bioenergy* 206, 108659. *(JIF 88.4% in Biotechnology & Applied Microbiology)*
2. Yu-yao Wang, Chok Hang Yeung, **Xiao-meng Hu**, Xiao-yan Li, **2025**
   An integrated framework of life-cycle environmental, human health, and economic impact assessment for urban water systems, *Water Research*, 123383. *(JIF 99.20% in Water Science and Technology)*
3. **Hu, X., (co-first),** Miao, Y., To, M. H., Wang, H., Qin, Z., Mou, J., Yan, W., Kaur, G., Roelants, S. L. K. W., Lin, C. S. K. *, Chopra, S. S. *, **2024**

Environmental evaluation of emerging bakery waste oil-derived sophorolipids production by performing a dynamic life cycle assessment. *Sustainable Production and Consumption*, 47, 59-70. *(JIF 95.60% in Environmental Studies)*

4. Li, P., **Hu, X.,** Yuan, J., Sun, F. *, Li, P., Dong, W., Du, E., & Peng, M., **2024**
Life cycle and environmental impact assessment of vegetation-activated sludge process (V-ASP) for decentralized wastewater treatment. *Current Research in Biotechnology*, 7, 100172 *(JIF 89.05% in Biotechnology & Applied Microbiology)*
5. **Hu, X.,** Guo, J., An, A.K.J., Chopra, S.S. *, **2023**
Electrospun Nanofibrous Membranes for Membrane Distillation Application - by Adopting a dynamic Life Cycle Assessment Approach, *Water Research*, 120376. *(JIF 99.20% in Water Science and Technology)*
6. Dong, C., Wang, Z., Yang, C., **Hu, X.,** Wang, P., Gong, X., Li, X. *, **2023**
Dual-functional single-atomic Mo/Fe clusters–decorated C_3N_5 via three electron-pathway in oxygen reduction reaction for tandemly removing contaminants from water, *Proceedings of the National Academy of Sciences*, Volume 120 (39), e2305883120. *(JIF 94.79% in Multidisciplinary Sciences)*
7. Dong, C., Wang, Z., Yang, C., **Hu, X.,** Wang, P., Gong, X., Lin, L., Li, X. *, **2023**
Sequential electrocatalysis by single molybdenum atoms/clusters doped on carbon nanotubes for removing organic contaminants from wastewater. *Applied Catalysis B: Environmental,* Volume 338, 123060. *(JIF 98.25% in Engineering, Chemical)*
8. **Hu, X., (co-first),** Qin, Z., Mou, J., He, G., Li, H., Chopra, S.S., Dong, L., Lin, C.S.K., *, Wang, X., * **2023**
Environmental profiling microalgae-based eicosapentaenoic acid production along the technical advancement via life cycle assessment. *Journal of Cleaner Production*, 397, 136477. *(JIF 97.80% in Environmental Sciences)*
9. **Hu, X.,** An, A.K.J., Chopra, S.S., *, **2022**
Life Cycle Assessment of Polyvinylidene Fluoride (PVDF) Polymer with Applications in Various Emerging Technologies, *ACS Sustainable Chemistry and Engineering*, Volume 10, 5708-5718. *(JIF 92.77% in Engineering, Chemical)*
10. **Hu, X.,** Subramanian, K., Wang, H., Roelants, S., Soetaert, W., Kaur, G., Lin, C.S.K., Chopra, S.S., *, **2021**
Bioconversion of Food Waste to Produce Industrial-scale Sophorolipid Syrup and Crystals: dynamic Life Cycle Assessment (dLCA) of Emerging Biotechnologies, *Bioresource Technology*, Volume 337, Page 125474. *(JIF 92.77% in Biotechnology & Applied Microbiology)*
11. **Hu, X.,** Subramanian, K., Wang, H., Roelants, S., To, M.H., Soetaert, W., Kaur, G., Lin, C.S.K., Chopra, S.S., *, **2020**
Guiding environmental sustainability of emerging bioconversion technology for waste-derived sophorolipid production by adopting a dynamic life cycle assessment (dLCA) approach. *Environmental Pollution*, 269, 116101. *(JIF 93.06% in Environmental Sciences)*
12. Zhu, S., **Hu, X.,** Shao, M. *, **2017**
Impacts of anions on the oxygen reduction reaction kinetics on platinum and palladium surfaces in alkaline solutions. *Physical Chemistry Chemical Physics*, 19(11), 7631-7641. *(JIF 76.4% in Physics, Atomic, Molecular & Chemical)*
13. Zhu, S., **Hu, X.,** Zhang, L., Shao, M. *, **2016**
Impacts of perchloric acid, nafion, and alkali metal ions on oxygen reduction reaction kinetics in acidic and alkaline solutions. *The Journal of Physical Chemistry C*, 120(48), 27452-27461.
14. Shao, J., Wang, Y., Chen, X., **Hu, X.,** & Du, C. *, **2014**
Nanomechanical properties of poly (l-lactide) nanofibers after deformation. *Colloids and Surfaces B: Biointerfaces,* 120, 97-101. *(JIF 85.42% in Biophysics)*
15. Ma, Z., Ji, H., **Hu, X.,** Teng, Y., Zhao, G., Mo, L., Zhang, M. *, **2013**
Investigation of bioactivity and cell effects of nano-porous sol-gel derived bioactive glass film. *Applied surface science*, 284, 738-744. *(JIF 97.37% in Materials Science, Coatings & Films)*

CONFERENCES

- ICOBTE & ICHMET 2025 - **Committee Member and Keynote Presentation** *Sep 2025*
- 6th Green and Sustainable Chemistry Conference - **Oral Presentation** *Nov 2021*
- 2nd Engineering Sustainable Development Conference - **Oral Presentation** *Dec 2020*
- 2nd Sustainable Waste Management Conference (SWM 2020) - **Oral Presentation** *Sep 2020*
- Actionable Science for Urban Sustainability 2020 (AScUS-2020) - **Poster** *Jun 2020*
- CPS 2019 International Conference on Cleaner Production and Sustainability - **Abstract accepted** *Sep 2019*

PROFESSIONAL ACTIVITIES

- Carbon Footprints Young Editorial Board Member *May 2026 - present*
- Chemical Engineering Journal Manuscript Reviewer *Oct 2021 - present*
- Material Circular Economy Manuscript Reviewer *2020 - present*

LICENCES AND CERTIFICATIONS

- ICMA Introduction to Sustainable Bonds - *Sustainable finance principles* -International Capital Market Association
- Focus on Peer Review - *nature masterclasses* - Springer Nature Group
- Certificate in ESG investing - *Environmental, Social and Governance, investing* - CFA Institute
- Programming for Everybody - *Python* - University of Michigan
- University Teaching - *Lecture preparation and communication ability* - The University of Hong Kong
- LEED Green Associate - *Indoor and Outdoor quality, HVAC* - US Green Building Council

SKILLS

Languages: Mandarin (Native), Cantonese (Basic), English (Fluent)
Software: SimaPro, SuperPro Designer (Basic), ArcMap, ArcGIS Online, Python, R programming, AutoCAD, Reaxys, Finechem, Origin, EndNote, Photoshop, Microsoft Office (Word, Excel, PowerPoint)
Materials Analytical Methods: SEM, Microscopic analysis, ATR-FTIR, Contact Angle, XRD, EDS, BET, LC-MS 2020, HPLC, TOC, ICP, UV-Vis, Electrochemistry Analysis, photoelectrochemical measurements, photocatalytic reactors

RESEARCH INTERESTS

Life Cycle Assessment | Sustainability Strategy | Environmental Science | Environmental Impact Assessment | Techno-economic Analysis | Life Cycle Costing | Sustainable Development Policy| ESG | SDGs | Energy and Environmental Design | Green Buildings | Waste Management | Waste Bioconversion and Recycling | Wastewater Management and Treatment