

# ACS Environmental Au Recognizes 2023 Rising Stars in Environmental Research

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Addressing climate change mitigation, air pollution and health, environmental microbiology, wastewater treatment technology, and contaminant transport in coastal ecosystems requires innovative solutions from interdisciplinary environmental research. Talented early career researchers are working at the frontline in these important research fields. We are delighted to announce here our **2023 Rising Stars in Environmental Research**. These outstanding individuals have made significant contributions toward many pressing environmental issues on our planet. The remarkable papers in *ACS Environmental Au* from these rising stars highlight key research outcomes in many important research topics. We hope our readers enjoy and can benefit from these important papers, and we are pleased to share more about these early career researchers' career development paths in this Editorial.



*I enjoy exploring the mystery of organic carbon cycling across the river to ocean continuum using molecular fingerprints and data driven techniques.*

**Ding He** currently holds an assistant professor position at the Department of Ocean Science, The Hong Kong University of Science and Technology. His group is dedicated to DREAMs (Data-driven approaches for Exploring organic geochemistry of Aquatic ecosystems). Dr. He graduated from Shaanxi Normal University (majored in biology) in 2009 and earned his Ph.D. degree (majored in Marine Organic Geochemistry; supervised by Professor Rudolf Jaffé and cosupervised by Professor Bernd R.T. Simoneit) from Florida International University in 2014. He then worked as a Postdoctoral Fellow in the Department of Marine Science (supervised by Professor Patricia Medeiros) at University of Georgia from 2014 to 2016, as a visiting researcher at Tongji University in 2016, and a Hundred Talent Professor at Zhejiang University from 2016, before joining HKUST in 2021.

More information about the research group can be found on his web page: <https://oces.hkust.edu.hk/research-faculty-teaching-staff>.

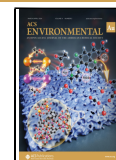
Dr. He's Rising Stars Article is titled "Differences in Dissolved Organic Matter Molecular Composition along Two Plume Trajectories from the Yangtze River Estuary to the East China Sea" (DOI: [10.1021/acsenvironau.3c00030](https://doi.org/10.1021/acsenvironau.3c00030)).



*Our study reveals that ozone levels regulate emissions of volatile organic compounds from humans in real-world indoor settings and reconcile variations in reported emission factors.*

**Yingjun Liu** is an assistant professor in the College of Environmental Sciences and Engineering at Peking University. Her current research focuses on understanding the composition and chemistry of organic air pollutants in the indoor and outdoor environment, through field observations and controlled laboratory experiments. Specific topics include indoor ozone chemistry, atmospheric chemistry of volatile organic compounds, source characteristics and sorption behaviors of indoor air pollutants, and the health effects of indoor air pollution. Prior to this, she received her B.S. in Environmental Engineering from Shanghai Jiaotong University in 2005 and her M.S. in Environmental Science from Peking University in 2008. In 2015, she earned her Ph.D. in Engineering Sciences from

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Harvard University working with Prof. Scot Martin. As a Sloan Foundation MoBE Postdoctoral Fellow, she worked with Prof. Allen Goldstein and Prof. William Nazaroff at the University of California, Berkeley from 2016 to 2018. More information about Dr. Yingjun Liu and her research can be found here: [http://scholar.pku.edu.cn/yingjun\\_liu](http://scholar.pku.edu.cn/yingjun_liu).

Dr. Liu's Rising Stars Article is titled "Emissions of Volatile Organic Compounds from Human Occupants in a Student Office: Dependence on Ozone Concentration" (DOI: [10.1021/acsenvironau.3c00043](https://doi.org/10.1021/acsenvironau.3c00043)).



*My research group is working to detect, quantify, and truly understand the impacts of environmental contaminants using nontarget analysis and bioanalytical techniques.*

**Carrie McDonough** is an assistant professor in the Department of Chemistry at Carnegie Mellon University. Current research in her group focuses on describing mechanisms driving the uptake and accumulation of organic contaminants, such as per/polyfluoroalkyl substances (PFASs) in living organisms. She combines a variety of bioanalytical techniques with high-resolution mass spectrometry to identify and prioritize bioaccumulative contaminants. McDonough received her B.S. in Chemistry from the Massachusetts Institute of Technology (MIT) in 2008 and her Ph.D. in Oceanography from the University of Rhode Island Graduate School of Oceanography in 2017, where she worked with advisor Prof. Rainer Lohmann to understand the fate and transport of hydrophobic organic contaminants in the air and water of the Great Lakes. She completed a postdoctoral fellowship at the Colorado School of Mines (2017–2019) where she worked with Prof. Christopher Higgins to develop high-resolution mass spectrometry methods to identify novel PFASs in biological matrices. You can learn more about the McDonough laboratory at <https://carriemcdonough.com>.

Dr. McDonough's Rising Stars Article is titled "Per/Polyfluoroalkyl Substances (PFASs) in a Marine Apex Predator (White Shark, *Carcharodon carcharias*) in the Northwest Atlantic Ocean" (DOI: [10.1021/acsenvironau.3c00055](https://doi.org/10.1021/acsenvironau.3c00055)).



*Our collaborative effort compiles data on >35,000 hand sampling events to highlight the important role of hands in the transmission of enteric pathogens.*

**Amy J. Pickering, Ph.D.**, is the Blum Center Distinguished Chair in Global Poverty and Practice, jointly appointed in Civil and Environmental Engineering and the Blum Center for Developing Economies at the University of California, Berkeley. Dr. Pickering's lab leverages advanced tools in molecular microbiology to better understand how to interrupt environmental transmission pathways of enteric pathogens and drug resistant bacteria in high-disease burden settings. Her lab also designs and evaluates novel water and sanitation technologies and interventions to reduce infectious disease, with a focus on products that minimize the user burden for adoption. Dr. Pickering received her B.S. in Biological and Environmental Engineering from Cornell University (2003), M.S. in Environmental Engineering from the University of California, Berkeley (2004), and Ph.D. in the Emmet Interdisciplinary Program in Environment and Resources from Stanford University (joint advisors: Dr. Jenna Davis and Dr. Alexandria Boehm, 2011). She did her postdoctoral studies at Stanford University in the Woods Institute for the Environment (2011–2013, advisors: Dr. Jenna Davis and Dr. Stephen Luby). Prior to Berkeley, she was the Tiampo Family Assistant Professor in the Civil and Environmental Engineering Department at Tufts University and core faculty in the Tufts Center for Integrated Management of Antibiotic Resistance (CIMAR). She has also held positions as a research engineer at Stanford University, an environmental engineer at the U.S. Environmental Protection Agency, and Fulbright Fellow in Malaysia. More information can be found at her lab web site: [pickering.berkeley.edu](http://pickering.berkeley.edu).

Dr. Pickering's Rising Stars Review is titled "Hands Are Frequently Contaminated with Fecal Bacteria and Enteric Pathogens Globally: A Systematic Review and Meta-analysis" (DOI: [10.1021/acsenvironau.2c00039](https://doi.org/10.1021/acsenvironau.2c00039)).



*Our investigation of electrochemical ammonia stripping establishes a new benchmark for long-term performance and facilitates process monitoring to anticipate failures such as membrane fouling.*

**William Tarpeh** is an assistant professor of chemical engineering at Stanford University. His group advances understanding of catalysis and separations to achieve wastewater refining, or the generation of tunable product portfolios from aqueous waste streams. These electrochemical reactive separations leverage electrochemical potential as a driving force for selective separations, reactor and reaction engineering, and electrocatalytic recovery of valuable products from wastewater. William completed his B.S. in chemical engineering at Stanford in 2012 and his M.S. in environmental engineering at UC Berkeley in 2013. He worked with Kara Nelson in environmental engineering during his Ph.D. at UC Berkeley, and completed postdoctoral training in environmental engineering with Krista Wigginton and Nancy Love (2018) at the University of Michigan. His research group webpage can be found at [www.tarpehlab.com](http://www.tarpehlab.com).

Dr. Tarpeh's Rising Stars Article is titled "Long-Term Robustness and Failure Mechanisms of Electrochemical Stripping for Wastewater Ammonia Recovery" (DOI: 10.1021/acsenvironau.3c00058).



*Our review summarizes the photocatalytic methane conversion methods and provides a roadmap for this technology towards carbon neutrality.*

**Wenlei Zhu** is a professor in the School of the Environment at Nanjing University. He was awarded his Bachelor of Science by Nanjing University in 2010, and a Ph.D. in Chemistry by Brown University with supervision from Prof. Shouheng Sun in 2015. After graduation, he worked with Prof. Bryce Sadtler, Prof. Jingguang Chen, Prof. Feng Jiao, and Prof. Yuehe Lin at Washington University in St. Louis, Columbia University,

University of Delaware, and Washington State University. In 2021, he joined the School of the Environment in Nanjing University as a faculty member. His research is focused on carbon neutrality and smart energy. Some of his ongoing projects include photochemical/electrochemical CO<sub>2</sub> conversion devices, catalytic methane partial oxidation reaction, microbial electrolysis cells, and advanced analytical methods, such as electrochemical biosensors and electrochemiluminescence microscopy. More information about Dr. Wenlei Zhu and his research can be found here: <https://www.x-mol.com/groups/carbonneutrality?lang=en>.

Dr. Zhu's Rising Stars Review is titled "Photocatalytic Conversion of Methane: Current State of the Art, Challenges, and Future Perspectives" (DOI: 10.1021/acsenvironau.3c00002).

The ACS *Environmental Au* Editors (Keri, Ian, and Xiangdong) would like to congratulate these **2023 Rising Stars in Environmental Research** for their outstanding research achievements and great contributions in the journal. We would like to thank our referees for their impressive effort in reviewing these manuscripts in a professional and timely manner. Our journal team members (Amelia Newman and Aditi Jain) are gratefully acknowledged for their dedicated work in coordinating this **virtual special issue** and in effective communications with the authors.

We look forward to recognizing more early career colleagues for their excellent work as we expand this series of virtual special issues in ACS *Environmental Au*. Please stay tuned for more exciting papers in the near future.

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## Notes

Views expressed in this editorial are those of the authors and not necessarily the views of the ACS.