Yi Jiang

Assistant Professor

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Education

Ph.D., Energy, Environ. & Chemical Eng., Washington University in St. Louis, 2016
M.S., Environmental Sciences, Peking University, 2010
B.E., Environmental Engineering, Huazhong University of Science & Technology, 2007

Professional Experience

2017-present	Assistant Professor	Hong Kong Polytechnic University

Other affiliations:

State Key Laboratory of Marine Pollution (SKLMP)
Guangdong-Hong Kong-Macau Joint Laboratory for Environmental Pollution and Control
Research Institute for Sustainable Urban Development (RISUD), PolyU
Research Center for Resources Engineering towards Carbon Neutrality, PolyU

2017-2017	Postdoctoral Researcher	Harvard University
2016-2017	Postdoctoral Researcher	Washington University in St. Louis
2011-2016	Graduate Research Assistant	Washington University in St. Louis
2010-2011	Research Associate	Tsinghua University Innovation Inst.
2007-2010	Graduate Research Assistant	Peking University

Research Interests

Advanced water treatment, Environmental nanotechnology, Aerosol technology

Honors & Awards

- Outstanding Reviewer, *Environmental Science: Nano*, 2021
- Excellence in Review Award, *Environmental Science & Technology*, 2019
- Early Career Award, Hong Kong Research Grants Council, 2019
- Outstanding Doctoral Dissertation Award, CH2M/AEESP, 2017
- Graduate Student Award, American Chemical Society Environmental Chem. Division, 2016
- Doctoral Student Research Award, Washington University in St. Louis, 2015

- Travel Grant, Gordon Research Conference on Environmental Nanotechnology, 2015
- Charles & Marlene Buescher Graduate Fellowship Honoring Dr. D.W. Ryckman, 2011
- Graduate Academic Excellence Scholarship, Peking University, 2007-2010
- Selected Participant, Inspire Antarctica Expedition, 2009

Awards to Advisees

- Zhishang Wan (PhD student), Excellent Presentation Award, The 1st Greater Bay Area Symposium on Membranes and Membrane Processes (GBA-MMP), 2022
- Jin Zhang (UG student), Hong Kong PhD Fellowship, 2022; HKIE Best Final-Year Environmental Project Nominee, 2022
- Delai Zhong (postdoc research fellow), the Hong Kong Polytechnic University Centrally Funded Postdoc Fellowship, 2021

Publications

Peer-reviewed Publications

Total number of publications: **38;** under review: **6**
(*Google Scholar*, by September 2022: H-index = 25, Citations > 1950).
(*Scopus* (55613237442), by September 2022: H-index = 25, Citations > 1640).
(***** denotes corresponding author, student or postdoc advisees are underlined, ◊ denotes my PhD advisors)

1. Song, Z.; Wang, Z.; Ma, J.; Sun, J.; Li, C.; Xu, X.; Chen, C.; Chen, Z.; Xu, B.; **Jiang, Y.**; Kumirska, J; Siedlecka, E.; Ikhlaq, A.; Qi, F.; Ismailova, O., Molecular levels unveil the membrane fouling mitigation mechanism of a superpotent N-rGO catalytic ozonation membrane: Interfacial catalytic reaction pathway and induced EfOM transformation reactions. *Applied Catalysis B: Environmental*. 2022, 319, 121943.
2. Peng, B.; Liao, P.; **Jiang, Y.***, Preferential interactions of surface-bound engineered single stranded DNA with highly aromatic natural organic matter: Mechanistic insights and implications for optimizing practical aquatic applications. *Water Research*. 2022, 223, 119015.
3. Zhong, D.; Zhang, J.; Lv, L.; Lv, Y.*; **Jiang, Y.***, Magnetically ultrastabilized graphene oxide-based membrane filter for point-of-use water treatment. *ACS ES&T Engineering* 2022, 2, (5), 769-779. ***Supplementary Cover Feature***
4. Zeng, Q.; Wan, Z.; **Jiang, Y.**; Fortner, J.◊, Enhanced polysulfone ultrafiltration membrane performance through fullerol addition: A study towards optimization. *Chemical Engineering Journal* 2022, 431, 134071.
5. Peng, B.; Liu, Z.; **Jiang, Y.***, Aggregation of DNA-grafted nanoparticles in water: the critical role of sequence-dependent conformation of DNA coating. *The Journal of Physical Chemistry B* 2022, 126, (4), 847-857. ***Supplementary Cover Feature***

6. Li, B.; Liao, P.; Liu, P.; Wang, D.; Ye, Z.; Wang, J.; Chen, J.; Ning, Z.; **Jiang, Y.**; Liu, C., Formation, aggregation, and transport of NOM–Cr(III) colloids in aquatic environments. *Environmental Science: Nano* 2022, 9, (3), 1133-1145.
7. Wan, Z.; **Jiang, Y.***, Synthesis-structure-performance relationships of nanocomposite polymeric ultrafiltration membranes: A comparative study of two carbon nanofillers. *Journal of Membrane Science* 2021, 620, 118847.
8. Zhong, D.; Zhao, Z.; **Jiang, Y.**; Yang, X.; Wang, L.; Chen, J.; Guan, C.-Y.; Zhang, Y.; Tsang, D. C.; Crittenden, J. C., Contrasting abiotic As (III) immobilization by undissolved and dissolved fractions of biochar in Ca^{2+}-rich groundwater under anoxic conditions. *Water Research* 2020, 183, 116106.
9. Zhong, D.; **Jiang, Y.**; Zhao, Z.; Wang, L.; Chen, J.; Ren, S.; Liu, Z.; Zhang, Y.; Tsang, D. C. W.; Crittenden, J. C., pH Dependence of arsenic oxidation by rice-husk-derived biochar: Roles of redox-active moieties. *Environmental Science & Technology* 2019, 53, (15), 9034-9044.
10. Li, Q.; Xie, L.; **Jiang, Y.**; Fortner, J. D.[◊]; Yu, K.; Liao, P.; Liu, C., Formation and stability of NOM-Mn(III) colloids in aquatic environments. *Water Research* 2019, 149, 190-201.
11. **Jiang, Y.***; Zeng, Q.; Biswas, P.[◊]; Fortner, J. D.*[◊], Graphene oxides as nanofillers in polysulfone ultrafiltration membranes: Shape matters. *Journal of Membrane Science* 2019, 581, 453-461.
12. Zhong, D.; Zhang, Y.; Wang, L.; Chen, J.; **Jiang, Y.**; Tsang, D. C. W.; Zhao, Z.; Ren, S.; Liu, Z.; Crittenden, J. C., Mechanistic insights into adsorption and reduction of hexavalent chromium from water using magnetic biochar composite: Key roles of Fe_3O_4 and persistent free radicals. *Environmental Pollution* 2018, 243, 1302-1309.
13. Xing, X.; Ni, J.; Zhu, X.; **Jiang, Y.**; Xia, J., Maximization of current efficiency for organic pollutants oxidation at BDD, Ti/SnO_2-Sb/PbO_2, and Ti/SnO_2-Sb anodes. *Chemosphere* 2018, 205, 361-368.
14. Lu, L.; Hu, Y.; Jiang, H.; Wang, Y.; **Jiang, Y.**; Huang, S.; Niu, X.; Biswas, P.[◊]; Li, C., Multi-shelled $LiMn_{1.95}Co_{0.05}O_4$ cages with a tunable Mn oxidation state for ultra-high lithium storage. *New Journal of Chemistry* 2018, 42, (5), 3953-3960.
15. Li, H.; Xing, X.; Wang, K.; Zhu, X.; **Jiang, Y.**; Xia, J., Improved BDD anode system in electrochemical degradation of p-nitrophenol by corroding electrode of iron. *Electrochimica Acta* 2018, 291, 335-342.
16. Vaze, N.#; **Jiang, Y.#**; Mena, L.; Zhang, Y.; Bello, D.; Leonard, S. S.; Morris, A. M.; Eleftheriadou, M.; Pyrgiotakis, G.; Demokritou, P., An integrated electrolysis – electrospray – ionization antimicrobial platform using Engineered Water Nanostructures (EWNS) for food safety applications. *Food Control* 2018, 85, 151-160. (# equal contribution)
17. Li, W.; Liao, P.; Oldham, T.; **Jiang, Y.**; Pan, C.; Yuan, S.; Fortner, J. D.[◊], Real-time evaluation of natural organic matter deposition processes onto model environmental surfaces. *Water Research* 2018, 129, 231-239.

18. Li, W.; Hu, Y.; Jiang, H.; **Jiang, Y.**; Wang, Y.; Huang, S.; Biswas, P.[◊]; Li, C., Fluxing template-assisted synthesis of sponge-like Fe_2O_3 microspheres toward efficient catalysis for CO oxidation. *Applied Surface Science* 2018, 444, 763-771.

19. Liao, P.; Li, W.; Wang, D.; **Jiang, Y.**; Pan, C.; Fortner, J. D.[◊]; Yuan, S., Effect of reduced humic acid on the transport of ferrihydrite nanoparticles under anoxic conditions. *Water Research* 2017, 109, 347-357.

20. Liao, P.; Li, W.; **Jiang, Y.**; Wu, J.; Yuan, S.; Fortner, J. D.[◊]; Giammar, D. E., Formation, aggregation, and deposition dynamics of NOM-iron colloids at anoxic–oxic interfaces. *Environmental Science & Technology* 2017, 51, (21), 12235-12245.

21. **Jiang, Y.***; Zhu, X.; Xing, X., Electrochemical oxidation of phenolic compounds at boron-doped diamond anodes: structure–reactivity relationships. *The Journal of Physical Chemistry A* 2017, 121, (22), 4326-4333.

22. **Jiang, Y.**; Raliya, R.; Liao, P.; Biswas, P.[◊]; Fortner, J.[◊], Graphene oxides in water: Assessing stability as a function of material and natural organic matter properties. *Environmental Science: Nano* 2017, 4, (7), 1484-1493.

23. Hu, Y.; Jiang, H.; Li, Y.; Wang, B.; Zhang, L.; Li, C.; Wang, Y.; Cohen, T.; **Jiang, Y.**; Biswas, P.[◊], Engineering the outermost layers of TiO_2 nanoparticles using in situ Mg doping in a flame aerosol reactor. *AIChE Journal* 2017, 63, (3), 870-880.

24. Nie, Y.; Wang, W.-N.; **Jiang, Y**.; Fortner, J.[◊]; Biswas, P.[◊], Crumpled reduced graphene oxide-amine-titanium dioxide nanocomposites for simultaneous carbon dioxide adsorption and photoreduction. *Catalysis Science & Technology* 2016, 6, (16), 6187-6196.

25. **Jiang, Y.**; Raliya, R.; Fortner, J. D.[◊]; Biswas, P.[◊], Graphene oxides in water: Correlating morphology and surface chemistry with aggregation behavior. *Environmental Science & Technology* 2016, 50, (13), 6964–6973.

26. **Jiang, Y.**; Liu, D.; Cho, M.; Lee, S. S.; Zhang, F.; Biswas, P.[◊]; Fortner, J. D.[◊], In situ photocatalytic synthesis of Ag nanoparticles (nAg) by crumpled graphene oxide composite membranes for filtration and disinfection applications. *Environmental Science & Technology* 2016, 50, (5), 2514–2521.

27. **Jiang, Y.**; Biswas, P.[◊]; Fortner, J. D.[◊], A review of recent developments in graphene-enabled membranes for water treatment. *Environmental Science: Water Research & Technology* 2016, 2, (6), 915-922.

28. **Jiang, Y.**; Wang, W.-N.; Liu, D.; Nie, Y.; Li, W.; Wu, J.; Zhang, F.; Biswas, P.[◊]; Fortner, J. D.[◊], Engineered crumpled graphene oxide nanocomposite membrane assemblies for advanced water treatment processes. *Environmental Science & Technology* 2015, 49, (11), 6846-6854.

29. Wang, W.-N.; **Jiang, Y.**; Fortner, J. D.[◊]; Biswas, P.[◊], Nanostructured graphene-titanium dioxide composites synthesized by a single-step aerosol process for photoreduction of carbon dioxide. *Environmental Engineering Science* 2014, 31, (7), 428-434.

30. **Jiang, Y.**; Wang, W.-N.; Biswas, P.[◊]; Fortner, J. D.[◊], Facile aerosol synthesis and characterization of ternary crumpled graphene–TiO_2–magnetite nanocomposites for advanced water treatment. *ACS Applied Materials & Interfaces* 2014, 6, (14), 11766-11774.
31. Wang, W.-N.; **Jiang, Y.**; Biswas, P.[◊], Evaporation-induced crumpling of graphene oxide nanosheets in aerosolized droplets: Confinement force relationship. *The Journal of Physical Chemistry Letters* 2012, 3, (21), 3228-3233.
32. Zhu, X.; Ni, J.; Xing, X.; Li, H.; **Jiang, Y.**, Synergies between electrochemical oxidation and activated carbon adsorption in three-dimensional boron-doped diamond anode system. *Electrochimica Acta* 2011, 56, (3), 1270-1274.
33. Xing, X.; Zhu, X.; Li, H.; **Jiang, Y.**; Ni, J., Electrochemical oxidation of nitrogen-heterocyclic compounds at boron-doped diamond electrode. *Chemosphere* 2011, 86, (4), 368-375.
34. Zhu, X.; Ni, J.; Wei, J.; Xing, X.; Li, H.; **Jiang, Y.**, Scale-up of BDD anode system for electrochemical oxidation of phenol simulated wastewater in continuous mode. *Journal of Hazardous materials* 2010, 184, (1-3), 493-498.
35. Zhu, X.; Ni, J.; Li, H.; **Jiang, Y**.; Xing, X.; Borthwick, A. G., Effects of ultrasound on electrochemical oxidation mechanisms of *p*-substituted phenols at BDD and PbO_2 anodes. *Electrochimica Acta* 2010, 55, (20), 5569-5575.
36. Li, H.; Zhu, X.; **Jiang, Y.**; Ni, J., Comparative electrochemical degradation of phthalic acid esters using boron-doped diamond and Pt anodes. *Chemosphere* 2010, 80, (8), 845-851.
37. **Jiang, Y.**; Zhu, X.; Li, H.; Ni, J., Effect of nitro substituent on electrochemical oxidation of phenols at boron-doped diamond anodes. *Chemosphere* 2010, 78, (9), 1093-1099.
38. Yuan, S.; Xi, Z.; **Jiang, Y.**; Wan, J.; Wu, C.; Zheng, Z.; Lu, X., Desorption of copper and cadmium from soils enhanced by organic acids. *Chemosphere* 2007, 68, (7), 1289-1297.

Non-peer-reviewed Publications

39. **Jiang, Y.**; Quan, X.; Jiang, G.; Li, X., Current Prospective on Environmental Nanotechnology Research in China. *Environmental Science & Technology* 2019, 53, (8), 4001-4002. (Viewpoint)
40. **Jiang, Y.**; Li, X., Sustainable Development: 30 Years Since the Rio de Janeiro Earth Summit. *ACS Environmetnal Au* 2022, 2, 6, XX. (Editorial)

Manuscripts under review or in preparation (6 currently under review; 4 in preparation)

41. Zhong, D.; Wu, Y.; Lv, L.; Yang, X.; Lv, Y.; **Jiang, Y.***, Magnetic confinement-enabled membrane reactor for enhanced removal of wide-spectrum contaminants in water: Proof of concept, synergistic decontamination mechanisms, and sustained treatment performance. *Water Research. Under revision.*
42. Wan, Z.; Zhao, Z.; Deng, B.; **Jiang, Y.***, A review on nanofiller-enhanced polymeric ultrafiltration membranes: Mechanistic understanding, performance meta-analysis, and future opportunities. *Under review*

43. Lan, J.; Wen, F.; Ren, Y.; Liu, G.; **Jiang**, **Y.;** Wang, Z.; Zhu, X., Bioelectrokinetic and bioelectrochemical remediation of petroleum-contaminated soils enhanced by electric fields. *Under review.*

44. Jiang, K.; Li, H.; Liu, W.; **Jiang**, **Y.;** Zhang, Z.; Ju, F.; Song, T.; Li, B.; Wang, X.; Zhu, C., Multiple antibiotic-resistant bacteria resisted to electrochemical disinfection with variation of key antibiotic resistance genes. *Under review*

45. Cui, J.; Yang, J.; Weber, M.; Yan, J.; Li, R.; Chan, T.; **Jiang, Y.**; Xiao, T.; Li, X.; Li, X., Phosphate interactions with iron-titanium oxide composites: implications for phosphorus removal/recovery from wastewater. *Under review*

46. Wan, Z.; Gan, L.; Wang, W.; **Jiang, Y.***, Rapid membrane surface functionalization with Ag nanoparticles via coupling electrospray deposition and polymeric fusion bonding for enhanced antifouling and catalytic performance: deposition and interfacial reaction mechanisms. *Under review*

47. Zhao, Z.; Weng, Y.; Wan, Z.; Gan, L.; Peng, B.; Wang, L.; **Jiang, Y.***, Negatively charged, double-crosslinked polyvinylidene fluoride hollow fiber membranes with enhanced filtration performance and stability against harsh conditions: Critical roles of low-molecular-weight amine crosslinkers and surface sulfonation. *In prepration*

48. **Jiang, Y.***; Wang, W.*; Wang, P.; Zhu, X., Accerlarating nanotechnlogy applications in water treatment: the enabling role of aerosol engineering. *In prepartion*

49. Gan, L.; Zhang, J.; Wan, Z.; **Jiang, Y.***, Polyelectrolye multilayer nanofiltration membranes via aerosol-assisted printing: A mechanistic study correlating aerosol deposition with membrane structure and performance. *In prepration*

50. Peng, B.; **Jiang, Y.***, Impacts of physiochemical properties on engineered nanomaterial aggregation: A meta-analysis study. *In prepration*

Book Chapters

1. Zhong, D.; Gan, L.; **Jiang**, **Y.** *, Engineered graphene oxide as advanced separation material for water treatment. In: Matthew Tirrell; Chen Junhong (eds) *The World Scientific Reference of Water Science Volume 2: Nanotechnology for Water Treatment and Water Interfaces*. World Scientific Publishing Company, 2022, pp. 31-61.

2. **Jiang, Y.***; Peng, B.; Wan, Z.; Kim, C.; Li, W.; Fortner, J.*, Nanotechnology as a key enabler for effective environmental remediation technologies, In: Guibin Jiang; Xiangdong Li (eds) *A New Paradigm for Environmental Chemistry and Toxicology: From Concepts to Insights*. Springer, 2020, pp. 197-207.

3. Contributing author. Transformation: case studies of innovation cities, 2011, Tsinghua University Press: Beijing, China. (In Chinese)

4. Contributing author. From strategy to action: an overview of sustainable development in the European Union, 2008, Social Sciences Academic Press: Beijing, China. (In Chinese)

Presentations

Invited Talks

1. Hong Kong Polytechnic University (RISUD), Hong Kong, China, August 2022
   New paradigm of separation membranes
2. The 1st Greater Bay Area Symposium on Membranes and Membrane Processes (GBA-MMP), Guangzhou/Hong Kong, China, April 2022
   Emerging membranes via aerosol-assisted printing
3. Hong Kong Polytechnic University (RISUD), Hong Kong, China, July 2021
   New paradigm of separation membranes
4. Hong Kong Polytechnic University (CEE), Hong Kong, China, April 2021
   Scalable application of functional engineered nanomaterials in water treatment membranes: a tale of two strategies
5. City University of Hong Kong (SEE), Hong Kong, China, March 2021
   Scalable application of functional engineered nanomaterials in water treatment membranes: a tale of two strategies
6. Chinese Academy of Agricultural Sciences, Beijing, China, October 2019
   Assessing stability of engineered nanomaterials in aquatic systems: the knowns and unknowns
7. Huazhong University of Science & Technology, Wuhan, China, December 2016
   Crumpled graphene oxide: aerosol synthesis and environmental applications
8. China University of Geosciences, Wuhan, China, June 2016
   Crumpled graphene oxide: aerosol synthesis and environmental applications
9. Washington University in St. Louis, St. Louis, MO, United States, March 2016
   Crumpled graphene oxide: aerosol synthesis and environmental applications

Conference Presentations

1. The 2nd International Symposium on Water Sustainability: Circular Resource Technology, Yonsei University, Seoul, South Korea, January 2020
   Engineered nanomaterials in water: Assessing stability as a function of material and natural organic matter properties [Oral]
2. The 2nd International Conference on All Material Fluxes in River Eco-Systems, Peking University, Beijing, China, October 2019
   Engineered nanomaterials in water: Assessing stability as a function of material and natural organic matter properties [Oral]
3. The NSFC-RGC Young Scholars Forum: Frontiers in Ecology & Environmental Science and Green Development, Guangxi University, Nanning, China, September 2019
   Aqueous stability of engineered Au-DNA nanoparticles: effects of DNA characteristics and water chemistry [Oral]

4. The 10th National Conference on Environmental Chemistry, Nankai University, Tianjin, China. August 2019
   Aqueous stability of engineered Au-DNA nanoparticles: effects of DNA characteristics and water chemistry [Oral]
5. Gordon Research Conference on Environmental Nanotechnology, Newry, ME, United States. June 2019
   Aqueous stability of engineered Au-DNA nanoparticles: effects of DNA characteristics and water chemistry [Poster]
6. The 6th Cross-strait Forum on Sustainable Urban Development, Tongji University, Shanghai, China. May 2019
   Graphene oxide-enabled water treatment membranes [Oral]
7. The 3rd National Conference on Water Treatment and Reuse, Guangzhou, China. March 2019
   Graphene oxides as nanofillers in polysulfone ultrafiltration membranes: shape matters [Oral]
8. The HKPU-HIT Joint Workshop on Sustainable Urban Water Environment, Yi Xing, Jiang Su, China. November 2017
   Aerosol technology enabling advanced water treatment and food disinfection [Oral]
9. The 9th National Conference on Environmental Chemistry, Hangzhou, Zhejiang, China. October 2017
   Graphene oxide-enabled water treatment membranes [Oral]
10. Gordon Research Conference on Environmental Nanotechnology, Mount Snow Resort, VT, United States. June 2015
    Aqueous stability of reduced graphene oxide: effects of surface chemistry, morphology, and humic acids [Poster]
    Engineered crumpled graphene oxide nanocomposite membrane assemblies for advanced water treatment processes [Poster]
11. AEESP Research and Education Conference, New Haven, CT, United States. June 2015
    Aqueous stability of reduced graphene oxide: effects of surface chemistry, morphology, and humic acids [Poster]
12. Mid-America Environmental Engineering Conference, Missouri S&T, Rolla, MO, United States. November 2014
    Engineered crumpled graphene oxide nanocomposite membrane assemblies for advanced water treatment processes [Oral]
13. 248th ACS National Meeting, San Francisco, CA, United States. August 2014.
    Engineered crumpled graphene nanocomposites for photocatalytic environmental reduction applications [Oral]
    Crumpled graphene oxide nanocomposites for multifunctional water treatment membrane structures [Oral]

14. 247th ACS National Meeting, Dallas, TX, United States. March 2014.
High performance crumpled graphene-TiO_2 photocatalysts for water treatment technologies [Oral]

Conference Presentations by Advisees (presenter underlined)

1. International Congress on Separation and Purification Technology, December 2022.
*Lihong Gan, **Yi Jiang.** Polyelectrolyte multilayer nanofiltration membranes by aerosol-assisted printing* [Oral-Virtual]
2. International Congress on Separation and Purification Technology, December 2022.
*Zhenyu Zhao, **Yi Jiang**. Negatively charged, double-crosslinked polyvinylidene fluoride hollow fiber membranes for dyes and salts fraction under harsh conditions* [Oral-Virtual]
3. ACS National Meeting, Chicago, IL, United States. August 2022.
*Zhishang Wan, **Yi Jiang.** One-step scalable surface nanoengineering of filtration membranes via polymeric solvent bonding-assisted incorporation of biocidal nanomaterials* [Oral-Virtual]
4. ACS National Meeting, Chicago, IL, United States. August 2022.
*Lihong Gan, Jin Zhang, Zhishang Wan, **Yi Jiang**. Aerosol-assisted printing of polyelectrolyte multilayer nanofiltration membranes for advanced water treatment* [Oral-Virtual]
5. The 1st Greater Bay Area Symposium on Membranes and Membrane Processes (GBA-MMP), Guangzhou/Hong Kong, China, April 2022
*Zhishang Wan, **Yi Jiang.** Scalable application of functional engineered nanomaterials in water treatment membranes* [Oral-Virtual]
6. ACS National Meeting, Atlanta, GA, United States. August 2021.
*Delai Zhong, **Yi Jiang**. Achieving an ultrastable graphene oxide-based membrane in a magnetic field* [Oral-Virtual]
7. ACS National Meeting, Atlanta, GA, United States. August 2021.
*Bo Peng, **Yi Jiang**. Aggregation of DNA-grafted nanoparticles in water: Roles of cations and natural organic matter* [Oral-Virtual]
8. Theme-based Project Annual Workshop, University of Hong Kong, Hong Kong, June 2021.
*Zhishang Wan, **Yi Jiang.** Scalable surface engineering of polymeric filtration membranes via electrospray-assisted deposition and incorporation of functional nanomaterials* [Oral]
9. Theme-based Project Annual Workshop, University of Hong Kong, Hong Kong, June 2020.
*Zhishang Wan, **Yi Jiang.** Synthesis-structure-performance relationships of nanocomposite polymeric ultrafiltration membranes: A comparative study of two carbon nanofillers* [Oral]

Research Projects

Research Grants (*total amount: ~HK$ 7,450,000 (ca. USD 950,000); competitive-based: ~HK$ 7,250,000; on-cost excluded****)***

External Competitive Research Grants (4 as PI, 1 as co-PI; total amount: ~ HK$ 3,800,000)

1. Polyelectrolyte Nanofiltration Membranes via Aerosol-assisted Printing: Establishing Fabrication-Structure-Performance Relationships towards Scalable Manufacturing and Applications in Advanced Water and Wastewater Treatment (PI, *Funded by Hong Kong Research Grants Council General Research Fund Scheme, HK$ 1,115,452, 2023-2025)*
2. Development and Application of Nanocomposite Membranes via 3D Printing for Water Treatment (PI, *Funded by Shenzhen Science and Technology Innovation Commission, RMB 1,000,000 (HK$ 1,170,000), 2022-2024*)
3. Advanced Nanocomposite Membranes Synthesized by An Aerosol-assisted Fabrication Approach for Water and Wastewater Treatment (PI, *Funded by Hong Kong Research Grants Council Early Career Scheme, HK$ 613,988, 2020-2022*)
4. Carbon Nanomaterials-Polysulfone Nanocomposite Ultrafiltration Membranes: Revealing Synthesis-Structure-Performance Relationships (PI, *Funded by National Natural Science Foundation of China, RMB 260,000 (HK$ 295,000), 2020-2022*)
5. Enhanced Separation and Sludge Refinery for Wastewater Treatment-Solving the Nexus of Pollution Control and Resource Recovery in Mega Cities (Co-PI, *PI: Prof. Xiaoyan Li (HKU); Funded by Hong Kong Research Grants Council Theme-based Research Scheme, HK$ 600,000 to Jiang Lab, 2020-2022*)

Internal Competitive Research Grants (7 as PI, total amount: ~HK$ 3,454,000)

1. Scalable and Sustainable Graphene Oxide Water Separation Membranes (PI, *Funded by CEE Departmental Large Grant Seed Money Scheme, HK$ 500,000, 2022-2023)*
2. Potable Water Reuse in Hong Kong: Development of Viable Treatment Strategy and Risk Assessment Framework (PI, *Funded by Guangdong-Hong Kong-Macau Joint Laboratory for Environmental Pollution and Control Seed Fund Scheme, HK$ 250,000, 2021-2022*)
3. Scalable Surface Nanoengineering of Hollow Fiber Membrane via Electrospray-assisted Deposition and Incorporation of Biocidal Nanomaterials (PI, *Funded by The Hong Kong Polytechnic University Undergraduate Research and Innovation Scheme (URIS), HK$ 30,000, 2021-2023*)
4. New Paradigm of Water Separation Membranes (PI, *Funded by Research Institute of Sustainable Urban Development Emerging Frontier Area Scheme, The Hong Kong Polytechnic University, HK$ 1,108,000, 2019-2022*)
5. PolyU Postdoc Matching Scheme (PI, *HK$ 364,604, 2022-2024)*

6. Ultra-Stable High-Performance Point-of-Use Nanocarbon Water Filters (PI, *Centrally Funded Postdoctoral Fellowship Scheme, The Hong Kong Polytechnic University, HK$ 836,280, 2021-2023*)
7. PolyU Postdoc Matching Scheme (PI, *HK$ 364,801, 2022-2024)*

Internal Non-competitive Research Grants (1 as PI, total amount: ~HK$ 200,000)

1. Development of Advanced Nano-enabled Ultrafiltration Membranes by Aerosol-assisted Approaches (PI, *Funded by The Hong Kong Polytechnic University, HK$ 200,000, 2019-2020*)

External Research Grants Pending Results

1. Transmission of antimicrobial resistance from hotspot sources to occupational populations and urban communities (Co-PI, *PI: Prof. Xiangdong Li; submitted to Hong Kong Research Grants Council Collaborative Research Fund Scheme*)
2. Sustainable Desalination Technologies toward Climate-Resilient Water Solutions (Co-PI, *PI: Prof. Chuyang Tang; submitted to Hong Kong Research Grants Council Theme-based Research Scheme*)
3. Enhancing and Sustaining Zerovalent Iron Reactivity for Arsenic Removal in a Magnetically Confinement-enabled Flow-through Water Treatment System (PI, *submitted Hong Kong Research Grants Council General Research Fund Scheme*)

Equipment Projects

1. Surface Zeta Potential Cell (PI, *The Hong Kong Polytechnic University Department of Civil and Environmental Engineering Large Equipment Fund, HK$110,000, 2022-2023*)
2. An Advanced Research Platform for One Sustainable Health in Shenzhen Research Institute (Co-PI, *PI: Xiangdong Li; The Hong Kong Polytechnic University Large Equipment Fund for Shenzhen Research Institute (SZRI), HK$4,198,293, 2022-2023*).
3. The mIRange Optical Photothermal Infrared (O-PTIR) Microscope (Co-I, *PI: Dr. Kar Hei Fang; The Hong Kong Polytechnic University Large Equipment Fund, HK$3,948,000, 2021-2022)*
4. Emriver Em4 Geomodel (Em4) (Co-I, *PI: Dr. Huanfeng Duan; The Hong Kong Polytechnic University Large Equipment Fund, HK$900,000, 2021-2022*)
5. Integrated Continuous Flow Reactor with Upgraded Liquid Chromatography for Environmental Engineering Education (Co-I, *PI: Dr. Shao Yuan Leu; The Hong Kong Polytechnic University Large Equipment Fund, HK$1,325,140, 2021-2022*)

Teaching Projects

1. Ten Thousand People's Scheme (Hong Kong-Macau-Mainland College Exchange Scheme)*: 2021 Fudan University-Hong Kong/Macau Universities Exchange on Environmental Protection and Sustainable Development in the Yangtze River Delta Region* (PI, funded by Ministry of Education of China)
2. Ten Thousand People's Scheme (Hong Kong-Macau-Mainland College Exchange Scheme)*: 2022 HUST-PolyU Joint Social Practice on Green and Zero Carbon Community* (Co-PI, funded by Ministry of Education of China; PI: Prof. Fu Xiao)

Patents

1. Fortner, J.; Biswas, P.; **Jiang, Y.**; Wang, W., Composite nanostructures having a crumpled graphene oxide shell. US Patent US10874992 (PCT/US2015/021084)
2. **Jiang, Y.**; Wan, Z., Surface modification method of filter membrane and composite filter membrane. Chinese Patent Application (No. 202110272172.4)
3. **Jiang**, **Y.**; Zhong, D., A magnetic confinement method enabling efficient (re)loading and sustainable reactivity of magnetic catalyst in a membrane chemical reactor, US Provisional Patent Application (No. 63/367,650)

Teaching and Advising

Faculty – The Hong Kong Polytechnic University (2017-present, total 7 subjects)

1. Environmental Management Systems and Audit (CSE539, GR)
2. Environmental Management Systems (CSE467/40467, UG)
3. Water and Wastewater Treatment Plant Design (CSE527, GR)
4. Water and Wastewater Treatment Techniques for EESD (CSE 30461/40461, UG)
5. Water and Wastewater Treatment (CSE 518, GR)
6. Environmental Impact Assessment - Theory and Practice (CSE40462, UG)
7. Water and Waste Management (CSE30337, UG)

Teaching Assistant – Washington University in St. Louis (2012-2014, total 3 subjects)

1. Environmental Organic Chemistry (EECE 448/548, Fall 2014)
2. Environmental Engineering Laboratory (E63 408A/508A, Spring 2013)
3. Chemical Engineering Thermodynamics (ChE 320, Fall 2012)

Teaching Development Activities – The Hong Kong Polytechnic University (2017-present)

1. Certificate in Conducting Peer Review of Teaching Practice, 2022
2. Certificate in Introduction to Academic Advising, 2021
3. Certificate in Introduction to University Teaching, 2017

Postdoc, PhD & MSc Advising – The Hong Kong Polytechnic University (2017-present)

Current (11):

1. Dr. Delai Zhong (Postdoctoral Research Fellow, 2019-present), Ph.D. in Environmental Engineering, Huazhong University of Science and Technology, China
   Research Topic: *magnetic confinement-enabled water treatment*
2. Dr. Zhenyu Zhao (Postdoctoral Research Fellow, 2022-present), Ph.D. in Bioscience Engineering, KU Leuven, Belgium
   Research Topic: *synthesis and applications of covalent organic framework (COF) membranes*
3. Dr. Yangtao Wu (Postdoctoral Research Fellow, 2022-present), Ph.D. in Water Engineering and Science, Hunan University, China
   Research Topic: *chlorine-resistant polyelectrolyte multilayer nanofiltration membranes*
4. Zhishang Wan (PhD student, 2018-present)
   Research Topic: *nanocomposite membranes enabled by nanofiller incorporation and aerosol-assisted fabrication*
   Status: Registration confirmed 05/2020, Thesis Examination expected Spring 2023
5. Bo Peng (PhD student, 2018-present)
   Thesis title: *Aggregation Behavior of Nanomaterials in Water: Roles of Material Intrinsic Property and Engineered DNA Surface Coating*
   Status: Registration confirmed 05/2020, Thesis Examination expected December 2022
6. Lihong Gan (PhD student, 2020-present)
   Research Topic: *polyelectrolyte multilayer nanofiltration membranes via aerosol-assisted printing*
   Status: Registration confirmed 05/2022
7. Yuchen Wu (PhD student, 2021-present)
   Research Topic: *magnetic confinement-enabled water treatment*
   Status: Registration expected 05/2023
8. Beizhao Chen (PolyU-SUSTech Joint PhD student, 2022-present)
   Research Topic: TBD
9. Ruiyu Lin (MSc student, 2022-present)
10. Haonan Zhang (MSc student, 2022-present)
11. Xunjie Li (MSc student, 2022-present)

Graduated (5):

1. Chengyao Peng (MSc student, graduated August 2021)
   Thesis Title: *Enhanced degradation of bisphenol S via persulfate activation in a Fe_3O_4-loaded nanoporous membrane and magnetic field*
2. Jiting Wang (MSc student, graduated August 2021)
   Thesis Title: *Influence of UV irradiation on the transformation of Gold-DNA(Au-DNA) nanoparticles in aquatic systems*

3. Yu Zhu (MSc student, graduated August 2020)
   Thesis Title: *A comparison study of the performance of commercial ultrafiltration and nanofiltration membranes for advanced wastewater treatment*
4. Zhiying Deng (MSc student, graduated August 2019)
   Thesis Title: *Aggregation kinetics of gold-DNA (Au-DNA) nanoparticles in aquatic environments*
5. Xiaoxuan Huang (MSc student, graduated August 2019)
   Thesis Title: *Application of ultrafiltration membrane in advanced treatment of secondary effluent for water reuse in Hong Kong.*

Undergraduate Advising – The Hong Kong Polytechnic University (2017-present)

UG research advising (3)

1. Jin Zhang (**Hong Kong PhD Fellowship awardee**, HKIE Best Final-Year Environmental Project nominee, 2020-2022, pursuing PhD at Vanderbilt University)
2. Yanni Weng (*PolyU URIS member*, 2020-present)
3. Yuyan Wang (2022-present)

UG academic advising (ca. 20 each year)

16 students (2017-2018), 18 students (2018-2019), 22 students (2020-2021), 21 students (2021-2022)

Final year project (FYP) advising (24)

Pak Hei Lui, Zhong Guang Wu, Siu Hin Lo, Yanni Weng, Ching Fung Cheng (total 5, 2022-2023); Jin Zhang, Guldana Akhmet (total 2, 2021-2022); Wing Lun Ng, Chun Ko, Ho Yu Yung, Melvin Chau (total 4, 2020-2021); Yau Sing Cheng, Hiu Ching Cheung, Man Wai Hoo, Tina Kan, Hei Man Kwok, Yuet Hang Lam, King Hei Tang (total 7, 2019-2020); Yu-an Lu, Shuang Ao Lim, Haoyu Dong, Lance Mak, Benny Fan, Andy Leung (total 6, 2018-2019)

International exchange student advising

Tomas Kroupa (Summer 2018, UCT Prague, Czech)

Research Mentor – Harvard University and Washington University in St. Louis (2013-2017)

Lucas Pepe Mena (Spring 2017, Harvard University/University of Sao Paulo), Qingqing Zeng (Fall 2015, WUStL EECE PhD), Sung Yoon Jung (Fall 2015, WUStL EECE PhD), Isaac Fuhrman (Summer 2015, University of Nebraska-Lincoln, NSF REU), Daniel Plants (Summer 2014, Rice University), Yao Nie (Fall 2013, WUStL EECE PhD), Siyuan An (Fall 2013, WUStL EECE PhD), Christine Le (Summer 2013, Brown University, NSF REU)

Services and Outreach

University and Departmental Services

1. Departmental Summer Placement Officer (EESD) (2021-present)
2. Deputy Program Leader, MSc in Environmental Management and Engineering (2020-present)
3. Member, Departmental Learning & Teaching Committee (2019-present)
4. Member, Departmental Health & Safety Committee (2017-2019, 2021-present)
5. Departmental Teaching Peer Reviewer (2022-present)
6. Departmental Interview Panel for Research Assistant Professor (2022)
7. Member, Departmental Management Committee (2020-2021)
8. Deputy Program Leader, BEng (Honors) in Environmental Engineering and Sustainable Development (EESD) (2019-2020)
9. Departmental Examination Officer (2019-2021)
10. Departmental Green Officer (2018-2020)

PhD Confirmation Examination Committee Member (CEE, PolyU)

Student	Advisor(s)	Year
Siqing Wang	Prof. Xiangdong Li (PolyU) Prof. Yuanyuan Tang (SUSTech)	2022
Qian Yang	Prof. Xiangdong Li (PolyU) Prof. Bin Chen (SUSTech)	2022
Jianyu Guan	Prof. Shao-Yuan (Ben) Leu	2022
Yinghong Lin	Prof. Yuhong Wang	2022
Zibo Xu	Prof. Daniel Tsang	2022
Qiaozhi Zhang	Prof. Daniel Tsang Prof. Chi Sun Poon	2022
Yihua Wang	Prof. Xiangdong Li	2021
Xiaohua Zhang	Prof. Xiangdong Li	2021
Jue Zhao	Prof. Xiangdong Li	2020
Rabia Jalil Khan	Prof. Shao-Yuan (Ben) Leu	2020
Shazia Rehman	Prof. Shao-Yuan (Ben) Leu	2020
Fangjin Li	Prof. Yuhong Wang	2019
Richard Wang	Prof. Mark S.C. Hsu	2018
Valeria Isabel Alvarado Roman	Prof. Mark S.C. Hsu Prof. Po-Heng Lee (Henry) Prof. Meng Ni	2018

Saina Zheng	Prof. Mark S.C. Hsu Prof. Albert P.C. Chan	2018

Conference and Workshop Organization

1. Member of the organizing committee, Greater Bay Area Symposium, International Congress on Separation and Purification Technology, December 2022.
2. Co-organizer, the PolyU (Hong Kong) -Yonsei University (South Korea) Joint Workshop on Water Sustainability. 7th January 2019, Hong Kong.

Journal Peer-Review and Editorial Service

Journal reviewer: ACS Environmental Au; Chemical Communications; Chemosphere; Environmental Engineering Science; Environmental Science & Technology; Environmental Science: Nano; Industrial & Engineering Chemistry Research; Journal of Aerosol Science; Journal of Hazardous Materials; Journal of Membrane Science; Nature Communications; National Science Review; Water Research.

Editorial Board Member, *Chemical Engineering Journal Advances* (an Elsevier journal), 2020-present

Editorial Advisory Board Member, *ACS Environmental Au* (an American Chemical Society journal), 2021-present

Co-guest editor, *Nanotechnology* (an IOPscience journal), Focused issue on Airborne Pathogen Transmission and Mitigation: Perspectives from Aerosol Science and Nanotechnology (co-editors: Weining Wang, Pratim Biswas, Yang Wang, and Jiayu Li)

Grant Proposal Review

Hong Kong Research Institute of Textiles and Apparel (HKRITA)
National Science Center Poland
University of Macau Multi-Year Research Grant

Outreach Activities

Clean Water Competition - a Half-day Special Program for Secondary School Students in Hong Kong, Hong Kong Polytechnic University, Hong Kong, November 9th, 2019
STEM Lecture *Sustainable Nanotechnology*, Hong Kong Polytechnic University, Hong Kong, December 18th, 2018
STEM Lecture *Sustainable Nanotechnology for a Better Future*, Wong Shiu Chi Secondary School, Hong Kong, March 16th, 2018

Professional Affiliation

Assoication of Environmental Engineering & Science Professors (AEESP)
Chinese-American Professors in Environmental Engineering and Science (CAPEES)
American Chemical Society (ACS)
International Water Association (IWA)