南科大 环境学院
SUSTech | School of Environment

广东省深圳市南山区学苑大道1088号
No. 1088,Xueyuan Blvd., Nanshan District,
Shenzhen Guangdong, P.R. China
T 0755-8801 0822 P.C 518055
http://ese.sustech.edu.cn

2025年05月版本

南方科技大学 SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY | 南科大 环境学院 SUSTech | School of Environment

SOUTHERN UNIVERSITY OF
SCIENCE AND TECHNOLOGY

# SCHOOL OF ENVIRONMENT

南方科技大学
环境科学与工程学院

SUSTech | School of Environment

# CONTENT



创建世界一流　服务美丽中国

# 学院概述
# Overview

为顺应国家环境保护重大战略需求，南方科技大学于2015年6月成立了环境科学与工程学院（以下简称“学院”），由地下水环境领域国际知名专家郑春苗教授担任创院院长。学院旨在水环境与水资源、大气环境与全球变化、低碳发展与资源循环、环境健康等领域开展前沿学术研究和高端人才培养，并致力于研发近海环境、大气减碳、智慧环保、生态修复、无废城市等与社会需求密切相关的先进技术。

In response to China's strategic needs in environmental protection, SUSTech established the School of Environmental Science and Engineering in June 2015. The School is dedicated to conducting cutting-edge academic research and high-level talent cultivation in areas such as water environment and resources, atmospheric environment and global change, low-carbon development and resource recycling, environment and health. It is also committed to developing advanced technologies closely related to societal needs, including coastal environment, atmospheric carbon reduction, smart environmental protection, ecological restoration, and waste-free cities.



# 学科发展顾问委员会
# Advisory Board

江桂斌 中国科学院院士
中科院生态环境研究中心

Jiang Guibin
Research Center for Eco-Environmental Sciences, CAS

傅伯杰 中国科学院院士
中科院生态环境研究中心

Fu Bojie
Research Center for Eco-Environmental Sciences, CAS

贺克斌 中国工程院院士
清华大学

He Kebin
Tsinghua University

朱利中 中国工程院院士
浙江大学

Zhu Lizhong
Zhejiang University

朱彤 中国科学院院士
北京大学

Zhu Tong
Peking University

唐洪武 中国工程院院士
华南理工大学

Tang Hongwu
South China University of Technology

俞汉青 中国工程院院士
中国科学技术大学

Yu Hanqing
University of Sciences and Technology of China

# DEVELOPMENT OBJECTIVES
## 学院发展的中长期目标

**我国环境科学与工程领域拔尖创新人才的培养基地**

A leading school for training and cultivating future talents and the next generation of leaders in the field of environmental science and engineering

**环境领域世界级的科学研究中心**

A world-class environmental science research center

**先进环保技术研发与产业化的国家级平台**

A national platform for development and industrialization of advanced environmental technologies



# Faculty
## 师资

# 师资 Faculty

9
讲席教授
Chair Professors

8
教授
Professors

61
全职教师
Full-time Faculty Members

22
副教授
Associate Professors

22
助理教授
Assistant Professors

学院已建成国内一流的师资队伍，现有全职教师61人、兼职教师1人，其中讲席教授9人、教授/研究教授8人、副教授/研究副教授22人、助理教授/研究助理教授22人。教师队伍中有中国科学院院士1人、美国国家工程院院士1人、瑞士工程科学院院士1人、欧洲科学院外籍院士1人、美国地球物理联合会会士2人、教育部特聘教授4人、国家杰出青年科学基金获得者7人、国家优秀青年科学基金获得者5人、教育部特聘青年学者4人、国务院特聘津贴专家4人、其他国家级人才17人。

The School has attracted an outstanding faculty in environmental science and engineering.The School currently has 61 full-time faculty members and 1 part-time faculty members,including 9 Chair Professors,8 Professors/Research Professors,22 Associate Professors/Research Associate Professors,and 22 Assistant Professors /Research Assistant Professors.The faculty have received numerous honors and distinctions.Among the faculty members,one is a Member of the U.S. National Academy of Engineering,one is a Member of Chinese Academy of Science, one is a Member of Academia Europaea,one is a Member of Swiss Academy of Engineering Sciences,and two are Fellows of the American Geophysical Union.In addition,there are 4 Ministry of Education Chair Professors, 7 National Natural Science Foundation of China (NSFC) Outstanding Scientist,4 Recipients of State Council Expert Special Allowance,5 NSFC Outstanding Young Scientists, 4 Recipients of the Ministry of Education Junior Faculty Award,and other national talents.All aculty members have prior experiences studying and/or working abroad.



## 现任院长 DEAN

### 郑焰 ZHENG Yan

讲席教授，美国哥伦比亚大学博士、美国地球物理联合会会士、美国地质学会会士、国自然陆海过渡带环境与生态科学创新群体项目负责人。曾任北京大学讲席教授、纽约市立大学终身教授、美国哥伦比亚大学高级研究员、联合国儿童基金会驻孟加拉国水及环境卫生项目专员。从事地表－地下－近海水环境与健康、水质分析等研究。在Science、Nature及子刊、PNAS等期刊上发表论文150多篇，谷歌学术H-指数61，并主持撰写联合国政策报告四本，发布专著两部。成果应用于孟加拉国、中国、美国，解决了数百万高砷暴露人口的饮水安全问题，获得《纽约时报》科学版专文报道。现任国际水文地质学家协会地下水人工回补委员会共同主席、斯德哥尔摩水奖提名委员会委员、Environmental Earth Sciences主编\Water Resources Research副主编、《水文地质工程地质》编委等。

Chair Professor. Ph.D., Columbia University. Fellow of the American Geophysical Union and the Geological Society of America. Professor Zheng was a Chair Professor at Peking University, a tenured Full Professor at City University of New York, an adjunct senior research scientist at Columbia University, and a water and sanitation specialist with UNICEF Bangladesh. Professor Zheng is known for her multi-disciplinary research that led to the reduction of exposure to drinking water arsenic among millions of private well households in Bangladesh, China and USA through changes in policy and practice. She has published >150 peer reviewed journal articles (Google Scholar citation ~13226, h-index 61, verified June 12, 2024) in areas including hydrogeochemistry, biogeochemistry, environmental health and policy. Currently, she serves as the Editor-in-Chief for Environmental Earth Sciences, an Associate Editor for Water Resources Research, as a member of the Stockholm Water Prize Nominating Committee and as a Co-Chair for the International Association of Hydrogeologists – Managing Aquifer Recharge Commission.

## 创院院长 FOUNDING DEAN

### 郑春苗 ZHENG Chunmiao

讲席教授，美国威斯康星（麦迪逊）大学博士、美国地球物理联合会会士（AGU Fellow）和美国地质学会会士（GSA Fellow）。曾任北京大学讲席教授及水科学研究中心主任、美国阿拉巴马大学Lindahl终身讲席教授、国际水文科学协会（IAHS）国际地下水委员会主席。研究领域包括地下水污染机理与修复技术、流域尺度生态－水文过程、全球变化与新型污染物对水资源可持续利用的影响等。开发了地下水污染模拟标准软件MT3D/MT3DMS，在100多个国家得到广泛使用。发表了论文460多篇及专著6部，谷歌学术被引用总数超过2.9万次。获得的荣誉包括：1998年美国地下水协会John Hem杰出贡献奖、2009年美国地质学会Birdsall-Dreiss杰出讲席奖、2013年美国地质学会O.E.Meinzer Award（国际水文地质界最高荣誉）、2013年美国地下水协会M.King Hubbert Award（该协会最高科学奖）、2014年美国威斯康星（麦迪逊）大学地学系杰出校友奖、2024年第十一届苏丹王子阿卜杜勒阿齐兹国际水奖（PSIPW）。

Chair Professor. Ph.D., University of Wisconsin-Madison, Fellow of the American Geophysical Union (AGU) and the Geological Society of America (GSA). Prior to his current appointment, he was Chair Professor and Director of the Institute of Water Sciences at Peking University, and the George Lindahl III Endowed Professor at the University of Alabama. His research interests include groundwater contaminant transport and remediation, basin-scale eco-hydrologic processes, and impacts of global change and emerging contaminants on water sustainability. He is the developer of the MT3D/MT3DMS series of contaminant transport codes used in over 100 countries, and author or co-author of over 460 SCI papers and 6 books with over 29000 citations on Google Scholar. He was awarded the Birdsall-Dreiss Distinguished Lectureship (2009) and the O. E. Meinzer Award (2013) by the Geological Society of America, and the John Hem Award (1998) and the M. King Hubbert Award (2013) by the National Ground Water Association (USA). He was a recipient of the Distinguished Alumni Award (2014) from the Department of Geoscience, University of Wisconsin-Madison. He was also a recipient of the 2024 Prince Sultan Bin Abdulaziz International Prize for Water (PSIPW).

## 双聘教授 JOINT FACULTY

### 徐政和 XU Zhenghe

讲席教授，南科大工学院创院院长、材料科学与工程系和环境科学与工程学院讲席教授（双聘）。分别于2021年当选中国工程院外籍院士，2015年当选加拿大皇家科学院院士、2008年当选加拿大工程院院士。他目前担任全球工学院院长协会（GEDC）理事会常务理事，曾担任国际矿物加工学会理事会（IMPC）理事（2016-2020）、加拿大矿冶与材料学会主席（2016-2017）、加拿大矿物工程首席教授（2006-2017）、加拿大国家科学与工程研究委员会（NSERC）油砂工程首席教授（2002-2017）、加拿大NSERC/EPCOR/AERI先进煤洁净及燃烧技术首席教授（2002-2008）。

Chair Professor. Dr. Zhenghe Xu is Founding Dean of College of Engineering. His research is based on interfacial science with applications to energy materials and environments. He authored or coauthored 515 SCI journal publications with 21,000+ WoS citations and an h-index of 70. Among many prestigious recognitions and awards, he is an elected fellow of Canadian Academy of Engineering (2008) and Royal Society of Canada (2015), and foreign member of Chinese Academy of Engineering (2021).

### 陶澍 TAO Shu

讲席教授，1950年生，江苏省无锡市人，1977年毕业于北京大学地质地理系，1981年、1984年获美国堪萨斯大学硕士、博士学位。2009年当选为中国科学院地学部院士。1984年至2020年在北京大学工作。现为南方科技大学环境科学与工程学院讲席教授。曾主持国家自然杰出青年基金（1995）、创新研究群体（2000）和包括面上、重点、重大和重大国际合作在内的多项自然科学基金及科技部和生态环境部研究项目。目前兼任国家环境生态咨询委员会委员、国家环境与健康专家咨询委员会委员、Environmental Science & Technology副主编及多个国内外刊物主编、副主编和编委等。主要从事微量有毒污染物排放、行为、归趋和效应等区域尺度环境过程的研究。目前重点包括全球污染物排放清单、污染物迁移和暴露模拟以及农村生活源污染物生成和对室内外空气质量及健康影响等。在国际学术期刊发表第一或通讯作者论文200余篇。Web of Science引用超过两万次，H指数80。

Chair Professor.Ph.D., University of Kansas. Professor Tao is a member of the Chinese Academy of Sciences, a member of the National Steering Committee on Eco-Environmental Protection, and a member of the National Steering Committee on Environmental Health.He also serves as Associate Editor of Environmental Science & Technology. His current research interests include global emission inventories of various air pollutants atmospheric transport and population exposure modeling, household air quality, and policy evaluation. He has more than 200 papers published in peer-reviewed international journals, including four in PNAS, one in Nature Energy, and many in Environmental Science & Technology with total citation around 22,000 and H-index (Web of Science) of 80.

## 教研系列 TENURED OR TENURE-TRACK FACULTY

### 张东晓 ZHANG Dongxiao

讲席教授，美国亚利桑那大学博士、美国国家工程院院士。国家杰出青年科学基金获得者，美国地质学会会士（GSA Fellow）、国际石油工程师协会SPE最高荣誉会员。曾任美国南加州大学Marshall终身讲席教授、北京大学工学院院长、研究生院常务副院长，曾兼任中国研究生院院长联席会秘书长、中国学位与研究生教育学会文理科工作委员会主任和中国学位与研究生教育学会评估委员会副主任。研究领域为智慧能源与碳中和领域，其机器学习、随机理论建模、数值计算、历史拟合方面的研究成果已被国际同行广泛采用。发表学术论文250余篇，专著《渗流随机理论》为领域内代表性著作。曾任八种国际学术期刊副主编。主持或负责国家自然基金项目、国家重点研发计划项目、美国能源部等各类重大科研项目40余项。

Chair Professor. Ph.D.,University of Arizona. He is a Member of the U.S.National Academy of Engineering, He is also an Honorary Member of the Society of Petroleum Engineers, and a Fellow of the Geological Society of America. And recipient of Distinguished Young Scholars by National Natural Science Foundation of China. He has served as the Gordon S. Marshall Chair Professor at the University of Southern California, the dean of the College of Engineering of Peking University, and the executive vice dean of the Graduate School of Peking University. He has also served concurrently as the secretary-general of the Association of Chinese Graduate Schools, director of the Liberal Arts and Science Committee, and the deputy director of the Evaluation Council of the Chinese Society of Academic Degrees and Graduate Education. Professor Zhang's research areas include intelligent energy and carbon neutrality, and his research achievements in machine learning, stochastic modeling, numerical simulation.



### 刘崇炫 LIU Chongxuan

讲席教授，美国约翰霍普金斯大学博士，美国地质学学会（GSA）会士（Fellow）。长期从事污染物在地下水和土壤系统中的迁移、转化和降解机制研究和修复技术开发。在发展地球关键带的水文－地球化学动力学耦合理论和建立多尺度动力学模型、在发展土壤－地下水系统中微生物动力学理论和建立生物地球化学动力学与微生物群落演化的耦合模型，在开发土壤－地下水污染的自然修复和强化自然修复技术，以及开发捕获去除污水中重金属和放射性核素的纳米材料等方面取得了多项成果。现发表SCI论文180多篇，其中Nature-index期刊文章80多篇，H因子51。

Chair Professor. Ph.D., Johns Hopkins University, Fellow of Geological Society of America (GSA). His research focuses on the multi-scale kinetics of the transformation, degradation and transport of contaminants in groundwater and soil systems; the coupled evolution of microbial community and biogeochemical processes; and the technologies for remediating contaminants in soil and groundwater systems, and the synthesis of engineered materials for extracting heavy metals from wastewater. He is the PI or Co-PI for over projects, and authored and co-authored over peer-reviewed articles and H factor.

### 杨新 YANG Xin

讲席教授，香港科技大学博士，教育部特聘教授，国务院特殊津贴专家。主要研究领域包括：大气气溶胶物理化学特性及环境气候效应、城市区域空气质量、新型环境检测技术研发等。研究工作获国家自然科学基金重点项目、基金委重大仪器项目（自由申请）、科技部仪器重大专项课题、广东省重点研发计划项目、深圳市创新创业团队项目等资助。在国际学术期刊发表论文200余篇。担任《Atmospheric Environment》副主编，《科技导报》《环境化学》《大气与环境光学学报》等期刊编委，广东省“大湾区滨海大气环境与气候背景”野外科学观测研究站站长、深圳市“城市环境健康风险精准测量与预警技术”重点实验室主任等学术职务。

Xin Yang is currently a chair professor at the Southern University of Science and Technology. He received his PhD degree from the Hong Kong University of Science and Technology. Prof. Yang's research interests include physical and chemical properties of atmospheric aerosol and their impacts on human health and global climate, urban air quality, and instrument development on environmental analysis. He is author or co-author of over 200 peer review journal papers and PI of 12 national level research projects funded by the National Natural Science Foundation of China, Ministry of Science and Technology of China and Ministry of Education of China. He was awarded the Ministry of Education Chair Professor and the State Council Expert for Special Allowance.

### 刘俊国 LIU Junguo

讲席教授，瑞士苏黎世联邦理工学院博士、欧洲科学院院士。国家杰出青年科学基金获得者，入选科技部科技创新领军人才，英国皇家气象学会会士、英国皇家地理学会会士。在水资源时空演变、水质性缺水评价和河流生态修复等方面取得了系统性创新成果，提出了三维水资源短缺理论以及渐进式生态修复理论，研究工作在国内外产生了重要影响。出版中英文/译注7部，发表论文230余篇。曾担任9份国内外学术刊物执行主编、主编、副主编、编委等职。创建了中国首个聚焦生态修复的省级学会－北京生态修复学会，并担任首任和第二任理事长。曾获世界科学院奖、欧洲地球科学联合会“杰出青年科学家奖”、国际恢复生态学学会“技术传播奖”、中国青年科技奖、教育部高等学校科学研究优秀成果奖等。

Chair Professor. Ph.D., Swiss Federal Institute of Technology in Zurich (ETH Zurich). Member of Academia Europaea. His main research interests include hydrology and water resources, and ecological restoration. He has led a pioneering work on advancing water resources assessment in coupled human-natural systems, in particular for global hydrology research and water scarcity assessment by incorporating water resources quantity, quality and environmental flow requirement. He introduced the three-dimensional (3D) water scarcity theory, and the stepwise ecological restoration theory. He founded two ecological restoration organizations in China: The Society for Ecological Rehabilitation of Beijing (SERB), and the Union of Societies for Ecological Restoration and Environmental Protection (USEREP). Prof. Liu is author of 7 books and over 230 publications, including articles in Science (2), Nature (2), PNAS (3), Nature Climate Change (3), Nature Communications (2), Nature Sustainability (2) and Science Advances (1).

## 李海龙 LI Hailong

讲席教授，香港大学水文地质学博士、湖北省楚天学者、国家杰出青年科学基金、国务院自然科学教育类突出贡献政府特殊津贴获得者。主要从事海底地下水排泄和海岸带地下多组分（如盐分、营养盐、示踪剂等）多相流（如水气两相流）及其生态环境效应方面的研究。发表论文200余篇，其中在Nature Geoscience、GRL、JGR、WRR、GCA等水文水资源水环境领域主流期刊发表SCI论文160多篇，发明专利5项，软件著作权3项。主持包括基金委重点项目、科技部973项目一级课题等12项科研项目。现任Advances in Water Resources、Water Science and Engineering、《盐湖研究》编委。入选Elsevier2020，2022，2023，2024中国高被引学者。培养博士后、博士、硕士100多名。

Chair Professor. Ph.D. of Hydrogeology from The University of Hong Kong. Professor Li received funding as a Chutian Scholar of Hubei Province and from the Outstanding Young Scientist Fund of NSFC. His research interests focus on submarine groundwater discharge and subsurface multi-component (such as nutrients, tracers and salt), multi-phase flows (such as air and groundwater) and their ecological environmental effects. He has published over 200 research articles, including over 120 SCI articles in leading international journals such as Nature Geoscience, GRL, JGR , WRR and GCA in the field of hydrology, water resources and the environment. He has obtained funding for over 12 research projects including the NSFC Key Program and the 973 Program. Professor Li serves as Associate Editors for Advances in Water Resources, Water Science and Engineering, and Journal of Salt Lake Research.

## 胡清 HU Qing

教授，英国帝国理工大学环境化学、环境污染和水文学专业博士。国务院政府特殊津贴专家，深圳市高层次专业人才（深圳市国家级领军人才）。荣获2023年国家技术发明奖一等奖，2017年国家科学技术进步二等奖，2023年环境保护科学技术奖一等奖，2022年北京市科学技术进步奖一等奖等多项国家和省部级科研优秀成果奖项。先后担任生态环境部土壤生态环境保护专家咨询委员会委员，住建部科学技术委员会科技协同创新专业委员会委员，科技部中长期战略规划特聘专家，IWA世界水资源大会组委会专家组成员/评委，新加坡李光耀水奖评委。在大数据与生态环境、碳中和碳减排、污染场地绿色可持续修复与管理、生态环境发展战略与政策标准研究、环境健康及循环技术等多个专业领域积累了深厚的理论知识和丰富的国内外实践经验。牵头负责完成二十余项国家及省部级科研课题，为国家环境规划和科技发展战略提供关键支持，获得包括生态环境部、科技部在内的多个部门的高度认可。

Professor. Ph.D., Imperial College London, UK. State Council Expert for Special Allowance. She has more than 30 years researches and working experiences in ecological and environmental protection areas. She received the first prize of the State Technological Invention Award (2023); the China top-tier Awards of National Science and Technology Progress Award (2017); the Prize of Environmental Protection Science and Technology Award of Ministry of Ecology and Environment (2023); IBM Faculty Award (2016). Professor Hu's career has spanned academia, industry and social sector. Through decades of dedication to academia and the community, Professor Hu has great recognition of her professional portfolio and extensive network within academia, NGOs, UN systems and the private sectors. She was a member of the Stockholm Water Prize Nominating Technical Committee/ Lee Kuan Yew Water Prize Nominating Committee/ IWA World Water Congress & Exhibition Programme Committee. She has been working with World Bank and Asian Development Bank since 1999.

## 郑一 ZHENG Yi

教授，北京大学本科、硕士，美国加州大学圣巴巴拉分校博士，国家杰出青年科学基金、国家优秀青年科学基金获得者，国家自然科学基金“创新研究群体”核心成员。从事水资源与水环境、环境大数据与人工智能等研究。在Nature, Nature Food, Nature Geoscience, Nature Sustainability,Nature Reviews Earth & Environment，Environmental Science & Technology, Water Resources Research, Geophysical Research Letters 等期刊发表 SCI 论文120多篇，出版“十三五”国家重点出版物出版规划著作1部，获软件著作权12项，申请国家发明专利6项（已授权4项），入选全球前2%顶尖科学家榜单。兼任国家环境保护流域地表水-地下水污染综合防控重点实验室副主任、国际水资源领域顶尖期刊Water Resources Research副主编、全国中文核心期刊《安全与环境工程》编委等职。创建深圳市环境物联网技术与应用工程实验室并任实验室主任。获中国自然资源学会优秀科技奖、广东省环境保护科学技术奖一等奖（排名第一）等科研奖励。

Professor. Ph.D., University of California, Santa Barbara. Recipient of NSFC Distinguished Young Scholars Award, Excellent Young Scholars Award. His main research areas include ecohydrological modeling, water resources management and environmental big data analysis. He serves as an associate editor of Water Resources Research (top journal in this field). He is an Associate Director of State Environmental Protection Key Laboratory integrated Surface Water-Groundwater Pollution Control, a Vice Chair of the Young Scientists Committee in china Society of Natural Resources, and the director of Shenzhen Municipal Engineering Lab of Environmental IoT Technologies. He has published over 120 SCI papers, mostly in top journals such as Nature, Nature Food, Nature Geoscience, Nature Sustainability, Nature Reviews Earth & Environment, Environmental Science & Technology, Water Resources Research, Geophysical Research Letters. He received Outstanding Science and Technology Award from China Society of Natural Resources, and First Prize of Guangdong Environmental Protection Science and Technology Award form Guangdong society of Environmental Society.



## 张作泰 ZHANG Zuotai

教授，瑞典皇家工学院博士、国家杰出青年基金获得者、国家优秀青年基金获得者。现任深圳市城市固体废弃物资源化技术与管理重点实验室主任、广东省土壤与地下水修复重点实验室副主任，在固废高效清洁利用领域取得一定成绩。近五年主持包括自然科学基金委优秀青年基金、国家重点研发计划、深圳市学科布局等10余项国家、省部级科研项目。近五年在Appl. Cat. B: Environ.、Appl. Energy、ACS Sustain. Chem. & Eng.、Waste. Manag.、J. Hazard. Mater.等国际知名期刊发表SCI文章80余篇；申请国家发明专利20余项，有多项专利实现技术转让。担任Journal of Cleaner Production 副主编、《中国科学：技术科学》青年编委等。担任中国硅酸盐学会固废分会副理事长等职务。获得广东省环境协会二等奖、中国循环经济协会技术一等奖、北京市科技进步二等奖。

Professor. Ph.D., Royal Institute of Technology, Sweden. He is the Director of Key Laboratory of Municipal Solid Waste Recycling and Management of Shenzhen City. Dr. Zhang' s research interests include the efficient and clean utilization of solid waste and conducted thorough researches on the integrated utilization of waste heat/resource of metallurgical slag, the recycling valuable elements of metallurgical slag, the transformation and utilization of energy solid waste, and the transformation and migration mechanism of harmful elements based on the such key scientific issues in the process of the efficient cleaning utilization of solid waste. He has published more than 80 SCI papers in leading journals, including Appl. Cat. B: Environ., Appl Energy., ACS Sustain. Chem. & Eng., Waste. Manag., J. Hazard. Mater., and applied fo 30 patents. Dr. Zhang also serves as Associate Editor of Journal of Cleaner Production, Vice-Chair of Solid Waste Subcommittee of Chinese Ceramic Society of China.

## 傅宗玫 FU Tzung-May

教授，美国哈佛大学地球与行星科学博士。曾任北京大学物理学院大气与海洋科学系长聘副教授、研究员，及香港理工大学土木与结构工程系助理教授。主要研究领域包括空气污染、全球及区域大气化学、化学－气候相互作用等。重点研究大气有机物化学、对流层臭氧、气候与空气质量相互作用、云－气溶胶相互作用、大气组分遥感及反演、污染物长程传输、海－气交换等。发表SCI论文80余篇。曾获国家自然科学基金委杰出青年基金、优秀青年基金、中国气象学会涂长望青年气象科技奖二等奖、教育部特聘青年学者、教育部高校自然科学奖二等奖等。

Professor. Ph.D., Harvard University. Prior to her current appointment, Fu was Associate Professor and "Bairen" Professor at Peking University, and Assistant Professor at the Hong Kong Polytechnic University. Her research interests are in air pollution, global and regional atmospheric chemistry, and chemistry-climate intreactions. Recent topics include chemistry of atmospheric organics, tropospheric ozone, climate-air quality interactions, aerosol-cloud interactions, remote sensing and inverse modeling of atmospheric constituents, long-range transport, and air-sea exchange of organics. Fu has authored more than 80 peer-reviewed papers. She has won the National Natural Science Foundation of China Distinguished Young Scientist Fellowship, the Outstanding Young Scientist Fellowship, the Tu Chang Wang Award, the Distinguished Junior Faculty of the Ministry of Education, and the Second Prize of Natural Science Award of Ministry of Education.

## 冯炼 FENG Lian

教授，武汉大学博士。科技部青年人才、深圳市国家级领军人才。主要从事水环境遥感的理论、方法及应用研究。获得中国地理学会科学技术奖－青年科技奖、中国环境科学学会青年科学家奖等荣誉。近年来主持或参与国家自然科学基金重大项目、重点项目，科技重点研发专项等20余个科研项目。共发表第一/通讯作者论文50余篇，近半数在Nature、Nature Geoscience、Nature Communications、Geophys Res Lett等顶级期刊上，且多次入选期刊封面论文（包括Nature封面论文）、ESI热点文章及高被引论文，Google Scholar总被引4600余次。研究成果在国内多个相关部门成功应用、被中央电视台、中国新闻网、路透社、U.SNews、ScienceDaily等数十家国内外知名媒体与科技组织广泛报道，并入选2022年度“中国海洋与湖沼十大科技进展”。

Professor, Ph.D., Wuhan University. He has been selected for the National "Ten Thousand Talents Program" as a young top-notch talent and has been recognized as a Pearl River Young Scholar of Guangdong Province. He mainly engaged in the theory, methods and application of water environment remote sensing. He has received several prestigious awards, including the Young Scientist and Technology Award from the Geographical Society of China, the Youth Scientist Award from the Chinese Society for Environmental Sciences, the Li Xiaowen Remote Sensing Science Award, and was named one of China's Top Ten Emerging Scientific Figures. His research was also acknowledged in 2022 and 2023 as one of the Top Ten Scientific and Technological Advances in Oceanography and Limnology in China. Dr. Feng has led over 20 national, provincial, and other projects. He has published nearly 100 SCI papers, with more than half appearing in top-tier journals such as Nature, Nature Geoscience, Nature Water, Nature Communications, Remote Sensing of Environment, Journal of Geophysical Research, and Environmental Science & Technology. His publications have been cited over 6200 times on Google Scholar, with an H-index of 44. In addition, Dr. Feng serves as an editorial board member, associate editor, or guest editor for several domestic and international academic journals, including the National Remote Sensing Bulletin, Journal of Remote Sensing, Frontiers in Remote Sensing, and Remote Sensing in Earth System Sciences. His research has been highlighted by numerous domestic and international media and agencies, such as CCTV, China News Service, Reuters, and ScienceDaily, etc.

## 曾振中 ZENG Zhenzhong

教授，北京大学博士，在普林斯顿大学从事博士后研究。从陆气相互作用、能源转型中的关键地学问题两个方向在地球系统与全球变化领域开展研究，代表性研究成果包括：揭示全球风速变化新趋势及其对风能产业的影响；建立纳入严格环境约束的全球水电开发评估框架并阐明全球水电开发潜力；首次定量评估全球水库漂浮式光伏发电潜力与节水效果；发现湿地温室气体非线性交换模式并评估全球湿地减排潜力；利用高分辨率卫星遥感发现热带植被变化的新动态；利用地球系统模型揭示植被动态对全球气候系统的反馈机制等。在Science, Science Bulletin, Nature, Nature Climate Change等SCI收录杂志上发表论文100余篇，其中第一作者和通讯作者论文46篇，总被引1万余次，并为Nature Sustainability等30多个国际重要刊物审稿。

Professor. Ph.D., Peking University. Postdoctoral Research Associate at Princeton University. A peer reviewer of Nature Sustainability and other 30 SCI academic journals, as well as the IPCC sixth report invited peer review expert. He works at the area of Earth system processes and global environment change, with a focus on land atmosphere interactions and key geographical issues in energy transition. He published a more than 100 SCI papers, among which 46 papers he is the first or the corresponding author, in journals such as Science, Nature Climate Change, Nature Geoscience, etc. The papers were cited more than 10,000 times. Some of the research results have been used as supporting materials for the IPCC report and have been reported by the international scientific media many times.

## 唐圆圆 TANG Yuanyuan

副教授，香港大学博士，教育部特聘教授（青年），研究方向：固废污染防控及资源化、典型固废环境行为及环境影响等。主持及参与国自然面上项目、广东省杰青、科技部重点研发计划等研究课题近20项，发表SCI学术论文100余篇，H指数39（谷歌学术）。参编论著5部，授权发明专利10项，其中2项实现技术转化。担任Environ. Geochem. Hlth.副主编、Waste Manage. Res.和Sustainable Horizons编委，《环境卫生工程》青年编委，担任深圳市水污染治理攻坚决战青年先锋队队长，多个国际学术会议分会召集人、分会主席、专委会成员等。入选全球前2%顶尖科学家“年度科学影响力排行榜”，获广东省环境科学学会生态环境青年科技奖、深圳市优秀班主任、“香港工程师学会青年工程师/研究员优秀论文奖”、市“海外高层次人才”、校“年度青年教授”、“优秀青年科研奖”、“优秀教学奖”、“优秀书院导师”、“卓越服务奖”等荣誉。

Dr. Yuanyuan Tang, Associate Professor, PhD from The University of Hong Kong, Ministry of Education Distinguished Professor (Youth Program). Her research focuses on solid waste pollution control and resource utilization, environmental behavior of typical solid wastes, etc. She has led or participated in nearly 20 research projects, including NSFC, Guangdong Provincial Science Fund for Distinguished Young Scholars etc. She has published over 100 SCI academic papers with an H-index of 39 (Google Scholar). She has co-authored five books and holds 10 authorized invention patents, two of which have been commercially transferred. She serves as an associate editor for the SCI journal Environ. Geochem. Hlth., an editorial board member of Waste Manage. Res., and Sustainable Horizons. She has been recognized in the "World's Top 2% Scientists"annual ranking for scientific influence, and has received honors such as the Guangdong Provincial Society for Environmental Sciences Youth Science and Technology Award, Shenzhen Excellent Class Advisor, "Hong Kong Institution of Engineers Young Engineer/Researcher Award," the city's "Overseas High-Level Talent," the university's "Annual Young Professor," "Outstanding Young Research Award," "Excellent Teaching Award," "Outstanding College Mentor," and the "Excellence in Service Award.”

## 匡星星 KUANG Xingxing

副教授，香港大学博士、博士后，深圳市海外高层次人才（B类）。主要研究领域包括饱和-非饱和流与水气二相流、溶质运移数值模拟、同位素水文地质学及地下水对气候变化的响应等。主持两项国家自然科学基金重大研究计划重点支持项目和一项国家自然科学基金面上项目。发表论文97篇，其中第一或通讯作者SCI论文41篇，发表于水资源领域顶级或重要学术期刊Science、Geophysical Research Letters、Geochimica et Cosmochimica Acta、Water Resources Research、Journal of Geophysical Research: Atmospheres、Journal of Hydrology等。现任水资源领域重要期刊Journal of Hydrology 副主编（Associate Editor）曾任水资源领域SCI期刊Hydrogeology Journal副主编（Associate Editor），长期担任水资源领域多个学术期刊的审稿人。2014年获得AXA研究基金博士后奖学金（全球30人）。

Associate Professor. Ph.D., The University of Hong Kong. His main research interests including saturated-unsaturated flow and air-water two-phase flow in porous media, solute transport numerical modeling, isotope hydrogeology, and response of groundwater to climate change. He was the PI of two Key Programs and one General Program of NSFC. He has published 97 SCI papers (with 41 SCI papers being the first or corresponding author) in top journals of water resources, including Science, Geophysical Research Letters, Geochimica et Cosmochimica Acta, Water Resources Research, Journal of Geophysical Research: Atmospheres, and Journal of Hydrology. He is currently the Associate Editor of Journal of Hydrology. He was an Associate Editor of the SCI journal Hydrogeology Journal. He was awarded the AXA Research Fund Post-Doctoral Fellowships in 2014 (globally 30 persons).



## 王俊坚 WANG Junjian

副教授，美国克莱姆森大学博士，多伦多大学博士后。致力于研究植物－土壤－水体连续体中碳循环与环境质量变化。主持国自然重大项目课题、优秀青年项目、广东省杰出青年项目等，参与国自然创新研究群体项目。获中国环境科学学会青年科学家奖（金奖）、中国土壤学会优秀青年学者奖、Journal of Environmental Quality（JEQ）编辑卓越奖等荣誉。在Nature Plants, Nature Communications,Water Research, Environmental Science & Technology等期刊上发表论文120余篇，其中一作或通讯70余篇。现任JEQ副主编，曾担任过我国国家自然科学基金、美国自然科学基金、法国国家研究局等机构项目评审人。

Associate Professor. Ph.D., Clemson University; Postdoc, University of Toronto. He is dedicated to study organic matter biogeochemistry in the plant-soil-water continuum. He has received the Youth Scientist Award (Gold Prize) of the Chinese Society for Environmental Sciences, the Outstanding Young Scholar Award from the Soil Science Society of China, and the Editor's Citation for Excellence of the Journal of Environmental Quality (JEQ). He published 120+ papers on journals including Nature Plants, Nature Communications, Water Research, and Environmental Science & Technology. He is serving as an associate editor of JEQ. He has served as a reviewer for National Science Foundation of China, National Science Foundation (US) and France National Research Agency (ANR) proposals.

## 田展 TIAN Zhan

副教授，中科院地理科学与资源研究所理学博士，国际应用系统分析学会博士后，科技部重点研发计划项目负责人，国际理论物理中心高级访问学者，鹏城国家实验室兼聘博导。目前主要从事气候变化风险评估与应对方面研究。获英国皇家工程院Distinguished International Associate、深圳市高层次专业人才（后备级）、第八届中国技术市场金桥奖，上海市科学技术进步三等奖（排名3），ICTP Associate、START Fellow、上海市“十一五”节能减排先进个人，上海市市级机关青年岗位能手，上海市优秀“青年突击队”队长等个人称号。

Associate Professor.PhD in Physical Geography and Resources at the Chinese Academy of Sciences; Postdoctoral fellow of the International Society for Applied Systems Analysis; Principal Investigator of the Key Research and Development Program of the Ministry of Science and Technology; Senior Visiting Scholar of the International Centre for Theoretical Physics; Joint PhD Supervisor at the Pengcheng Laboratory. He is currently engaged in research on climate change risk assessment and response. He has been awarded the Distinguished International Associate of the Royal Academy of Engineering, High-level Professional Talent of Shenzhen (Reserve Level), 8th China Technology Market Golden Bridge Award, Third Prize for Shanghai Science and Technology Progress (Rank 3), Associate of ICTP, START Fellow.

## 史海匀 SHI Haiyun

副教授，清华大学本科、博士。曾在香港大学从事博士后/高级研究助理工作，荣获香江学者奖（2014年）、深圳市海外高层次B类人才（2018年）、大禹水利科学技术一等奖（2022年），入选2024年度全球前2%顶尖科学家榜单（World's Top 2% Scientists 2024）。主要研究方向为气候变化下极端水文事件等。主持或参与国家自然科学基金等重要科研项目10余项。发表论文70余篇（其中，ESI高被引论文4篇，第一作者或通讯作者50余篇），另有英文专著1部，英文专著章节4部，省部级科学技术成果3项。受邀作为Nature Food、Nature Communications等30余种期刊的审稿人，Journal of Hydrology副主编，6种期刊编委，IPCC第六次评估报告同行评审专家。

Associate Professor Ph.D., Tsinghua University. He worked previously as a Postdoctoral Fellow/Senior Research Assistant at The University of Hong Kong, and won the Hong Kong Scholars Award in 2014. He won the Da Yu Award for Water Science and Technology (1st grade award) in 2022. He was in the list of World's Top 2% Scientists 2024 (Stanford/Elsevier). His main research interest is hydrological extremes under climate change. He has been the PI/Co-PI of more than 10 research projects. He has published over 70 journal papers (over 50 papers as the first author or corresponding author), 1 book and 4 book chapters. He has obtained 3 provincial-level scientific and technological achievements. He has been invited as the reviewer of over 30 international journals(e.g., Nature Food,Nature Communications) and the Expert Reviewer of the IPCC Sixth Assessment Report (Working Group II). He has served as the Associate Editor (Journal of Hydrology) or Editorial Board Member of 6 journals.

## 陈洪 CHEN Hong

副教授，瑞典斯德哥尔摩大学博士，国家级青年人才。先后在瑞典皇家工学院、美国斯坦福大学与加州大学伯克利分校从事博士后研究工作。现任环境科学与工程学院党委副书记、深圳市材料界面科学和工程应用重点实验室副主任。主要从事固废低碳资源循环利用与环境材料开发研究。近年来在Nature Materials、Science Advances、PNAS、Nature Comm.、JACS、Angew. Chem.、Nano Lett.、EST、WR、Green Chem.等杂志发表论文150篇，申请专利30项，谷歌学术总引用次数10300余次，H-index 54。获中国化学会青年环境化学奖、中国有色金属学会循环经济青年突出贡献奖、中国环境学会青年科学奖、广东省环境科学学会生态环境青年科技奖金奖，入选斯坦福大学全球前2%科学家，主持广东省杰出青年基金、国家自然科学基金面上项目、深圳市基础研究重点项目、深圳市海外高层次引进人才项目、瑞典瓦伦堡基金会博士后基金等。并担任Environmental Chemistry Letters (Q1,IF=15.7)副主编和Sustainable Horizons, Environmental Functional Materials杂志编委和Fundemental Research, Chinese Chemical Letters,《工业水处理》等杂志青年编委。

Tenured Associate Professor. Ph.D., Stockholm University. He finished his postdoctoral training at KTH-Royal Institute of Technology, Stanford Synchrotron Radiation Light source at Stanford University, University of California Berkeley. His research focuses on the low-carbon resource recovery and utilization of solid waste and the development of environmental materials. He has published over 150 peer-reviewed articles in top-tier journals with 30 patents. His publications have been cited 10300 times in Google Scholar with an h-index of 54.

## 夏雨 XIA Yu

副教授，香港大学博士。研究兴趣集中于：利用Nanopore测序为代表的基因组学技术，解密复杂环境微生物群落中的种间互作关系以及关键基因（耐药基因）转移规律。近五年来在Environmental Science & Technology, Water Research, Genome Research等期刊发表一作/通讯论文50余篇，总引用次数3700余次（Google Scholar）。现任iMeta,Frontiers in Environmental Science期刊副主编，中国工程院院刊Engineering青年编委。主持国自然面上项目、青年项目各一项，并担任两项科技部重点研发计划课题负责人。获市“海外高层次人才”，校“研究生优秀导师”，“优秀书院导师”等荣誉。曾担任南方科技大学教授委员会代表委员，美国微生物协会香港地区青年大使。

Associate Professor. Ph.D., University of Hong Kong. She is interested in applying advanced sequencing and molecular technology, such as long read-based metagenomics, microfluidics,and single-cell analysis, to explore the functionality and interactions of the unculturable majority of the environmental microbiome in engineered systems, indoor environments, and extreme environments.

## 王钟颍 WANG Zhongying

副教授，美国布朗大学博士。先后在布朗大学和加州大学伯克利分校从事博士后研究工作。主要研究方向包括膜分离技术，环境纳米技术，污染物环境转化归趋。近年主持国自然面上项目、深圳市重点项目、面上项目等；在Chemical Society Reviews、PNAS、ACS Nano、Advanced Materials、Nano Letters、Environmental Science and Technology、Nanoscale等杂志发表论文50余篇，总引用次数3300余次。并担任Water Research、Environmental Science: Nano、Environmental Science and Technology等十余个杂志的独立审稿人。

Associate Professor. Ph.D., Brown University, USA. His research interests include environmental transformation and implications of nanomaterials, the applications of nanomaterials in the environmental fields, and membrane based technologies for sustainable water supply. Dr. Wang has published 50 peer-reviewed papers on various journals, including Chemical Society Reviews, PNAS, ACS Nano, Advanced Materials, Nano Letters, Nanoscale, and Environmental Science and Technology. He serves as a reviewer for several journals, including Carbon, Water Research, Environmental Science: Nano, Journal of Hazardous Materials, and Environmental Science and Technology.



## 沈惠中 SHEN Huizhong

副教授，北京大学学士、博士，美国佐治亚理工学院博士后。专注于温室气体和大气污染物排放的定量表征，数值及AI算法在空气质量、人群健康和气候变化评估的应用。以第一/通讯作者在Nature Climate Change、Science Advances、Nature Human Behaviour、Nature Food、ES&T等国际顶级期刊发表论文24篇，单篇最高引用640次。共发表SCI论文165篇，Web of Science总引用9000余次，H指数54。连续多年入选全球前2%顶尖科学家榜单。主持国家级青年人才项目、科技部国际合作重点专项课题、基金委面上和重大项目子课题等。担任Nature、Nature Food、Nature Communications等期刊的特邀审稿人，两次获ES&T超级审稿人奖。

Associate Professor. Ph.D., Peking University. Postdoc at the Georgia Institute of Technology. Focuses on development of greenhouse gases and air pollutants emission inventory, as well as the application of numerical and AI algorithms in air quality, public health, and climate change assessment. Authored 24 papers as the first/corresponding author in top international journals like Nature Climate Change, Science Advances, Nature Human Behaviour, Nature Food, and ES&T. Published 165 SCI papers in total, accumulating >9000 citations according to Web of Science, and an H-index of 54. Selected among the top 2% of global scientists. Serves as a reviewer for journals including Nature, Nature Food, and Nature Communications, and has received the ES&T Super Reviewer Award.

## 王辰 WANG Chen

副教授，加拿大多伦多大学环境化学博士，国家级青年人才。研究方向包括大气化学、室内空气污染、大气污染物室内外关联及影响等。通过实验室实验及外场实地观测等方法研究污染物的行为、多相分配过程、化学转化和室内外差异等。发表SCI论文50余篇，包含Science Advances（封面）、PNAS、Environmental Science & Technology等国际一流期刊，合著英文专著1部。中国环境科学学会室内环境与健康分会青年委员；入选大气化学学术研讨会新兴科学家（ACCESS XIV,2017），麻省理工大学土木与环境工程学术新星（MIT CEE Rising Star，2019），深圳市海外高层次人才（2021），国家级海外高层次青年人才（2021）。主持国家自然科学基金面上项目、深圳市科创委基础研究面上项目，参与国家自然科学基金重点项目等。

Associate Professor. Dr. Chen Wang received her PhD in Environment Chemistry at University of Toronto. Her research interests include indoor air quality, atmospheric chemistry, and the association between indoor and outdoor air pollution, etc. She has published over 50 papers in top journals, including Science Advances, PNAS, Environmental Science & Technology, etc., and co-authored a book chapter. She was selected as Atmospheric Chemistry Colloquium for Emerging Senior Scientists (ACCESS XIV, 2017), as MIT CEE Rising Star (2019), and as National Level (overseas) Outstanding Young Talents (2021). Dr. Wang received funding support from NSFC program and the local funding agency.

## 叶建淮 YE Jianhuai

副教授，加拿大多伦多大学博士，美国哈佛大学博士后，2021年6月加入南方科技大学，现任南方科技大学环境科学与工程学院博士生导师。主要研究方向包括大气污染物排放特征表征、大气污染形成机制及其环境气候效应、大气污染物化学传感器的开发与应用等。发表论文70余篇，其中第一/通讯作者论文发表在PNAS、Nature Communications、Environmental Science & Technology、Geophysical Research Letters等大气环境领域知名期刊。主持国家自然科学基金青年、面上、深圳市自然科学基金面上等多项国家级和省市级项目。曾获得中国颗粒学会气溶胶青年科学家奖（2024）、The Atmosphere Young Investigator Award（2023）、大气化学学术研讨会新兴科学家（ACCESS XV，2019）等。担任ACS ES&T Air和《地球化学》青年编委、以及Air Quality, Atmosphere & Health、Frontiers in Forests and Global Change副主编。任中国环境科学学会挥发性有机物污染防治专业委员会委员、中国颗粒学会第四届青年理事。

Dr. Jianhuai Ye is an Associate Professor at the school of Environmental, Southern University of Science and Technology. He earned his Ph.D. from the University of Toronto and subsequently completed a postdoctoral fellowship at Harvard University. Dr. Ye's primary research focuses on the emission and transformation of atmospheric volatile organic compounds (VOCs), as well as atmospheric chemical sensing using UAVs and low-cost sensors. He has published over 70 peer-reviewed articles in prestigious journals such as PNAS, Nature Communications, Environmental Science & Technology, and Geophysical Research Letters. Dr. Ye has led multiple national- and municipal-level research projects, including those funded by the National Natural Science Foundation of China. He has received several honors, including the Aerosol Young Scientist Award from the Chinese Society of Particuology (2024), the Atmosphere Young Investigator Award (2023), and the Atmospheric Chemistry Emerging Scientist (ACCESS XV, 2019). Dr. Ye is a Young Editorial Board Member of ACS ES&T Air and Geochemistry, and serves as Associate Editor for Air Quality, Atmosphere & Health, and Frontiers in Forests and Global Change. He is also a member of the VOC Pollution Control Committee of the Chinese Society for Environmental Sciences and a Youth Council Member of the Chinese Society of Particuology.

## 张斌田 ZHANG Bintian

副教授，中科院生态中心博士，国家优秀青年基金获得者（海外）。主要研究方向为基于生物分析及生物传感器的环境健康效应研究、污染物的快速检测及便携式仪器开发等。主持包括国家自然科学基金在内的科研项目多项。在PNAS、JACS、ACS Nano、Nano Letters、AC等顶级学术期刊发表论文40余篇，申请及获批国际专利（PCT）、美国和中国专利共11项，实现成果转化2项，相关技术已获B轮融资。曾获“亚利桑那州立大学技术转让优秀奖”、“ACS特殊贡献奖”等奖励。担任中国环境科学学会新污染物治理专业委员会委员、环境纳米领域知名期刊《Environmental Science: Nano》副主编。

Associate Professor.Ph.D. from the Chinese Academy of Sciences. Recipient of the NSFC Excellent Young Scientists Fund Program (Overseas). His research focuses on the development of bioanalytical techniques and biosensors, with applications in environmental monitoring and molecular toxicology. He holds 11 patents, including PCT, U.S., and Chinese patents, and has published over 40 peer-reviewed papers, with first-author publications in top journals such as PNAS, JACS, ACS Nano, and Nano Letters. He is a member of the Emerging Pollutant Treatment Professional Committee of the Chinese Society of Environmental Sciences and serves as Associate Editor of "Environmental Science: Nano", a leading journal in environmental nanotechnology.

## 郑国贸 ZHENG Guomao

副教授，入选国家级青年人才及深圳市孔雀特聘岗位。2021年加入南方科技大学环境科学与工程学院，先后在中山大学和北京大学获得学士及博士学位，并在美国印第安纳大学从事博士后研究。主要从事新污染物环境暴露，代谢致毒机理以及高分辨质谱方法开发研究。成果发表在PNAS、ES&T、ES&TLetters等国际一流知名期刊。曾获得国际暴露学会年度最佳论文奖、ES&T年度最佳论文奖、北京大学优秀博士论文和唐孝炎环境科学创新奖一等奖。担任Journal of Hazardous Materials和Hygiene and Environmental Health Advances青年编委。

Dr. Zheng Guomao, an Associate Professor at SUSTech, is recognized by the National High-level Overseas Talent Program and Shenzhen Peacock Talent Program. He holds degrees from Sun Yat-sen University and Peking University, with postdoctoral research at Indiana University. His work focuses on environmental exposure to emerging pollutants, mechanisms of metabolism-induced toxicity, and high-resolution mass spectrometry. His publications in PNAS, ES&T, and other top journals have earned him awards like the International Society of Exposure Science Best Paper Award and the ES&T Annual Best Paper Award. He is also a Youth Editorial Board Member for the Journal of Hazardous Materials and Hygiene and Environmental Health Advances.

## 裘文慧 QIU Wenhui

副教授,博士生导师,国家自然科学基金优秀青年基金获得者,深圳市海外高层次人才,广东省土壤与地下水污染防控及修复重点实验室副主任。研究方向为新污染物的生态毒理学。共发表学术论文80余篇,其中第一/通讯作者SCI论文50余篇。截至2024年9月,论文总引次数4300余次。近五年主持国家级以及省市级各类科研项目10余项。先后获广东省环境科学学会生态环境青年科技奖金奖,环境保护科学技术奖二等奖(3/9)和广东省环境保护科学技术奖一等奖(1/15)。现任环境领域知名期刊Int. Immunopharmacol.副主编、EGAH副主编、ES&T Letters 编委。

Associate Professor, Doctoral advisor, The Excellent Young Scientist of National Natural Science Foundation of China, Shenzhen Overseas High-level Talent. Her research interests Ecotoxicology of emerging pollutants. Total paper citation over 4300 by September 2024. Hosted over 10 national and provincial research projects. Obtained the first prize of Guangdong Environmental Protection Science and Technology Award, the gold prize of Guangdong Eco-Environment Youth Science and Technology Award. Associate Editor of Int. Immunopharmacol., Associate Editor of EGAH , Editorial Board member of ES&T Letters.



## 郭芷琳 GUO Zhilin

副教授，教育部特聘青年学者。美国亚利桑那大学博士，在美国加州大学戴维斯分校从事博士后研究。主要研究方向为(1)地下水流及污染物运移数值模拟；(2)污染场地修复模拟研究；(3)流域尺度污染物迁移的升尺度研究；(4)地下水污染风险研究。发表论文50余篇，其中以第一/通讯作者身份在Water Resources Research,Journal of Hydrology等国际知名期刊发表论文30余篇。先后主持6项国家、省、市级项目，包括科技部重大研发计划课题等。担任Water Resources Research,Journal of Hydrology,Groundwater等水资源领域国际知名期刊副主编以及水资源多个期刊审稿人。目前担任国际水利与环境工程学会(IAHR)水文地质委员会委员、美国地球物理联合会(AGU)地下水委员会委员等职。

Associate Professor. Ph.D., University of Arizona. She conducted postdoctoral research at the University of California, Davis, USA. Her research interests are: (1)numerical modeling on groundwater flow and solute transport; (2)remediation of contamination sites; (3)upscaling of regional-scale solute transport process; (4groundwater contamination risk assessment. She has published more than 50 papers, about 30 of which are published in Water Resources Research, Journal of Hydrology, and other internationally renowned journals as the first/corresponding author. She has been supported by 6 national, provincial and municipal projects. She serves as the associate editor of Water Resources Research,journal of Hydrology, Groundwater and reviewer for several water resources journals.

## 朱雷 ZHU Lei

助理教授，哈佛大学博士、博士后，哈佛-史密松天体物理中心研究员。从事大气化学研究，聚焦卫星遥感、模式模拟、数据同化，发表SCI期刊论文80余篇，被引3500余次，h-index 30，主持参与基础研究项目18项。研究曾获Nature杂志整篇报道，被NASA选为亮点工作，获PNAS新闻特写重点报道。OMI、OMPS、TEMPO、GEMS、高分2号等多个卫星科学团队成员。入选生态环境部《关于消耗臭氧层物质的蒙特利尔议定书》中国履约专家组（2022）、广东省重大人才工程青年人才（2022）、深圳市海外高层次人才团队（2022）。获美国气象学会特别贡献奖（2020）、NASA与美国内务部联合颁发的William T.Pecora团队奖（2018）、NASA团队成就奖（2015）、哈佛大学杰出教学认证（2013）。担任Remote Sensing客座编辑、Journal of Remote Sensing青年编委。研究小组网站：https://www.acmrsg.org。

Assistant Professor. Lei Zhu worked as a Research Scholar at Harvard-Smithsonian Center for Astrophysics before joining SUSTech. His research area is atmospheric chemistry with interests including remote sensing of trace gases, data assimilation, air quality, and atmosphere-land-ocean interactions. Lei has published more than 80 journal papers, with the total citation of > 3500 and the h-index of 30. He is a science team member of several satellites such as OMI, OMPS, TEMPO, GEMS, and Gaofen-2. Lei was awarded American Meteorological Special Award (2020), William T. Pecora Team Award (NASA and DOI, 2018), NASA Group Achievement Award (2015), and Harvard University Certificate of Distinction in Teaching (2013). Group website: https://www.acmrsg.org.

## 叶斌 YE Bin

助理教授，哈尔滨工业大学博士，清华大学和美国劳伦斯伯克利国家实验室博士后。主要从事环境规划和能源经济等方面的研究工作，擅长将环境科学方法与经济管理科学方法相结合，研究全球和区域尺度的气候、能源和经济发展方面的问题；主持国家自然科学基金、中国博士后基金国际交流和面上项目、广东省自然科学基金以及深圳市多项竞争性科研项目。目前已经发表科研论文90余篇，其中70余篇被SCI或SSCI检索；以第一作者或通讯作者身份在能源与环境领域顶级期刊Renewable and Sustainable Energy Reviews发表论文3篇，Applied Energy发表论文3篇，3篇论文入选ESI高被引论文；以第一或通讯作者身份在国际公共管理政策类顶级期刊Climate Policy（SSCI）发表论文2篇；长期担任10多种JCR1、2区期刊评审人，获得Applied Energy 2016年度Best Reviewer奖；2018年5月开始担任JCR 1区期刊Environmental Geochemistry and Health (IF 3.472) Associate Editor。

Assistant Professor. Ph.D., Harbin Institute of Technology. Prior to his current appointment, he was a postdoctoral fellow in Tsinghua university and Lawrence-Berkeley National Laboratory. His research interests include environmental management and energy economics, with emphasis on integrating environmental science with economics methods into climate, energy, and economic development related issues at global, regional, and city dimensions. He has presided over the National Natural Science Foundation of China, China Postdoctoral Foundation on International Exchange and Regular Project, Guangdong Natural Science Foundation and a number of competitive research projects in Shenzhen. He has published more than 90 academic papers, among which more than 70 papers are indexed by SCI/SSCI journals.

## 梁修雨 LIANG Xiuyu

助理教授，南京大学博士。主要从事地下水资源与环境方向的研究工作，重点关注界面水动力理论及模拟，具体包括，饱和-非饱和水流耦合模拟、地表－地下水交互作用、地下水流及溶质的时间尺度性、多孔介质气体流动过程及模拟等。发表科技论文50余篇，其中以第一/通讯作者身份在水资源及环境领域顶级期刊Water Resources Research，Environmental Science & Technology，Water Research等上发表SCI论文30余篇。主持包括国家自然科学基金、科技部重大专项子课题、国家水专项子任务和省自然科学基金等6项。担任中国水利学会地下水科学与工程专业委员会委员、国际水文科学协会中国委员会地下水分委会委员。分别担任国际学术期刊Vadose Zone Journa (l 2020-) 和Stochastic Environmental Research and Risk Assessmen (t2019-) 副主编，担任中文学术期刊《地质科技通报》(2022-)首届青年编委，并长期担任水资源领域10多个学术期刊的审稿人，获得水文学国际知名期刊Journal of Hydrology杰出审稿人称号。

Assistant Professor. Ph.D., Nanjing University. His research interests include coupling unsaturated-saturated flow, interaction between the surface water and groundwater flow, temporal scaling of groundwater flow and solute transport in watersheds, and modeling of vapor transport in porous media. He published almost 50 scientific papers, and the most of the papers are published on top-tier SCI journals, including Water Resources Research, Environmental Science & Technology, and Water Research. He has been the PI of 6 funded projects. He is a committee member of Groundwater Science and Engineering Committee of Chinese Hydraulic Engineering Society, and Commission on Ground Water of CNC-IAHS, respectively. He is serving as editorial board members for three scientific journals"Vadose Zone Journal", "Stochastic Environmental Research and Risk Assessment", and "Bulletin of Geological Science and Technology".

## 雷洋 LEI Yang

助理教授、博士生导师，瓦赫宁根大学博士，欧盟玛丽居里学者。研究方向为废水处理与资源化。在环境领域主流期刊发表论文26余篇，第一或通讯论文20篇，其中10篇为ES&T、Water Research，谷歌学术引用1600余次，H指数19，单篇引用超550次；授权荷兰专利和中国发明专利各1项，申请国际专利1项，中国发明专利2项。曾（正）主持荷兰基金委和欧盟玛丽居里子课题各1项，深圳市科创委项目1项；曾获国家优秀自费留学生，Marcel Mulder Prize（一年颁发一位），湖北省自然科学三等奖等荣誉。

Assistant Professor. He was a Marine Sklodowska-Curie Fellow. He obtained PhD with Prof Cees Buisman from Wageningen University in 2019 on"electrochemical phosphorus removal and recovery". Afterward, he worked on electrochemical P recovery at a large-scale in Wetsus as a post-doctoral researcher. In this period, he received the NWO Take-off Grant. In 2021, he joined SUSTech as an assistant professor. Currently, he is leading the Environmental Electrochemistry Laboratory at SUSTech. The mission of his lab is to initiate innovation in addressing the water-food-energy nexus challenge. His team works on energy-efficient wastewater treatment and resource recovery.

## 姜丽光 JIANG Liguang

助理教授、博士生导师，丹麦科技大学博士/博士后。研究方向为遥感水文学，重点开展对地观测（Earth-Observation, EO）技术在水文和水资源领域的理论与应用研究，具体包括地表水体动态监测、卫星测高数据产品研发、河道地形观测与反演、流域水文模拟、河道水动力模拟等。在Remote Sensing of Environment, Water Resources Research Geophysical Research Letters, Hydrology and Earth System Sciences, 遥感学报等期刊上共发表论文50余篇，其中一作或通讯论文30余篇。主持包括国家自然科学基金等项目4项。担任Sustainable Water Resources Management副编辑（Associate Editor）、Journal of Remote Sensing和《人民珠江》期刊青年编委，长期担任多个水文学和遥感领域国际顶级期刊审稿人。

Assistant Professor. He obtained PhD in Remote Sensing & Hydrology from the Technical University of Denmark. His research interests span both remote sensing and hydrological sciences. He has worked on hydrological dynamics of surface water bodies, e.g. lakes, reservoirs, and rivers in the context of climate change. His PhD research has centered on the potentials of radar altimetry for inland water monitoring and modeling. He has made some contributions to hydrodynamic modeling using distributed altimetry derived Water Surface Elevation data, broadening the range of applications of satellite altimetry. Currently, he works on several projects including NSFC general program. Liguang serves an Associate Editor of Sustainable Water Resources Management, and editorial board members for several journals, such as Journal of Remote Sensing, Renmin Zhujiang, etc. Liguang has published more than 50 research articles, e.g. Remote Sensing of Environment, Water Resources Research, Journal of Hydrology, Geophysical Research Letters, Journal of Geophysical Research – Atmospheres, etc.



## 刘延 LIU Yan

助理教授，博士生导师，广东省重大人才工程青年人才，深圳市高层次引进人才。在清华大学获得学士和博士学位，先后在美国德州理工大学、英国伦敦大学学院从事博士后研究，2022年9月加入南方科技大学。研究方向为环境流体力学，重点开展天然水域中的湍流结构、泥沙输移和底栖动物的相互作用关系。在Communications Earth & Environment、Water Resources Research、Journal of Fluid Mechanics等多个领域主流期刊上发表论文20余篇。主持国自然科学基金委面上项目1项、科技部重点研发项目子课题2项、深圳市面上项目1项。担任《Frontiers in Marine Science》期刊专刊客座编辑、《应用基础与工程科学学报》青年编委。

Assistant Professor and Ph.D. Advisor, recognized by the Guangdong Shenzhen's high-level talent program. He earned his Bachelor's and Ph.D. from Tsinghua University and completed postdoctoral research at TTU and UCL. His research focuses on environmental fluid mechanics, exploring turbulence, sediment transport, and benthic interactions in natural waters. Liu has published over 20 papers in top journals, including Comm. Earth Environ., JFM, and WRR. He leads one NSFC project, two sub-projects under the Ministry of Science and Technology, and one Shenzhen-funded project. He also serves as a guest editor for Frontiers in Marine Science and on the Youth Editorial Board of the Journal of Applied Foundations and Engineering Sciences.

# 教学系列 TEACHING FACULTY

## 史江红 SHI Jianghong

教学教授，清华大学环境工程本科，东京农工大学博士。中国环境科学学会化学品环境风险防控专业委员会常务委员。研究领域为雌激素塑化剂阻燃剂等新污染物环境行为、毒理毒性及环境风险评估研究。主持土专项课题、国自然及深圳市“三线一单”项目40余项。发表论文78篇，发明专利授权12项，合作教材2部。获教育部高等学校科学研究技术发明一等奖等。承担《污染物环境行为与风险评估》《可持续发展与环境保护课程》等课程教学。

Teaching Professor. Ph.D., Tokyo University of Agriculture and Technology. B.S., Tsinghua University. Committee Member of the Chemical Environmental Risk Prevention and Control Professional Committee of the Chinese Society for Environmental Sciences. Research focuses on the environmental behavior, toxicological toxicity and environmental risk assessment of new pollutants. She has presided over 40 research projects including the National key research and development program, NSFCs and enterprise cooperation projects. She has published 78 papers, been granted 12 invention patents, and co-authored 2 textbooks. Her contributions have been recognized with the First Prize in Technical Invention of the Higher Education Scientific Research Outstanding Achievement Award from the Ministry of Education. She undertakes courses including Environmental Behavior and Risk Assessment of Pollutants and Sustainable Development and Environmental Protection etc.

## 王扬 WANG Yang

教学副教授，滑铁卢大学博士，城市规划和环境设计方向，美国规划师协会成员。有丰富的城市规划项目经验和教学经验，曾任职于加拿大卡市规划部，曾任教于北京大学工学院。

Teaching Associate Professor. Ph.D., University of Waterloo. Member of APA. She has rich experience in both project implementing and teaching in urban planning and environmental design areas as she worked for the City Calgary, Canada and taught at the Peking University, China.

## 杨丽红 YANG Lihong

教学副教授，北京大学博士，生态环境部流域地表水-地下水污染综合防治重点实验室副主任。长期从事土壤与地下水污染防治、流域生态环境保护与修复、数学模型在环境管理中的应用及推广等工作。参与编撰多项生态环境部及地方技术标准与技术规范，担任多项生态环境部地下水污染防治试点项目技术负责人、生态环境部地下水污染防治试验区专家库成员、中国环保品牌集群专家委员会委员、亚洲开发银行地下水面源污染控制技术专家。

Teaching Associate Professor. Ph.D., Peking University, Deputy Director of MEE Key Laboratory of Integrated Surface Water-Groundwater Pollution Control. Working expertise is focused on soil and groundwater environmental protection and contamination control, watershed ecological protection and restoration, application and promotion of mathematical models in environmental management, etc.

# 研究系列 RESEARCH FACULTY

## 易树平 YI Shuping

研究教授，西班牙Universidad de A Coruna博士，生态环境部流域地表水-地下水污染综合防治重点实验室副主任，广东省地下水污染防控与修复工程技术中心副主任，中国环境科学学会环境与岩土工程专业委员会委员。主要从事土壤与地下水污染机理、迁移模拟、溯源预警、智慧监管及风险管控研究。发表论文50余篇、专利30余项，编制国家及团体标准4部、专著1部。获得荣誉包括第十四届青年地质科技奖-银锤奖，最美生态环境科技工作者等。研究成果先后获全国优秀工程咨询成果奖一等奖1项（排名第一）；省部级科学技术奖一等奖6项（排名前三），二、三等奖各 1 项（排名前三）。

Research Professor, Ph.D., University de A Coruna, Spain. Dr. Yi serves as the Deputy Director of the Key Laboratory of Comprehensive Prevention and Control of Surface Water-Groundwater Pollution of the Ministry of Ecology and Environment. His research interests include the soil and groundwater pollution mechanisms, solute transport modelling, source tracing and early warning, intelligent supervision, and risk management and control. Dr. Yi has Published over 50 journal articles, obtained over 30 patents, compiled 4 national and group standards, and authored 1 monograph. He was awarded the "Silver Hammer Award" and the "Most beautiful ecological environment science and technology researcher". His research results have won 9 Science and Technology Awards including 1 first prize of the National Excellent Engineering Consulting Achievement Award and 6 first prizes of provincial and ministerial level Awards.

## 田勇 TIAN Yong

研究副教授，华中科技大学博士、北京大学博士后。研究领域包括生态水文、水动力与水环境数值模拟、GIS/RS与水环境科学的交叉应用等。主持国家自然科学基金项目3项、科技部重点研发计划子课题1项。发表SCI论文40余篇，获得软件著作权7项。论文主要发表于Water Resources Research、Environmental Modelling & Software等专业领域顶尖学术期刊。

Research Associate Professor. Ph.D., Huazhong University of Science and Technology. He worked as a postdoctoral research fellow in the Institute of Water Sciences at Peking University. His research interests include ecohydrology, numerical simulation of hydrodynamics and water environment, and GIS/RS applications in hydrology and water resources. He has obtained funding for over 6 research projects, including NSFC, the National Key Research and Development Program of China, etc. Dr. Tian has published more than 40 SCI journal articles, including Water Resources Research and Environmental Modelling & Software. He has also applied 7 software copyrights.



## 姜继平 JIANG Jiping

研究副教授，哈尔滨工业大学博士、新南威尔士大学联合培养、荷兰KWR水研究所访问学者。主要从事环境水信息学、环境决策分析学的研究与实践。发表SCI论文40篇，H指数25，获专利软著30余项。担任国际环境模拟与软件协会、国际开放模型组织、中国水协青年委委员等，WST，EM&S，JoHX期刊编委。原创技术服务我国八省环保水务信息化建设，获IWA水星奖应用产业新人金奖、广东省环保科技奖一等奖。

Research Associate Professor. Ph.D., Harbin Institute of Technology. He studied overseas at University of New South Wales, Australia and visited KWR Water Research Institute in Netherland. His research mainly focuses environmental Hydroinformatics and decision analytics. He published 40 SCI papers with H index of 25. Committee member of iEMSs, OMF, China Water Association (Youth). Editor of Water Sci and Technol, Environ Model & Softw., J Hydro X.

## 韩峰 HAN Feng

研究副教授，北京大学博士。主要从事流域尺度生态、水文、水质过程数值模拟方法研究，包括开发新的流域模型、发展高效的模型-数据融合方法（如贝叶斯分析、数据同化、优化算法等）和对国内外流域的应用研究。主持和参与国家自然科学基金等科研项目10余项，在水文、水资源、环境科学领域发表SCI论文30余篇。

Research Associate Professor. Ph.D. His research mainly focuses on the numerical simulations of ecological, hydrological and water quality processes at the watershed scale, including developing new watershed models, designing new model-data fusion methods (such as Bayesian analysis, data assimilation and optimization algorithm) and applying the new models or methods to foreign and domestic basins. Dr. Han has participated in more than 10 research projects. He has published more than 30 SCI joural papers in the fields of hydrology, water resources and environmental science.

## 颜枫 YAN Feng

研究副教授，清华大学博士。研究方向为固体废物资源化及$CO_2$捕集利用，包括工业固体废物高值资源化技术、生物质废物能源化利用技术、$CO_2$捕集和利用技术、生活垃圾焚烧污染控制技术；已在能源环境领域顶级期刊上共发表SCI论文86篇、总引用次数4300+，授权中国发明专利32项、美国发明专利2项。

Research Associate Professor, Ph.D. of Tsinghua University. He focus on the high-value utilization of solid-waste and the $CO_2$ capture & utilization, including Recycling and reuse of industrial solidwaste, Biomass waste to energy, $CO_2$ capture & utilization, and Pollution control of waste incineration. He has published 86 journal papers in the field of environment and energy with over 4300 citations, and has been authorized for 32 Chinese invention patents and 2 American invention patents.

## 段艳华 DUAN Yanhua

研究副教授，中国地质大学（武汉）博士。博士期间获国家留学基金委资助，赴斯坦福大学进行博士联合培养。主要研究领域为地下水污染与防治、水文地球化学，通过野外调查、动态监测与室内模拟实验相结合的方法，揭示原生劣质地下水成因及原生污染物在非均质含水层中的迁移转化规律。在Nature Water、Environmental Science & Technology等期刊上发表论文28篇。

Research Associate Professor. Ph.D., China University of Geosciences (Wuhan). She studied at Stanford University during 2014 to 2015 as a visiting graduate student and researcher. Her research focus on hydrogeochemistry and groundwater contamination, especially on geogenetic poor-quality groundwater and migration/transformation of contaminants in heterogeneous aquifers.

## 沈雪华 SHEN Xuehua

研究助理教授，南方科技大学与哈尔滨工业大学联合培养博士。研究方向为固体废物资源化利用、$CO_2$捕集,利用与封存，包括粉煤灰高值化利用、固废源基体材料孔隙结构调控和固态胺吸附剂稳定性机制研究等。近年来在Nature Communications, Environmental Science & Technology, Journal of Materials Chemistry A, Chemical Engineering Journal等主流期刊发表学术论文30余篇，申请发明专利15项（授权8项）。

Research Assistant Professor. Ph.D., Southern University of Science and Technology and the Harbin Institute of Technology. Dr. Shen' s research focus on solid waste resource utilization, $CO_2$ capture, utilization and storage, including high value utilization of coal fly ash, control of pore structure of support materials derived from solid waste, and stabilization mechanism of solid amine adsorbent. Dr. Shen has published 30 academic papers in mainstream journal, such as Nature Communications, Environmental Science & Technology, Journal of Materials Chemistry A, Chemical Engineering Journal, and applied for 15 invention patents (8 authorized).

## 马恩泽 MA Enze

研究助理教授，法国诺曼底大学土木工程博士。主要从事土壤与地下水生态环境方向研究工作，具体包括土壤-地下水污染物运移机制、内陆水体甲烷排放以及胶体运移理论等。发表科技论文十余篇，以第一/通讯作者身份在水资源和环境领域顶级期刊Environmental Science & Technology，Water Resources Research，Water Research等上发表SCI论文7篇。主持包括国家自然科学基金、科技部重点研发子课题和省自然科学基金项目3项。长期担任水资源、环境领域多个学术期刊的审稿人。

Research Assistant Professor, Ma Enze, holds a Ph.D. in Civil Engineering from the University of Normandy in France. His primary research focuses on soil and groundwater ecological environments, specifically soil-groundwater pollutant transport, inland water methane emissions, and colloid transport. He has published over ten scientific papers, including seven SCI papers as the first or corresponding author in top journals in the water resources and environment field, such as Environmental Science & Technology, Water Resources Research, and Water Research. He has led three projects, including one funded by the National Natural Science Foundation, one key research sub-project of the Ministry of Science and Technology, and one provincial Natural Science Foundation project. He has been a long-term reviewer for multiple academic journals in the water resources and environmental fields.

## 范典 FAN Dian

研究助理教授，美国德克萨斯理工大学石油工程博士，曾在英国伦敦大学学院从事博士后研究工作。主要研究工作聚焦于多尺度地下地质体中流体和微纳固体颗粒的运移的理论和数值模拟。其研究应用于微纳塑料处理、油气藏开采过程的防砂、纳米环境示踪剂回收，以及水力压裂井的支撑剂设计。

Research Assistant Professor. Ph.D. in Petroleum Engineering, Texas Tech University, the USA. Prior to his hire at SUSTech, Dr. Fan worked as a Postdoc Research Associate at University College London, the UK. His research focuses on multi-scale theoretical and numerical studies of the transport of fluids and micro-/nano-particles in geological media. His work applies to micro-/nano-plastics removal, sand control in hydrocarbon productions, recovery of environmental nanoparticle tracers, as well as proppants design in hydraulic fracking.

## 孔令超 KONG Lingchao

研究助理教授，硕士生导师，深圳市海外高层次人才C类。近年来，围绕城市水体污染控制技术及氮磷元素地球化学过程开展理论研究与应用创新，主持国家自然科学基金、深圳市优秀科技创新人才、深圳市技术攻关、中国博士后科学基金等项目。以第一作者发表论文9篇，H因子21。担任Elsevier旗下国际开源期刊《Sustainable Horizons》青年编委。

Research Assistant Professor, PhD from Harbin Institute of Technology. Dr. Kong is awarded as a high-level overseas talent in Shenzhen. He has carried out theoretical research and application innovation focusing on urban water pollution control technology and nitrogen-phosphorus element geochemistry processes. He has published nine papers with an H-index of 21.



## Alejandro Palomo Gonzalez

研究助理教授，丹麦技术大学环境工程专业博士/博士后，研究方向为微生物生态学、生物信息学，阐述在自然生态和人工调控的生物地球化学过程中微生物的群落结构和生态功能，例如氮循环中全程硝化细菌的基因组学分析和生态变异演化，截至目前已在ISMEJ, Commun. Biol.等期刊上发表文章10余篇。

Research Assistant Professor. Ph.D and Postdoc in Environmental Engineering at Technical University of Denmark. The research focuses on bioinformatics and microbiology, to study the role of microorganisms in natural and human-engineered ecosystems – such as the ecology, genomics, physiology and evolution of microorganisms in the Nitrogen cycle. Dr. Palomo has published > 10 papers in ISMEJ, Commun.Biol., etc.

## 马云杰 MA Yunjie

研究助理教授，丹麦技术大学环境工程专业博士，南方科技大学博士后。研究方向为环境微生物学和水污染控制工程，包括微生物碳、氮代谢过程的模拟与机理研究，典型微量有机污染物的生物降解与迁移转化规律等。主持或参与国家自然科学青年基金项目、中国-丹麦国际合作项目等。

Research Assistant Professor. Ph.D in Environment Engineering, Technical University of Denmark. The research focuses on environmental biotechnology in water pollution control, including microbe-mediated carbon and nitrogen cycles, the biotransformation and migration of micropollutants, and the microbial process modelling and metabolism study. Dr. Ma has led and participated in the Youth program of Natural Science Foundation of China, the international program of Danida Fellowshop Center, etc.

## 王维实 WANG Weishi

研究助理教授，德国波茨坦大学博士（亥姆霍兹学会全额博士奖学金），鲁汶大学硕士，中科院生态与地理研究客座研究员。长期从事，水资源、水质、水量管理优化工作。涉及地下水、地表地下水交互带，湖泊、湿地、矿山等多要素，包括水循环过程中流域、河道、地下水中水质、水量数值模拟，污染物降解分析等工作。

Research Assistant Professor.Ph.D. of University of Potsdam, Germany (GeoSim Scholarship), MSc of KU Leuven. His research focus on groundwater, surface-groundwater interaction, lakes, wetlands, and mining environments, with the direction of numerical modeling of water quality and quantity in catchment, rivers, groundwater, as well as pollutant degradation analysis.

## 王大山 WANG Dashan

研究助理教授，硕士生导师。主要从事陆气相互作用、生态气候、城市气候等相关领域研究。累计发表论文36篇，其中一作/通讯（含共同）论文16篇，部分研究成果发表于Nature Water、Nature Geoscience、npj Climate and Atmospheric Science、Geophysical Research Letters等知名期刊。主持包括国家自然科学基金面上项目、国家自然科学青年基金等多项课题。

Research Assistant Professor, Master Instructor. His current research focuses on land-atmosphere interactions, ecological climatology, and urban climate. A total of 36 papers were published, among which 16 papers of the first or co-corresponding author. He direct 5 research grants as Principal Investigator (PI), including 2 grants from the National Science Foundation of China (NSFC).

## 陶玮 TAO Wei

研究助理教授，北京大学环境地理专业博士。主要从事大气化学的模式模拟研究，具体的方向包括多相化学机制、奇氧族物种的源解析、污染物迁移转化的过程分析等，发表 SCI 论文19篇。立志于化学传输模式的优化和改进，有着丰富的模型开发经验，在区域空气质量模型WRF/Chem框架下独立开发过多个功能性模块。

Research Assistant Professor. Ph.D. of the Peking University. He focuses on modeling the atmospheric chemistry, the research topics include multiphase chemistry mechanisms, source attribution of odd oxygen family and the process analysis of evolution for airborne pollutants. He has published over 19 SCI papers. He devotes himself to improving the chemical transport model, and has independently developed several modules under the framework of WRF/Chem model.

## 张傲星 ZHANG Aoxing

研究助理教授，北京大学物理/心理学双学士，佐治亚理工学院博士。研究方向为空气质量数值模拟预报，野火气溶胶模拟，人工智能与地球系统模型耦合应用等。在SCI期刊发表论文十余篇，主持国家自然科学青年基金等项目，具备一定的科普写作经验和基于心理动力学的临床心理咨询经验。

Research Assistant Professor. B. Sc of Physics & Psychology in Peking University, Ph.D in Georgia Tech. He focues on air quality forecasts, wildfire, and AI applications on earth system models, published 10+ SCI papers. He is also experienced in popular science writing and clinical psychological counseling.

## 郑伟智 CHENG Wai-chi

研究助理教授，香港大学博士，瑞士洛桑联邦理工学院博士后，研究方向为大气边界层湍流与空气污染物输送、大涡模拟、风能、城市表面参数化以及基于机器学习方法的风速预报模型开发。在Atmospheric Environment、Boundary-Layer Meteorology、Building and Environment等国际知名期刊发表文章10余篇，主持国家自然科学基金项目。

Research Assistant Professor. Ph.D. of University of Hong Kong, Post-doc Researcher at Ecole Polytechnique Fédérale de Lausanne (EPFL). His research interests include turbulent flows and air pollutant transport in atmospheric boundary layers, large-eddy simulation, wind energy, urban surface parametrization, and developing fast flow prediction models based on machine learning methods.

## 翟璟豪 ZHAI Jinghao

研究助理教授，复旦大学－哈佛大学联合培养博士。研究方向为大气气溶胶的理化特性综合表征，主要包括大气颗粒物的光学特性及健康效应。研究成果发表在ES&T、GRL、ACP等专业领域学术期刊。

Research Assistant Professor. Ph.D. at Fudan University and joint Ph.D. at Harvard University. Her research interests are the physicochemical properties of atmospheric aerosols, including the optical property and health effects of fine particles. She has published academic papers in top journals in environmental science, such as ES&T, GRL, and ACP.



## 曾娅玲 ZENG Yaling

研究助理教授，西安交通大学与瑞士洛桑联邦理工学院联合培养博士、南方科技大学校长卓越博士后。研究方向为大气颗粒物有机分子的气候效应、内暴露机制和健康效应。发表论文29篇，出版专著1部。主持国家自然科学基金青年项目，博士后面上基金。

Research Assistant Professor. Ph.D, Xi'an Jiaotong University and Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland. She is Presidential postdoctoral fellow of SUSTech. Her research focuses on the climate effects, internal exposure mechanisms, and health effects of organic molecules in atmospheric particulate matter. She has published 29 papers and one monograph. Dr. Zeng has led the Youth project of National Natural Science Foundation of China and Postdoctoral Research Foundation of China.

## 丁隆真 DING Longzhen

研究助理教授，吉林大学博士，南开大学－南科大联培博士后。主要研究领域包括：循环经济、水土污染防控、环境大数据和土壤道地药材互作关系等。主持国家重点研发项目子课题、国家自然科学基金项目、广东省自然科学基金－青年提升项目等4项，相关成果以第一作者在ES&T、Water Research等顶刊发表，获得授权中国发明专利3项，美国发明专利1项。

Research Assistant Professor. Ph.D., Jilin University. His research interest includes circular economy, water/soil pollution prevention and restoring, environmental big data, and interaction relationships between soil and "Daodi"herbs. Dr. Ding has led two sub-topic of National key R & D projects, one NSFC project, and one NSF of Guangdong Province. His representative research publications including ES&T and Water Research.

## 刘嵩 LIU Song

研究助理教授，德国慕尼黑工业大学博士，德国宇航局博士后，比利时皇家空间航空研究所访问学者。研究方向为痕量气体遥感、大气化学模式等。发表Environ.Sci. Technol.、Atmos. Meas. Tech.等国际知名期刊文章10余篇，担任Earth Syst. Sci. Data、Atmospheric Environ.等10余个期刊审稿人，主持国家自然科学基金青年基金项目。

Research Assistant Professor. Ph.D. of Technical University of Munich, Postdoc Research Associate at German Aerospace Center, Visiting Scientist at Royal Belgian Institute for Space Aeronomy. Her research interests include trace gas remote sensing and chemical transport model.

## 张梦涛 ZHANG Mengtao

研究助理教授，博士毕业于香港浸会大学环境科学专业，主要从事新污染物环境行为、毒理毒性与环境风险研究，特别是新污染物转化产物的毒理毒性研究。对酚类污染物的转化产物研究表明，转化产物毒性高于反应底物，增加了污染物环境转化风险的不确定性。

Research Assistant Professor.ZHANG Mengtao obtained his PhD from Hong Kong Baptist University. His research focuses on the environmental behavior, toxicity and environmental risk of emerging contaminates, with a particular emphasis on the toxicological properties and environmental transformation products of these contaminants. He discovered that  transformation products of phenolic pollutants exhibit higher toxicity compared to their original substrates, increasing environmental risk uncertainty.

## 实验师 LAB SPECIALIST

### 熊鹰 XIONG Ying

高级教学实验师，高级工程师，厦门大学博士，北京大学环境工程博士后，研究方向为高性能膜材料及其在水处理领域的应用研究，新型水处理工艺技术研究与应用。目前负责环境科学与工程专业本科实验教学。

Lab Specialist. Senior engineer, Lab specialist, Ph.D., Xiamen University. She worked as a postdoctoral researcher on environmental engineer in Peking University. Her research focus on high performance membrane materials and its' application on water and wastewater treatment, Water and wastewater treatment technology. She is now responsible for environmental science and engineering undergraduate experimental teaching.

## 工程师 ENGINEER

### 罗树生 LUO Shusheng

高级工程师，本科毕业于汕头大学，2010年12月获得中山大学食品安全生物学博士学位。主要从事环境有机污染物的微生物降解行为研究，主持国家自然科学基金青年基金项目一项。2013年入职南科大，现任南方科技大学环境科学与工程学院科研工程师，主要负责学院土壤与地下水污染防治重点实验室和环境科学公共实验平台建设工作。2014年获深圳市高层次专业人才（后备级）认定。

Engineer. He got a Bachelor's degree from Shantou University of China in 2005 and a Ph.D degree from SUN YAT-SEN University in 2010. Dr. Luo currently works as an engineer in Southern University of Science and Technology. Prior to his current position, he worked in South China Agriculture University as a post-doctoral research fellow until August 2013. His research focused on the biodegradation of Polycyclic Aromatic Hydrocarbons (PAHs) and the environmental fate of PAHs metabolites, which is financially supported by the project of national Natural Science Foundation of China project for young scolars. Dr. Luo was elected as a reserve talent by the program of "Shenzhen High-level Talent Plan"in 2014.

### 施诗 SHI Shi

工程师，本科及研究生就读于北京科技大学材料科学与工程学院，2015年在日本北海道大学取得博士学位，此后在威斯康辛大学麦迪逊分校从事博士后研究。2021年入职南科大，主要负责环境科学与工程学院环境扫描电镜及光学平台的管理与维护。研究方向为功能材料合成与分析、高分辨电子显微学及原位电镜测试分析技术。

Engineer. She received her bachelor' s and master' s degree from School of Materials Science and Engineering, University of Science & Technology Beijing, and Ph.D. degree in Materials Science from Hokkaido University in 2015, after then a postdoc in UW-Madison. Dr. Shi currently works as an engineer in School of Environmental Science & Engineering, managing ESEM and optical instruments. Her research interests include synthesis and analysis of functional materials, high-resolution electron microscopy and in-situ microscopy.



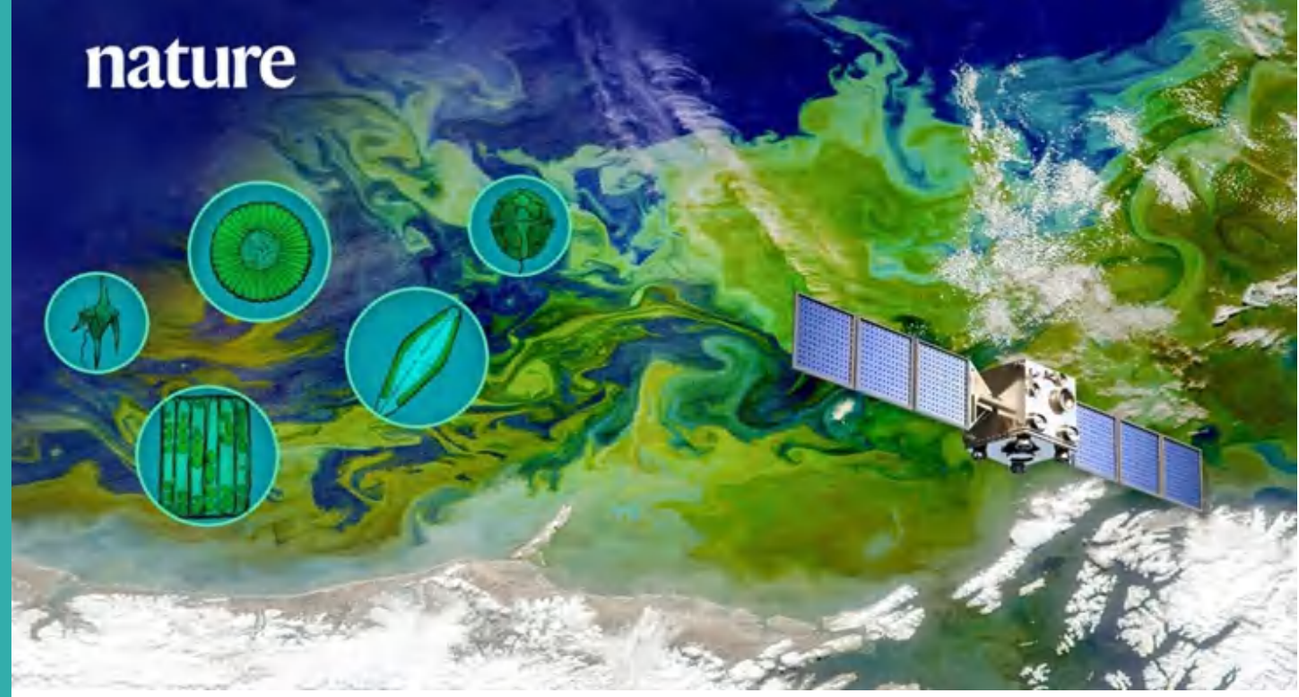
### 叶思思 Ye Sisi

工程师，本科毕业于内蒙古农业大学，2020年6月获得中国地质大学（武汉）材料科学与工程硕士学位。2024年入职南科大，主要负责环境科学与工程学院公共科研平台X射线光电子能谱仪、钨灯丝扫描电子显微镜等仪器的管理工作以及平台部分公共事务。

Engineer. Graduated from Inner Mongolia Agricultural University with a bachelor's degree and obtained a master's degree in materials science and engineering from China University of Geosciences (Wuhan) in June 2020. I joined SUSTech in 2024 and is mainly responsible for the management of X-ray photoelectron spectrometer, tungsten filament scanning electron microscope and other instruments of the public research platform of the School of Environmental Science and Engineering, as well as some public affairs of the platform.

# Education
# 教育






## 人才培养目标
## Educational Goal

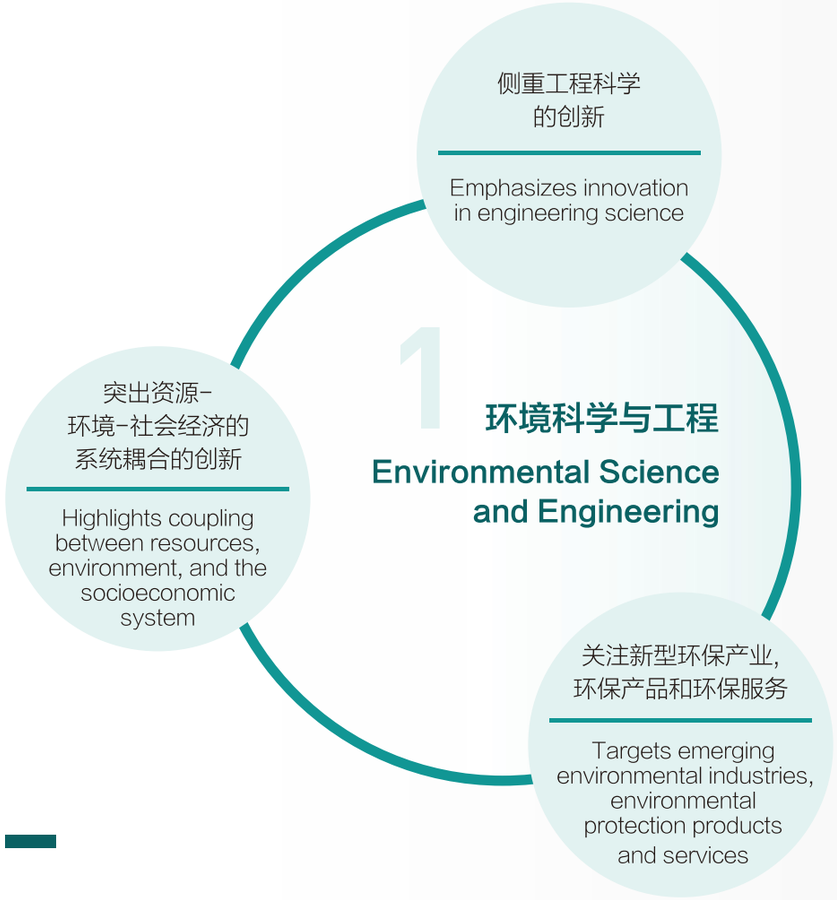
培养具有创新思维、国际化视野和多学科交叉背景的环境研究与管理人才

To cultivate environmental research and management talents with innovative spirit,global vision,and multidisciplinary academic training.

## 本科教学
## Undergraduate Programs

学院目前拥有教育部正式批准的两个本科专业：**“环境科学与工程专业”**和**“水文与水资源工程专业”**，其中环境科学与工程本科专业为广东省优势重点学科，并且入选广东省一流本科专业建设“双万”计划。本科专业教育注重坚实的专业知识基础，同时强调工程科学的创新。两个本科专业的教育各具特色：环境科学与工程专业突出资源-环境-社会经济的系统耦合，并关注新兴环保产业、环保产品和环保服务；水文与水资源专业教育强调地表水资源与地下水资源的一体化研究与管理，致力于介绍从分子到全球尺度的水科学。

The school currently has two undergraduate majors approved by the Ministry of Education: the Environmental Science and Engineering Major, which is an Advanced Key Discipline in Guangdong Province and was elected as the "Double Ten Thousand" plan for the first-class undergraduate major construction in Guangdong Province, and the Hydrology and Water Resources Engineering Major. Undergraduate education focuses on laying a solid foundation of professional knowledge while emphasizing innovation in engineering science. Both undergraduate majors have their specialties: the Environmental Science and Engineering Major specializes in resource-environment-socioeconomic system coupling and targets emerging environmental industries, environmental products and environmental services. The Hydrology and Water Resources Major emphasizes integrated research and management of surface water and groundwater resources and encompasses the sciences of water from molecular to global scale.




## 1 环境科学与工程
## Environmental Science and Engineering

## 2 水文与水资源工程
## Hydrology and Water Resources Engineering

从分子到全球尺度的水科学
Water sciences from the molecular scale to the global scale

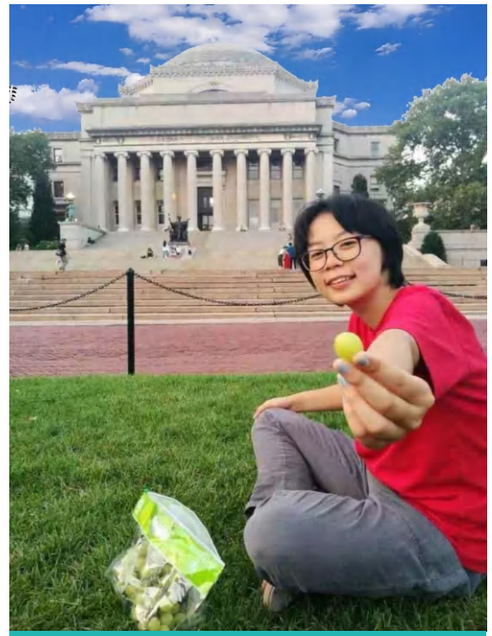
强调水资源的保护与合理利用，而非水利工程开发
Emphasizes the protection and smart utilization of water resources, instead of hydraulic engineering

强调地表水资源与地下水资源的一体化研究与管理
Emphasizes the integrated research and management of surface water and groundwater resources

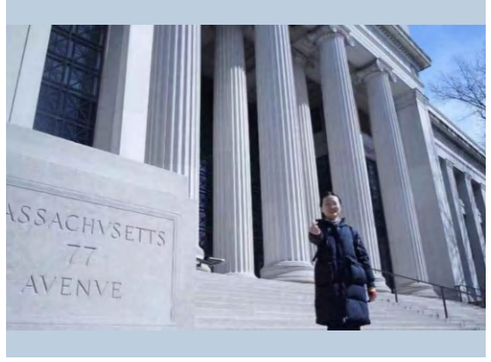


# 国际交流
# Global Engagement


本科生詹阳参加美国地球物理学会秋季会议(AGU)



本科生刘静宇在哥伦比亚大学参加暑研实习




本科生刘心悦在MIT进行学期交流

本科生赴美国开展
《暑期海外水与环境管理认知实践》课程

# 实践实习活动
# Internship and Pratical Learning

环境学院强调学生创新能力的培养。通过组织包括暑期实习、国际夏令营等形式多样、内容丰富的实践实习活动，使环境科学与工程以及水文与水资源工程两个专业的学生都能深入环保企业和野外现场，了解如何将理论知识应用到实际问题中。

Our school cultivates strong innovation capability in our students.A key effort is to organize a rich practicum experience for them.Students majoring in both Environmental Science and Engineering and Hydrology and Water Resources Engineering have opportunities to attend various summer camps to obtain first-hand experiences at environmental firms or field research sites.

本科生在深圳市环境监测中心开展认识实习

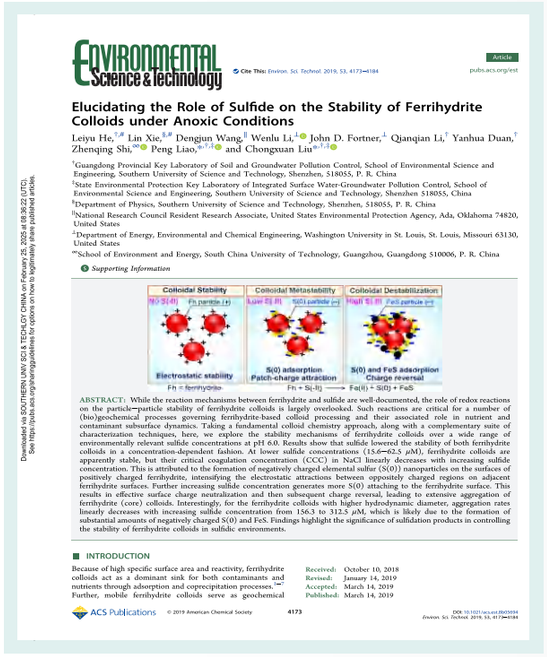



本科生惠州双月湾红树林湿地生态恢复区实践活动


学院本科生在秦皇岛参加地球科学实习


学院本科生在峨眉山进行水文与水资源实习

# 部分科研成果
# Achievements



Environmental Science & Technology

Cite This: Environ. Sci. Technol. 2019, 53, 4173−4184

Article

pubs.acs.org/est

**Elucidating the Role of Sulfide on the Stability of Ferrihydrite Colloids under Anoxic Conditions**


Leiyu He,[†,#] Lin Xie,[§,#] Dengjun Wang,[∥] Wenlu Li,[⊥] John D. Fortner,[⊥] Qianqian Li,[†] Yanhua Duan,[†] Zhenqing Shi,[*,○] Peng Liao,[*,†,‡] and Chongxuan Liu[*,†,‡]

[†]Guangdong Provincial Key Laboratory of Soil and Groundwater Pollution Control, School of Environmental Science and Engineering, Southern University of Science and Technology, Shenzhen, 518055, P. R. China

[‡]State Environmental Protection Key Laboratory of Integrated Surface Water-Groundwater Pollution Control, School of Environmental Science and Engineering, Southern University of Science and Technology, Shenzhen 518055, China

[§]Department of Physics, Southern University of Science and Technology, Shenzhen, 518055, P. R. China

[∥]National Research Council Resident Research Associate, United States Environmental Protection Agency, Ada, Oklahoma 74820, United States

[⊥]Department of Energy, Environmental and Chemical Engineering, Washington University in St. Louis, St. Louis, Missouri 63130, United States

[○]School of Environment and Energy, South China University of Technology, Guangzhou, Guangdong 510006, P. R. China


Supporting Information





ABSTRACT: While the reaction mechanisms between ferrihydrite and sulfide are well-documented, the role of redox reactions on the particle−particle stability of ferrihydrite colloids is largely overlooked. Such reactions are critical for a number of (bio)geochemical processes governing ferrihydrite-based colloid processing and their associated role in nutrient and contaminant subsurface dynamics. Taking a fundamental colloid chemistry approach, along with a complementary suite of characterization techniques, here, we explore the stability mechanisms of ferrihydrite colloids over a wide range of environmentally relevant sulfide concentrations at pH 6.0. Results show that sulfide lowered the stability of both ferrihydrite colloids in a concentration-dependent fashion. At lower sulfide concentrations (15.6−62.5 μM), ferrihydrite colloids are apparently stable, but their critical coagulation concentration (CCC) in NaCl linearly decreases with increasing sulfide concentration. This is attributed to the formation of negatively charged elemental sulfur (S(0)) nanoparticles on the surfaces of positively charged ferrihydrite, intensifying the electrostatic attractions between oppositely charged regions on adjacent ferrihydrite surfaces. Further increasing sulfide concentration generates more S(0) attaching to the ferrihydrite surface. This results in effective surface charge neutralization and then subsequent charge reversal, leading to extensive aggregation of ferrihydrite (core) colloids. Interestingly, for the ferrihydrite colloids with higher hydrodynamic diameter, aggregation rates linearly decreases with increasing sulfide concentration from 156.3 to 312.5 μM, which is likely due to the formation of substantial amounts of negatively charged S(0) and FeS. Findings highlight the significance of sulfidation products in controlling the stability of ferrihydrite colloids in sulfidic environments.


■ INTRODUCTION

Because of high specific surface area and reactivity, ferrihydrite colloids act as a dominant sink for both contaminants and nutrients through adsorption and coprecipitation processes.[1−4] Further, mobile ferrihydrite colloids serve as geochemical


Received: October 10, 2018
Revised: January 14, 2019
Accepted: March 14, 2019
Published: March 14, 2019







DOI: 10.1021/acs.est.8b05094
Environ. Sci. Technol. 2019, 53, 4173−4184




本科生贺磊宇在 ***ES&T*** 发表论文


IOP Publishing Environ. Res. Lett. 18 (2023) 044048 https://doi.org/10.1088/1748-9326/acc9d5

ENVIRONMENTAL RESEARCH
LETTERS


LETTER

**Global assessment of spatiotemporal changes of frequency of terrestrial wind speed**


Yanan Zhao, Shijing Liang, Yi Liu, Tim R McVicar, Cesar Azorin-Molina, Lihong Zhou, Robert J H Dunn, Sonia Jerez, Yingzuo Qin, Xinrong Yang, Jiayu Xu and Zhenzhong Zeng*

1 School of Environmental Science and Engineering, Southern University of Science and Technology, Shenzhen, People's Republic of China
2 CSIRO Environment, Black Mountain, Canberra, ACT, Australia
3 Centro de Investigaciones sobre Desertificación, Consejo Superior de Investigaciones Científicas (CIDE, CSIC-UV-Generalitat Valenciana), Climate, Atmosphere and Ocean Laboratory (Limatoc-Lab), Moncada, Valencia, Spain
4 Met Office Hadley Centre, Exeter, United Kingdom
5 Department of Physics, University of Murcia, Murcia, Spain
* Author to whom any correspondence should be addressed.

E-mail: zengzz@sustech.edu.cn



Keywords: wind speed, frequency changes, wind energy, power curve, strong winds

Supplementary material for this article is available online

OPEN ACCESS

RECEIVED 18 January 2023
REVISED 15 March 2023
ACCEPTED FOR PUBLICATION 3 April 2023
PUBLISHED 17 April 2023





**Abstract**

Wind energy, an important component of clean energy, is highly dictated by the disposable wind speed within the working regime of wind turbines (typically between 3 and 25 m $s^{-1}$ at the hub height). Following a continuous reduction ('stilling') of global annual mean surface wind speed (SWS) since the 1960s, recently, researchers have reported a 'reversal' since 2011. However, little attention has been paid to the evolution of the effective wind speed for wind turbines. Since wind speed at hub height increases with SWS through power law, we focus on the wind speed frequency variations at various ranges of SWS through hourly *in-situ* observations and quantify their contributions to the average SWS changes over 1981–2021. We found that during the stilling period (here 1981–2010), the strong SWS ($\geq$ 5.0 m $s^{-1}$, the 80th of global SWS) with decreasing frequency contributed 220.37% to the continuous weakening of mean SWS. During the reversal period of SWS (here 2011–2021), slight wind (0 m $s^{-1}$ < SWS < 2.9 m $s^{-1}$) contributed 64.07% to a strengthening of SWS. The strengthened strong wind ($\geq$ 5.0 m $s^{-1}$) contributed 73.38% to the trend change of SWS from decrease to increase in 2010. Based on the synthetic capacity factor series calculated by considering commercial wind turbines (General Electric GE 2.5-120 model with rated power 2.5 MW) at the locations of the meteorological stations, the frequency changes resulted in a reduction of wind power energy (−10.02 TWh $yr^{-1}$, $p < 0.001$) from 1981 to 2010 and relatively weak recovery (2.67 TWh $yr^{-1}$, $p < 0.05$) during 2011–2021.


**1. Introduction**

Wind energy is a key component of the energy market and a potential way for climate mitigation (IEA 2020). In 2021, the global wind industry reached 94 GW power capacity addition, mainly driven by China, Europe and the United States (Global Wind Energy Council 2022). Yet, the current installation rates suggest that it will still be challenging to meet the 1.5 °C mitigation goal (Global Wind Energy Council 2022). To promote wind energy expansion, understanding the efficiency of wind power generation is necessary. Wind power generation is particularly sensitive to changes in wind speed as wind power is proportional to the cubic of wind speed (McElroy *et al* 2009, Sohoni *et al* 2016, Eurek *et al* 2017, Pryor *et al* 2020). Global annual mean near-surface wind speed (SWS) continuously declined over the past five decades before 2010, known as the period of 'stilling' (Roderick *et al* 2007, Vautard *et al* 2010, McVicar *et al* 2012), with a decrease rate of −0.08 m $s^{-1}$ $decade^{-1}$ during 1978–2010 (Zeng *et al* 2019). But during the past ten years (i.e. 2011 to ~2021), such stilling phenomenon has been replaced by a 'reversal', with an increasing



本科生赵雅楠在 ***Environmental Research Letters*** 发表论文



# 研究生培养
# Graduate Programs

2018年5月，南方科技大学正式成为博士学位授予单位和硕士学位授予单位，并从2019年开始独立招收博士研究生和硕士研究生（学硕、专硕）。2020年11月，环境学院新增“资源与环境”硕士专业学位授权点。2024年10月，环境学院新增“环境科学与工程”博士学位授权点（含硕士学位授权点）。学院截至目前已有243名硕、博毕业生，在读研究生超过327人，研究生共发表各类论文858篇，硕、博毕业生升学就业率近100%。20%硕士毕业生升学至南方科技大学、哈尔滨工业大学、大连理工大学、西湖大学、中国科学院大学、香港大学、墨尔本大学、香港科技大学等高校，其余大多数就业于生态环境部华南环境科学研究所、广东省建筑设计研究院、深圳市水务规划设计院股份有限公司、中国市政工程中南设计研究总院有限公司、华为、比亚迪等单位。

In May 2018, SUSTech formally became an institution authorized to confer doctoral and master's degrees, and began independently enrolling doctoral and master's students from 2019 onward. In November 2020, the school of Environment added a master's degree program in "Resources and Environment". As of October 2024, the School of Environment has been authorized for the "Environmental Science and Engineering" doctoral degree program. Now, the School has more than 327 graduate students, and 243 master's or doctoral graduates. Our graduates have published 858 papers. The employment rate of master's or doctoral graduates is almost 100%.


环境学院2024届博士毕业生戴艳会作为优秀毕业生代表在南方科技大学研究生毕业典礼上发言
荣登《人民日报》发布的《2022—2023学年度研究生国家奖学金获奖学生代表名录》




硕士生罗秋琪、邹一光和博士生冯雪真荣获2022年国家奖学金


Water Resources Research

RESEARCH ARTICLE

10.1029/2021WR030828

**Investigating the Propagation From Meteorological to Hydrological Drought by Introducing the Nonlinear Dependence With Directed Information Transfer Index**

Zhaoqiang Zhou[1,2], Haiyun Shi[1,2], Qiang Fu[3], Yibo Ding[4], Tianxiao Li[5], and Suning Liu[1,2]

Key Points:
- Directed information transfer index was introduced to drought propagation study to build a new drought response time evaluation system for the first time
- Trigger thresholds from meteorological to hydrological drought were determined by a drought propagation model
- Sub-regions with smaller meteorological drought trigger thresholds had longer durations of hydrological drought events

Supporting Information:
Supporting Information may be found in the online version of this article.

Correspondence to:
H. Shi,
shihaiyun@nuist.edu.cn

Citation:
Zhou, Z., Shi, H., Fu, Q., Ding, Y., Li, T., & Liu, S. (2021). Investigating the propagation from meteorological to hydrological drought by introducing the nonlinear dependence with directed information transfer index. *Water Resources Research*, *57*, e2021WR030828. https://doi.org/10.1029/2021WR030828

Received 30 MAR 2021
Accepted 16 JUL 2021

Author Contributions:
**Formal analysis:** Zhaoqiang Zhou, Tianxiao Li
**Methodology:** Zhaoqiang Zhou, Yibo Ding
**Supervision:** Haiyun Shi
**Validation:** Zhaoqiang Zhou, Qiang Fu
**Writing – original draft:** Zhaoqiang Zhou
**Writing – review & editing:** Haiyun Shi, Suning Liu



**Abstract** Meteorological drought is the fuse of hydrological drought, and understanding the propagation mechanisms from meteorological to hydrological drought is of great significance to the monitoring and prevention of hydrological drought. Besides the linear dependence, this study thoroughly investigated the propagation from meteorological to hydrological drought by introducing the nonlinear dependence with directed information transfer index (DITI) for the first time. In this study, the standardized precipitation index and the standardized runoff index were used to represent meteorological drought and hydrological drought, respectively. A new drought response time (DRT) evaluation system was constructed based on the maximum Pearson correlation coefficient and DITI, simultaneously considering the linear and nonlinear relationships between meteorological drought and hydrological drought. Moreover, the relationships of drought characteristics (duration and severity) between these two types of drought were established by using run theory and mathematical function, and the trigger thresholds from meteorological to hydrological drought were then determined. The results indicate that: (a) the effective drought propagation rate was mainly affected by the characteristics of meteorological drought events and the sensitivity of hydrological drought to meteorological drought; (b) the DRT in the Pearl River Basin (PRB) was mainly concentrated in 2–3 months, and the drought translation rate in the PRB was relatively large; and (c) the duration of hydrological drought events was longer in the sub-regions with smaller meteorological drought trigger thresholds.

## 1. Introduction

Global extreme weather events have become more frequent due to climate change and human activities (Deb et al., 2019a, 2019b; Shi et al., 2020; Yao et al., 2018; Zhou et al., 2020a). Drought is a common disaster in the globe; meanwhile, droughts usually have long durations and wide influences, leading to serious impacts on economic, agricultural, and ecological aspects (Fu et al., 2018; Shi, Chen, et al., 2018; Zhou et al., 2020b). For example, water shortage crisis caused by drought events not only directly threatens the safety of human life, but also seriously damages the ecological stability; moreover, drought can affect the growth and development of crops and reduce grain production (Wang et al., 2019). Therefore, it is necessary to study drought occurrence and its evolution for better drought early warning and relief.

In general, based on different types of water deficit, drought can be divided into meteorological drought, hydrological drought, agricultural drought, and socioeconomic drought (American Meteorological Society, 2013). Previous studies have shown that there are strong relationships among different types of drought. Generally, meteorological drought caused by long-term precipitation shortage is the fuse of other types of drought. The long-term shortage of precipitation may lead to the decrease of river flow and groundwater level, resulting in hydrological drought (Han et al., 2019; Xu et al., 2015). It may also lead to the decrease of soil water content and induce agricultural drought (Zhou, Li, et al., 2021). In addition, water shortage occurring in unusual urban areas may lead to socioeconomic drought (Liu et al., 2020). Therefore, many researchers have focused on the propagation characteristics from meteorological drought to other types of drought (especially for hydrological drought) through evaluating the key indicators such as drought



博士生周照强在 ***Water Resources Research*** 发表文章


AnAlysis

https://doi.org/10.1038/s41893-021-00738-y

nature sustainability

Check for updates

## Upward expansion and acceleration of forest clearance in the mountains of Southeast Asia

Yu Feng[1,2], Alan D. Ziegler[3], Paul R. Elsen[3,4], Yang Liu[1], Xinyue He[1,5], Dominick V. Spracklen[3], Joseph Holden[2,6], Xin Jiang[1], Chunmiao Zheng[1,7] and Zhenzhong Zeng[1] ✉

**Southeast Asia contains about half of all tropical mountain forests, which are rich in biodiversity and carbon stocks, yet there is debate as to whether regional mountain forest cover has increased or decreased in recent decades. Here, our analysis of high-resolution satellite datasets reveals increasing mountain forest loss across Southeast Asia. Total mean annual forest loss was 3.22 Mha yr$^{-1}$ during 2001–2019, with 31% occurring on the mountains. In the 2010s, the frontier of forest loss moved to higher elevations (15.5–3.0 m yr$^{-1}$ during 2001–2019) ($P < 0.01$) and steeper slopes (0.22–0.09° yr$^{-1}$ during 2009–2019, $P < 0.01$) that have high forest carbon density relative to the lowlands. These shifts led to unprecedented annual forest carbon loss of 424 Tg C yr$^{-1}$, accelerating at a rate of 10 ± 4 Tg C yr$^{-1}$ ($P < 0.01$) from 2001 to 2019. Our results underscore the immediate threat of carbon stock losses associated with accelerating forest clearance in Southeast Asian mountains, which jeopardizes international climate agreements and biodiversity conservation.**

Tropical forests are the largest terrestrial component of the global carbon cycle[1], storing 247 Pg C in above- and below-ground biomass[2]. However, recent anthropogenic-influenced forest loss has reshaped tropical forests profoundly[3], weakening their ability to store carbon and regulate climate[4]. Currently, across the tropics, the amount of carbon sequestered by intact forests and forest regrowth is approximately similar to that released from forest loss, suggesting that tropical forests probably act as a neutral contributor to the global carbon cycle[5]. Forest loss in the tropics, which dominates the total loss worldwide in the twenty-first century[6–8], has been driven largely by agricultural intensification and/or extensification to support demands for human/animal food trade, profit-driven (illegal) logging and other activities that are inherently linked to population growth[9–11]. Of concern is that acceleration of forest clearance in the future will intensify carbon stock loss, potentially transforming tropical forests into important net carbon sources[12–14] as well as disrupting biodiversity patterns, human livelihoods, hydro-geomorphological processes and ecosystem functions.

The general notion is that tropical deforestation worldwide occurs primarily in lowland areas. This sentiment aligns with previous work showing substantial forest losses at low elevations but only negligible losses, and even some forest gains, in the mountains[15–17]. However, in Southeast Asia (SEA), where approximately half of the world's tropical mountain forests are located[18,19] and extensive forest losses in the lowlands of Indonesia have occurred[20], recent studies have reported new croplands and plantations replacing mountain forests in Laos and Thailand of montane mainland SEA[21–23]. Yet the applicability of these results[21–23] as an indicator of a regional trend is debatable, as some global analyses[15–17] indicate an increase in forest cover in this region. Non-spatiotemporal analyses conducted at high resolution and with common vegetation definitions are needed to address these inconsistencies related to topography of forest loss in the mountains and lowlands of SEA.

In this article, we analyse multiple high-resolution satellite datasets to provide a comprehensive assessment of changes in topographical patterns of forest clearance and related carbon loss across SEA during the first two decades of the twenty-first century. The analyses incorporate the global mountain extent map[24] with two 30-m resolution products reporting the global forest-cover change[6] and aboveground live woody biomass (AGB) density[2] (Methods). Owing to limitations of distinguishing tree types in the satellite products used[2], unless specifically stated, fibrous losses incorporate those from primary forest, secondary forest disturbance and tree-dominated plantations, including oil palm and rubber. As the mountains of SEA hold more forest biomass carbon than lowlands[2] (Supplementary Fig. 1), a better understanding of forest and related biomass carbon dynamics is crucial for reducing uncertainties in the global carbon cycle, as well as guiding land management in the region.

### Results

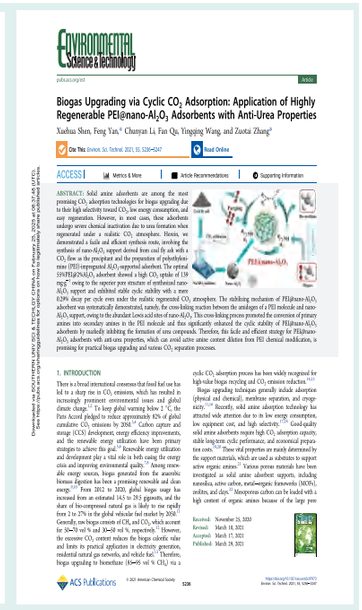
This section presents our findings of forest loss in SEA, including the patterns of forest loss and related topography and carbon loss.

**Accelerating forest loss and related topography** We find a total forest loss of 61 Mha in SEA during the period 2001–2019, which is equivalent to a rate of 3.22 Mha yr$^{-1}$ (Table 1, Fig. 1a and Supplementary Fig. 2c). Annual forest loss of the 2010s (4.02 Mha yr$^{-1}$) was nearly twice that of the 2000s (2.33 Mha yr$^{-1}$), with the greatest loss occurring in 2016 (5.79 Mha yr$^{-1}$). Approximately 31% of the loss during the 19-year period (19 Mha, 1.00 Mha yr$^{-1}$) occurred within the 61 mountains that occupy 1.7 million km$^2$ of the region (38% of SEA's land surface; Supplementary Fig. 2a,c). We also find a significant increase in annual forest-loss area across SEA since 2001, with an acceleration rate of 0.17 ± 0.03 Mha yr$^{-2}$ ($P < 0.01$). The annual rate of mountain forest loss increased 2.4-fold from 0.58 Mha yr$^{-1}$ in the first decade to 1.38 Mha yr$^{-1}$ in the second decade (Fig. 1a).

State Environmental Protection Key Laboratory of Integrated Surface Water-Groundwater Pollution Control, School of Environmental Science and Engineering, Southern University of Science and Technology, Shenzhen, China. [2]Department of Civil Engineering, The University of Hong Kong, Hong Kong, China. [3]Faculty of Fisheries Technology and Aquatic Resources, Mae Jo University, Chiang Mai, Thailand. [4]Wildlife Conservation Society, Global Conservation Program, Bronx, NY, USA. [5]School of Earth and Environment, University of Leeds, Leeds, UK. [6]School of Geography, University of Leeds, Leeds, UK. ✉e-mail: hongjs@sustech.edu.cn



博士生王冯雪华在 ***Environmental Science & Technology*** 发表文章


Environmental Science & Technology

pubs.acs.org/est

Article

## Biogas Upgrading via Cyclic $CO_2$ Adsorption: Application of Highly Regenerable PEI@nano-$Al_2O_3$ Adsorbents with Anti-Urea Properties

Xiaohua Shan, Feng Yan,* Chunyan Li, Fan Qu, Yingqing Wang, and Zaoxia Zhang*

Cite This: Environ. Sci. Technol. 2021, 55, 5280−5287

Read Online

ACCESS | Metrics & More | Article Recommendations | Supporting Information

ABSTRACT: Solid amine adsorbents are among the most promising $CO_2$ adsorption technologies for biogas upgrading due to their high selectivity toward $CO_2$, low energy consumption, and easy regeneration. However, in most cases, these adsorbents undergo severe chemical inactivation due to urea formation when regenerated under a realistic $CO_2$ atmosphere. Herein, we demonstrated a facile and efficient synthesis route, involving the synthesis of nano-$Al_2O_3$ support derived from coal fly ash with a $CO_2$ flow as the precipitant and the preparation of polyethylenimine (PEI)-impregnated $Al_2O_3$ supported adsorbent. The optimal 50wt%PEI@NA$l_2O_3$ adsorbent showed a high $CO_2$ uptake of 138 mg·g$^{-1}$ owing to the superior pore structure of synthesized nano-$Al_2O_3$ support and exhibited stable cyclic stability with a mere 0.29% decay per cycle even under the realistic regenerated $CO_2$ atmosphere. The stabilizing mechanism of PEI@nano-$Al_2O_3$ adsorbent was systematically demonstrated, namely, the cross-linking reaction between the amidogen of a PEI molecule and nano-$Al_2O_3$ support, owing to the abundant Lewis acid sites of nano-$Al_2O_3$. This cross-linking process promoted the conversion of primary amines into secondary amines in the PEI molecule and thus significantly enhanced the cyclic stability of PEI@nano-$Al_2O_3$ adsorbents by markedly inhibiting the formation of urea compounds. Therefore, this facile and efficient strategy for PEI@nano-$Al_2O_3$ adsorbents with anti-urea properties, which can avoid active amine content dilution from PEI chemical modification, is promising for practical biogas upgrading and various $CO_2$ separation processes.

### 1. INTRODUCTION

There is a broad international consensus that fossil fuel use has led to a sharp rise in $CO_2$ emissions, which has resulted in increasingly prominent environmental issues and global climate change.[1,2] To keep global warming below 2 °C, the Paris Accord pledged to reduce approximately 82% of global cumulative $CO_2$ emissions by 2050.[3,4] Carbon capture and storage (CCS) development, energy efficiency improvements, and the renewable energy utilization have been primary strategies to achieve this goal.[5,6] Renewable energy utilization and development play a vital role in both easing the energy crisis and improving environmental quality.[7,8] Among renewable energy sources, biogas generated from the anaerobic biomass digestion has been a promising renewable and clean energy.[9,10] From 2012 to 2020, global biogas usage has increased from an estimated 143 to 285 gigawatts, and the share of bio-compressed natural gas is likely to rise rapidly from 2 to 27% in the global vehicular fuel market by 2026.[11] Generally, raw biogas consists of $CH_4$ and $CO_2$, which account for 55−70 vol % and 30−45 vol %, respectively.[12] However, the excessive $CO_2$ content reduces the biogas calorific value and limits its practical application in electricity generation, residential natural gas networks, and vehicle fuel.[13] Therefore, biogas upgrading to biomethane (85−95 vol % $CH_4$) via cyclic $CO_2$ adsorption process has been widely recognized for high-value biogas recycling and $CO_2$ emission reduction.[14,15]

Biogas upgrading techniques generally include adsorption (physical and chemical), membrane separation, and cryogenicity.[16,17] Recently, solid amine adsorption technology has attracted wide attention due to its low energy consumption, low equipment cost, and high selectivity.[18−20] Good-quality solid amine adsorbents require high $CO_2$ adsorption capacity, stable long-term cyclic performance, and economical preparation costs.[21,22] These vital properties are mainly determined by the support materials, which are used as substrates to support active organic amines.[23] Various porous materials have been investigated as solid amine adsorbent supports, including nanosilica, active carbon, metal-organic frameworks (MOFs), zeolites, and clays.[22] Mesoporous carbon can be loaded with a high content of organic amines because of the large pore

Received: November 25, 2020
Revised: March 10, 2021
Accepted: March 17, 2021
Published: March 29, 2021





博士生戴艳会在***Nature***发表封面论文


Article

## Coastal phytoplankton blooms expand and intensify in the 21st century

Yanhui Dai[1,2], Shangbo Yang[1,2], Dan Zhao[1], Chuanmin Hu[3], Wang Xu[3], Donald M. Anderson[4], Yun Li[5], Xiao-Peng Song[6], Daniel G. Boyce[7], Luke Gibson[7], Chunmiao Zheng[1,8] & Lian Feng[1,2] ✉

https://doi.org/10.1038/s41586-023-05760-y
Received: 17 May 2022
Accepted: 25 January 2023
Published online: 1 March 2023
Open access
Check for updates

Phytoplankton blooms in coastal oceans can be beneficial to coastal fisheries production and ecosystem function, but can also cause major environmental problems[1,2]—yet detailed characterizations of bloom incidence and distribution are not available worldwide. Here we map daily marine coastal algal blooms between 2003 and 2020 using global satellite observations at 1-km spatial resolution. We found that algal blooms occurred in 126 out of the 153 coastal countries examined. Globally, the spatial extent (+13.2%) and frequency (+59.2%) of blooms increased significantly ($P < 0.05$) over the study period, whereas blooms weakened in tropical and subtropical areas of the Northern Hemisphere. We documented the relationship between the bloom trends and ocean circulation, and identified the stimulatory effects of recent increases in sea surface temperature. Our compilation of daily mapped coastal phytoplankton blooms provides the basis for global assessments of bloom risks and benefits, and for the formulation or evaluation of management or policy actions.

Phytoplankton blooms are accumulations of microscopic algae in the surface layer of fresh and marine water bodies. Although many blooms can occur naturally, nutrients linked to anthropogenic eutrophication are expected to intensify their frequency globally[3–5]. Many algal blooms are beneficial, fixing carbon at the base of the food chain and supporting fisheries and ecosystems worldwide. However, proliferations of algae that cause harm (termed harmful algal blooms (HABs)) have become a major environmental problem worldwide[3,6]. For instance, the toxins produced by some algal species can accumulate in the food web, causing closures of fisheries as well as illness or mortality of marine species and humans[7,8]. In other cases, the decay of a dense algal bloom can deplete oxygen in bottom waters, forming anoxic 'dead zones' that can cause fish and invertebrate die-offs and ecosystem restructuring, with serious consequences for the well-being of coastal communities[9,10]. Unfortunately, algal bloom frequency and distribution are projected to increase with future climate change[11], with some changes causing adverse effects on aquatic ecosystems, fisheries and coastal resources.

Owing to substantial heterogeneity in space and time, algal blooms are challenging to characterize on a large scale[3,10], and thus present knowledge does not allow us to answer one of the most fundamental questions: whether algal blooms have changed in recent decades on a global basis[9,12,13]. For example, although HAB events have been compiled into the UNESCO (United Nations Educational, Scientific, and Cultural Organization) Intergovernmental Oceanographic Commission Harmful Algae Event Database (HAEDAT) globally since 1985, bloom trends are difficult to resolve, owing to inconsistent sampling efforts and the diversity of the eco-environmental or socio-economic effects[6]. Alternatively, satellite data have been used to monitor the ocean surface continuously since 1997 and have enabled bloom detection in many coastal regions[14–16]. However, the technical difficulties in dealing with complex optical features across different types of coastal waters have so far prohibited their application globally[10]. To fill this knowledge gap, we developed a method to map global coastal algal blooms and used this tool to examine satellite images between 2003 and 2020, addressing three fundamental questions: (1) where and how frequently global coastal oceans have been affected by phytoplankton blooms; (2) whether the blooms have expanded or intensified over the past two decades, both globally and regionally; and (3) the identity of the potential drivers.

### Mapping global coastal phytoplankton blooms

We generated a satellite-based dataset of phytoplankton bloom occurrence to characterize the spatial and temporal patterns of algal blooms in coastal oceans globally. The dataset was derived using global, 1-km resolution daily observations from the Moderate Resolution Imaging Spectroradiometer (MODIS) onboard NASA's Aqua satellite, and all 0.76 million images acquired by this satellite mission between 2003 and 2020 were used. We developed an automated method to detect phytoplankton blooms using MODIS images (Extended Data Fig. 1) (Methods). In this study, we define a phytoplankton bloom as the accumulation of microscopic algae at the ocean surface that exhibits satellite-detectable fluorescence signals[17]. However, whether a bloom produces toxins or is harmful to humans or the marine environment is not distinguishable from satellite data. We delineated bloom-affected areas (that is, the areas where algal blooms were detected), and enumerated the bloom count

[1]School of Environmental Science and Engineering, Southern University of Science and Technology, Shenzhen, China. [2]College of Marine Science, University of South Florida, St. Petersburg, FL, USA. [3]Shenzhen Ecological and Environmental Monitoring Center of Guangdong Province, Shenzhen, China. [4]Woods Hole Oceanographic Institution, Woods Hole, MA, USA. [5]School of Marine Science and Policy, College of Earth, Ocean, and Environment, University of Delaware, Lewes, DE, USA. [6]Department of Geographical Sciences, University of Maryland, College Park, MD, USA. [7]Bedford Institute of Oceanography, Fisheries and Oceans Canada, Dartmouth, Nova Scotia, Canada. [8]Eco Institute for Advanced Study, Ningbo, China. These authors contributed equally: Yanhui Dai, Shangbo Yang. ✉e-mail: flen@sustech.edu.cn



博士生沈雪华在 ***Environmental Science & Technology*** 发表文章


pubs.acs.org/est

Biogas Upgrading via Cyclic $CO_2$ Adsorption: Application of Highly Regenerable PEI@nano-$Al_2O_3$ Adsorbents with Anti-Urea Properties

Xiaohua Shan, Feng Yan,* Chunyan Li, Fan Qu, Yingqing Wang, and Zaoxia Zhang*

Cite This: Environ. Sci. Technol. 2021, 55, 5280−5287

Read Online

ACCESS | Metrics & More | Article Recommendations | Supporting Information

ABSTRACT: Solid amine adsorbents are among the most promising $CO_2$ adsorption technologies for biogas upgrading due to their high selectivity toward $CO_2$, low energy consumption, and easy regeneration. However, in most cases, these adsorbents undergo severe chemical inactivation due to urea formation when regenerated under a realistic $CO_2$ atmosphere. Herein, we demonstrated a facile and efficient synthesis route, involving the synthesis of nano-$Al_2O_3$ support derived from coal fly ash with a $CO_2$ flow as the precipitant and the preparation of polyethylenimine (PEI)-impregnated $Al_2O_3$ supported adsorbent. The optimal 50wt%PEI@NA$l_2O_3$ adsorbent showed a high $CO_2$ uptake of 138 mg·g$^{-1}$ owing to the superior pore structure of synthesized nano-$Al_2O_3$ support and exhibited stable cyclic stability with a mere 0.29% decay per cycle even under the realistic regenerated $CO_2$ atmosphere. The stabilizing mechanism of PEI@nano-$Al_2O_3$ adsorbent was systematically demonstrated, namely, the cross-linking reaction between the amidogen of a PEI molecule and nano-$Al_2O_3$ support, owing to the abundant Lewis acid sites of nano-$Al_2O_3$. This cross-linking process promoted the conversion of primary amines into secondary amines in the PEI molecule and thus significantly enhanced the cyclic stability of PEI@nano-$Al_2O_3$ adsorbents by markedly inhibiting the formation of urea compounds. Therefore, this facile and efficient strategy for PEI@nano-$Al_2O_3$ adsorbents with anti-urea properties, which can avoid active amine content dilution from PEI chemical modification, is promising for practical biogas upgrading and various $CO_2$ separation processes.

### 1. INTRODUCTION

There is a broad international consensus that fossil fuel use has led to a sharp rise in $CO_2$ emissions, which has resulted in increasingly prominent environmental issues and global climate change.[1,2] To keep global warming below 2 °C, the Paris Accord pledged to reduce approximately 82% of global cumulative $CO_2$ emissions by 2050.[3,4] Carbon capture and storage (CCS) development, energy efficiency improvements, and the renewable energy utilization have been primary strategies to achieve this goal.[5,6] Renewable energy utilization and development play a vital role in both easing the energy crisis and improving environmental quality.[7,8] Among renewable energy sources, biogas generated from the anaerobic biomass digestion has been a promising renewable and clean energy.[9,10] From 2012 to 2020, global biogas usage has increased from an estimated 143 to 285 gigawatts, and the share of bio-compressed natural gas is likely to rise rapidly from 2 to 27% in the global vehicular fuel market by 2026.[11] Generally, raw biogas consists of $CH_4$ and $CO_2$, which account for 55−70 vol % and 30−45 vol %, respectively.[12] However, the excessive $CO_2$ content reduces the biogas calorific value and limits its practical application in electricity generation, residential natural gas networks, and vehicle fuel.[13] Therefore, biogas upgrading to biomethane (85−95 vol % $CH_4$) via cyclic $CO_2$ adsorption process has been widely recognized for high-value biogas recycling and $CO_2$ emission reduction.[14,15]

Biogas upgrading techniques generally include adsorption (physical and chemical), membrane separation, and cryogenicity.[16,17] Recently, solid amine adsorption technology has attracted wide attention due to its low energy consumption, low equipment cost, and high selectivity.[18−20] Good-quality solid amine adsorbents require high $CO_2$ adsorption capacity, stable long-term cyclic performance, and economical preparation costs.[21,22] These vital properties are mainly determined by the support materials, which are used as substrates to support active organic amines.[23] Various porous materials have been investigated as solid amine adsorbent supports, including nanosilica, active carbon, metal-organic frameworks (MOFs), zeolites, and clays.[22] Mesoporous carbon can be loaded with a high content of organic amines because of the large pore

Received: November 25, 2020
Revised: March 10, 2021
Accepted: March 17, 2021
Published: March 29, 2021





博士生生泓在***Science***发表论文


RESEARCH

RIVER FLOW

## Anthropogenic climate change has influenced global river flow seasonality

Hong Wang[1,2], Junguo Liu[1,3,4,*], Megan Klaar[2], Aifang Chen[5], Lukas Gudmundsson[6], Joseph Holden[2]

Riverine ecosystems have adapted to natural discharge variations across seasons. However, evidence suggesting that climate change has already impacted magnitudes of river flow seasonality is limited to local studies, mainly focusing on changes of mean or extreme flows. This study introduces the use of apportionment entropy as a robust measure to assess flow-volume nonuniformity across seasons, enabling a global analysis. We found that ~21% of long-term river gauging stations exhibit significant alterations in seasonal flow distributions, but two-thirds of these are unrelated to trends in annual mean discharge. By combining a data-driven runoff reconstruction with state-of-the-art hydrological simulations, we identified a discernible weakening of river flow seasonality in northern high latitudes (above 50°N), a phenomenon directly linked to anthropogenic climate forcing.

Anthropogenic climate warming, which could drive changes in the hydrological cycle, has received increasing attention (*1*). Water availability, a key concern, is directly related to ecosystem functions and societal interactions (*2*, *3*). However, human activities are altering river flow patterns worldwide, both directly through flow regulations and indirectly through land-use change and the impacts of anthropogenic climate change (ACC) on air temperature, precipitation, soil moisture, and snowmelt regimes (*4*–*6*). Consequently, more than two-thirds of the world's rivers have been altered even without considering the indirect impacts from ACC, which is characterized by human-induced alterations in greenhouse gases and aerosols (*7*).

River flow seasonality (RFS) plays a critical role in floods and droughts, threatening water security and freshwater biodiversity (*4*, *8*). For example, a substantial portion of the early meltwater from snowpack depletion may ultimately flow into oceans without being available for human use (*9*). In addition, weakening RFS (e.g., flood frequency reduction) can greatly simplify community-wide riparian plant networks (*10*, *11*). Riparian vegetation subsequently influences freshwater biota to make seasonal use of riparian areas and floodplains for feeding or breeding purposes (*12*).

Recent studies have shown a tendency for changes in RFS from timing or magnitude perspectives (*5*, *6*, *13*). However, these studies either lack global representativeness or fail to consider the impact of ACC explicitly. Nonetheless, there is growing evidence that ACC has influences on seasonal river flow, as indicated by climate and hydrological model simulations (*14*, *15*). Moreover, human-induced seasonal changes were detected in the western United States (*16*). However, the question of whether ACC is detectable in the magnitude of RFS at global scales remains unanswered, and it is challenging to transfer the evidence across regions, as river flow may vary locally because of atmospheric, oceanic, and terrestrial modulation (*17*).

In this study, we used in situ observations of monthly average river flow (*18*) from 10,320 gauging stations with either a minimum data length of 35 years or uncertainty-controlled shorter records from 1965 to 2014. In addition, we used recently published datasets of observation-based global gridded runoff (GRUN) reconstructed from data-driven models calibrated with observations to achieve global-scale coverage (*19*). Multimodel results from the Inter-Sectoral Impact Model Intercomparison Project phase 2b (ISIMIP2b) are presented for detecting and attributing observed changes to human influences on the climate system (*20*). To inform our global analysis of seasonal flow regimes, a generalized seasonality index was developed by using apportionment entropy (AE) (*21*). AE, nonparametrically quantifies how evenly flow rates are distributed across months; high AE indicates a uniform distribution (low RFS), and low AE points to large month-to-month differences (high RFS). AE can be used to characterize changes in a hydroclimatological context because it is statistically well suited to the characteristics of highly variable flow regimes (*21*, *22*).

### Changes in the trend of river flow seasonality

The northern high latitudes (above 50°N) showed discernible weakening in the seasonal cycle of river flow [increasing AE (fig. S1)] (Fig. 1). In northern North America (N. NA), ~40% of stations showed significantly decreasing RFS ($P < 0.05$). In comparison, only ~2% showed significantly increasing trends of RFS. Similar results were also observed in south Siberia (S. SI), with ~32% of stations showing significantly decreasing seasonality and only ~1% of stations showing significantly increasing seasonality. We further found a comparable pattern in Europe (EU), with ~19% of the stations experiencing significantly decreasing RFS, mainly located in northern Europe (N. EU), western Russia (W. RU), and the European Alps, whereas ~4% showed significantly increasing RFS, mainly concentrated downstream of the Alps (Fig. 1C). In addition, regions in the contiguous United States (CONUS) present predominantly decreasing trends of RFS overall, except for rivers in the Rocky Mountains and Florida in the western and eastern CONUS, respectively. In central North America (C. NA), significantly decreasing RFS trends account for ~18% of stations, in contrast with 4% that show significantly increasing RFS trends (Fig. 1D). W. RU, upper Midwest (U. Midwest), and S. SI display greater changes in magnitude for RFS trends. Although more than half of the stations in the northern high latitudes showed no statistically significant ($P > 0.05$) trends, both the significant and nonsignificant trends tell the same story, that is, RFS decreased in the northern high latitudes. Contrary to the above results, increasing RFS was observed in ~25% of the stations in southeast Brazil (S. BR) versus ~4% with decreasing RFS. Global patterns in seasonality trends during the more recent period of 1970 to 2019 generally agree with the trends computed for the 1965 to 2014 time frame (fig. S2). However, it should be noted that some spatial resolution was lost when we used the 1970 to 2019 time window, for example, in W. RU, because data are not available for a sufficient length of time.

### Monthly high- and low-flow changes mediate seasonality

For better interpretation of seasonal variations, AE trends were combined with annual mean river-flow trends (fig. S3A) to divide stations into six types (Fig. 2). For each station, we define low-flow months as the three calendar months with the lowest long-term monthly mean river flow, whereas high-flow months are the three calendar months with greatest monthly mean flow. Therefore, trends in low- and high-flow months ($T_{1/3}$) contribute to annual mean and seasonal variations of river flow. We found seasonal variations in the northern high latitudes to be dominated by increasing low flows and decreasing high flows (L+H−; increasing trends of low flows and decreasing trends of high flows), accounting for ~46% of sites, and increasing low flows (L+H+; increasing trends of low flows and nonprominent changes in high flows) solely accounting for ~14%. These two patterns result in a significant decrease in RFS with no significant annual mean trends (L+H−) or significantly

[1]School of Environmental Science and Engineering, Southern University of Science and Technology, Shenzhen 518055, China. [2]WaterNexus, School of Geography, University of Leeds, Leeds LS2 9JT, UK. [3]North China University of Water Resources and Electric Power, Zhengzhou 450046, China. [4]Henan Provincial Key Lab of Hydrosphere and Watershed Water Security, North China University of Water Resources and Electric Power, Zhengzhou 450046, China. [5]Institute for Atmospheric and Climate Science, ETH Zürich, 8092 Zürich, Switzerland. *Corresponding author. Email: liujg@sustech.edu.cn



博士生孟莹荣获“北京大学唐孝炎环境科学创新奖学金三等奖”

Research
科研



# 科研平台
# Research Platforms

## 土壤污染防治与安全全国重点实验室

土壤污染防治与安全全国重点实验室于2024年12月获批，由浙江大学牵头，联合生态环境部环境规划院、南方科技大学共同组建，是生态环境领域唯一面向土壤环境方向的国家级平台。

实验室围绕深入推进土壤污染防治攻坚战、美丽中国、科技强国建设的国家战略需求，面向土壤安全与健康战略目标，聚焦长三角、珠三角、京津冀及长江中下游工业园区及周边土壤、区域性重污染耕地，发挥多学科综合交叉和全链条融合优势，破解土壤污染防治与安全面临的新问题和新挑战，攻克土壤与地下水污染过程精准识别、绿色生态修复、污染风险防控等关键技术难题，创建土壤安全与健康理论方法，形成土壤污染治理的中国方案，打造国家战略科技力量，成为世界一流的土壤安全与健康创新高地与人才中心，高水平支撑我国土壤污染防治转向土壤安全，迈向土壤健康，保障老百姓吃得放心、住得安心。

## State Key Laboratory of Soil Pollution Control and Safety

State Key Laboratory of Soil Pollution Control and Safety was approved in December 2024, led by Zhejiang University and jointly organized by the Environmental Planning Institute of the Ministry of Ecology and Environment and the Southern University of Science and Technology, which is the only national platform in the field of ecology and environment oriented to the direction of the soil environment.

The laboratory is centered on the national strategic needs of deeply promoting the battle of soil pollution prevention and control, beautiful China, and the construction of a strong scientific and technological country, oriented to the strategic goal of soil safety and health, focusing on the Yangtze River Delta, the Pearl River Delta, Beijing-Tianjin-Hebei, and the middle and lower reaches of the Yangtze River in the industrial parks and the surrounding soils, and the regional heavily contaminated arable land, giving full play to the advantages of the multidisciplinary comprehensive intersection and whole-chain fusion, and deciphering the new problems and challenges faced by the prevention, control, and safety of soil pollution, to We will overcome the key technical issues of precise identification of soil and groundwater pollution processes, green ecological remediation, pollution risk prevention and control, create soil safety and health theories and methods, form a Chinese program for soil pollution control, build a national strategic scientific and technological force, and become a world-class innovation highland and talent center for soil safety and health, so as to support China's soil pollution prevention and control to turn to soil safety and move towards soil health at a high level, and to guarantee that the people can eat and live safely. The people can eat and live with peace of mind.

## 生态环境部流域地表水—地下水污染综合防治重点实验室

本重点实验室是环境学院2018年获批建设的国家环保实验平台，也是南科大第一个部级重点实验室。重点实验室面向我国环境保护的重大科技需求，充分发挥依托单位的地域和人才优势，在基础理论、应用技术与管理政策等层面，开展以流域地表水-地下水污染综合治理为核心理念的前沿及应用性研究工作，为我国流域水环境保护和水污染防治提供有力的科技支撑和创新人才培养基地。

## MEE Key Laboratory of Integrated Surface Water–Groundwater Pollution Control

This is the first ministry-level Key Laboratory at SUSTech, which serves as a national research platform for integrated surface water-groundwater pollution control. The Key Laboratory aims to address the major needs in environmental protection in China, draws from the talents in the school of Environment, and conducts cutting-edge research in the comprehensive control of surface water and groundwater pollution.

环境科学与工程学院目前拥有1个国家级平台、5个省部级平台以及4个市级平台，包括“土壤污染防治与安全全国重点实验室（共建）”“生态环境部流域地表水一地下水污染综合防治重点实验室”“粤港土壤与地下水污染防控及修复联合实验室”“广东省土壤与地下水污染防控及修复重点实验室”“广东省地下水污染防控与修复工程技术研究中心”“广东省野外科学观测研究站一大湾区滨海大气环境与气候背景站”“深圳市土壤与地下水污染防治重点实验室”“深圳市城市固体废弃物资源化技术与管理重点实验室”“深圳市城市环境健康风险精准测量与预警技术重点实验室”“深圳市环境物联网技术与应用工程实验室”。

The school currently has the following 1 national-level platform, 5 provincial-level ministry platforms and 4 municipal-level platforms：

①土壤污染防治与安全全国重点实验室（共建）
State Key Laboratory of Soil Pollution Control and Safety

②生态环境部流域地表水一地下水污染综合防治重点实验室
MEE Key Laboratory of Integrated Surface Water-Groundwater Pollution Control

③粤港土壤与地下水污染防控及修复联合实验室
Guangdong-Hong Kong Joint Laboratory for Soil and Groundwater Pollution Control

④广东省土壤与地下水污染防控及修复重点实验室
Guangdong Provincial Key Laboratory of Soil and Groundwater Pollution Control

⑤广东省地下水污染防控与修复工程技术研究中心
Guangdong Provincial Engineering Center of Groundwater Remediation

⑥广东省野外科学观测研究站一大湾区滨海大气环境与气候背景站
Guangdong Provincial Observation and Research Station for Coastal Atmosphere and Climate of the Greater Bay Area (GORSCAC)

⑦深圳市土壤与地下水污染防治重点实验室
Key Laboratory of Soil and Groundwater Pollution Control of Shenzhen City

⑧深圳市城市固体废弃物资源化技术与管理重点实验室
The Key Laboratory of Municipal Solid Waste Recycling Technology and Management of Shenzhen City

⑨深圳市城市环境健康风险精准测量与预警技术重点实验室
Shenzhen Key Laboratory of Precision Measurement and Early Warning Technology for Urban Environmental Health Risks

⑩深圳市环境物联网技术与应用工程实验室
Shenzhen Municipal Engineering Lab of Environmental IoT Technologies



# 4

# 四大特色研究方向
# Four Featured Research Clusters

## 01 水环境与水资源 Water Environment and Resources

研究气候变化与人类活动影响下的水循环演变及其环境、生态、资源效应。重点研究地球水圈多界面（陆-海、地表-地下、水-沙等）的水动力和生物地球化学过程，大规模水资源开发利用的生态环境效应及其调控，全球水环境的大数据分析与人工智能预报等。

The research area focuses on changes in the water cycle driven by climate change and human activities, along with their environmental, ecological, and resource effects. Major topics include hydrodynamic and biogeochemical processes across various interfaces in the Earth's hydrosphere (e.g., land-sea, surface-groundwater, water-sediment, etc.), the ecological and environmental impacts of large-scale water resource exploitation and management, and the use of big data analysis and artificial intelligence for global water environment forecasting.

## 02 大气环境与全球变化 Atmospheric Environment and Global Change

探讨人类活动对大气环境影响与其机制、气候系统与生态系统相互作用、大气环境暴露与气候灾害风险预测管控、行业减碳潜力与效益评估等研究。特色在于由地球系统视角，依托数据和信息工程技术，研发创新观测技术、排放清单、多尺度多圈层耦合模型，全链条研究大气环境与全球变化的机制、影响、风险。

We investigate the impact of human activities on the atmospheric environment and their underlying mechanisms, the interactions between climate and ecological systems, the prediction and management of atmospheric pollutant exposure and climate disaster risks, and the assessment of carbon reduction potential and benefits across industries. Our work is distinguished by its Earth system perspective, leveraging data and information engineering technologies to develop innovative observation techniques, emission inventories, and multi-scale, multi-sphere coupled models. It aims to comprehensively study the mechanisms, impacts, and risks associated with atmospheric environments and global change.

## 03 低碳发展与资源循环 Low-carbon Development and Resource Recycling

致力于低碳资源循环利用、碳捕集与封存、资源与环境交互作用、绿色低碳城市发展等的理论和技术研究。该方向依托区域产业优势，深入探索城市矿产资源化与低碳发展技术；同时，基于区域大数据和人工智能基础，构建碳排放监测与碳捕获技术体系。

This research direction is dedicated to the theoretical and technical studies of low-carbon resource recycling, carbon capture and storage, resource-environment interactions, and green low-carbon urban development. It leverages regional industrial advantages to deeply explore urban mineral resource utilization and low-carbon development technologies. At the same time, it builds a carbon emission monitoring and carbon capture technology system based on regional big data and artificial intelligence foundations.

## 04 环境健康 Environment Health

着重研究生态环境水、土、气、生多介质中有机和无机污染物的检测识别、迁移转化、致毒机制和风险预警防控。特色体现在聚焦新污染物的源汇与迁转规律；基于生态系统的污染暴露与毒理机制；以及基于暴露过程的风险管控技术体系。

This research direction focuses on the detection and identification, migration and transformation, toxic mechanisms, and risk prevention of organic and inorganic pollutants across multiple media, including water, soil, air, and biological systems within the ecological environment. Its defining characteristics include an emphasis on the sources, sinks, and transformation pathways of emerging pollutants; pollution exposure and toxicological mechanisms within ecosystems; and the development of risk management technologies centered on the exposure process.



# 5

# 五大特色应用领域 Five Featured Application Fields

## 01 近海环境 Coastal Environment

- 空天地一体化监测
- 揭示规则
- 交叉融合
- 可持续发展

近海环境是支撑海洋强国和美丽海湾建设的前沿交叉研究方向。通过研发空天地一体化水环境立体监测技术、环境水动力与地球化学过程协同数值模拟技术，以及智能联动的环境污染治理与风险防控技术，揭示陆源物质入海通量、近海环境演变规律及其反馈机制，实现近海富营养化风险精准诊断、预警和管控。通过与水生生物学等多学科交叉融合，进一步探究近海环境风险因子及其对生态系统的影响，解析陆-海过渡带污染治理的关键问题，推动我国陆海统筹的可持续发展目标。

The coastal environment is a frontier interdisciplinary research area critical to the construction of a maritime powerhouse and the development of beautiful bays. This research focuses on the development of integrated monitoring technologies for water environments across space, air, and ground platforms, as well as coupled numerical simulation techniques for environmental hydrodynamics and geochemical processes. Additionally, it explores intelligent, interconnected technologies for environmental pollution control and risk management. The goal is to uncover the flux of land-derived materials into the sea, the patterns of coastal environmental evolution, and their feedback mechanisms. These efforts will enable precise diagnosis, early warning, and management of coastal eutrophication risks. By integrating fields such as aquatic biology, this research further investigates the risk factors in coastal environments and their impacts on ecosystems, addressing key challenges in pollution management in the land-sea interface and advancing China' s sustainable development goals for integrated land-sea management.

## 02 大气减碳
## Atmospheric Carbon Reduction

“力争2030年前二氧化碳排放达到峰值，努力争取2060年前实现碳中和”已经成为引领未来我国经济社会发展的重大战略目标。减少大气温室气体排放是一个涵盖大气科学、公共管理学、环境工程学和能源科学等多学科的系统性科学问题。本方向主要研究领域包括：1）基于地面大气主要温室气体浓度监测及其自上而下碳排放核算校验的支撑方法体系研究；2）基于市场机制的大气温室气体总量控制与交易机制研究；3）实现大气温室气体减排的关键能源技术特征解析、趋势预测和系统优化模型的开发；4）开展工业点源$CO_2$捕集、利用和封存技术及装备研发。

"Striving to reach the peak of carbon dioxide emissions by 2030,and striving to achieve carbon neutrality by 2060" has become the Nation's strategic goal and will direct China's future economic and social development.Reducing greenhouse gas emissions in the atmosphere is a systematic scientific problem,involving multiple disciplines such as atmospheric science,public administration, environmental engineering,and energy science.The main foci of this research area include：1) key ground-and space-based monitoring technologies for atmosphere greenhouse gases and top-down emission estimation methods;2) mechanisms of and strategies for market-based greenhouse gas emission control;3) key energy technologies for reduce atmospheric carbon emissions;and 4) key technology for capture,utilization,and storage ofindustrial $CO_2$.

开拓环境科学与信息科学交叉领域的前沿，探索大数据、人工智能和物联网技术在环境管理中的应用，服务于深圳、粤港澳大湾区乃至全国的智慧城市建设。研发工作重点包括：1）创新环境大数据采集与处理技术，研发新型环境遥感数据产品、数据众包软硬件系统及多源环境大数据融合方法；2）融合人工智能与物理过程模型，实现大数据条件下大气、土壤、地表水、地下水、近海海水的环境质量精准预报；3）基于人工智能和物联网技术，研发城市水土和大气环境“监测-预警-决策-调控”智慧化管控系统。

Our faculty advance the interdisciplinary frontier of environmental science and information science, and apply big data, artificial intelligence (AI) and Internet of Things (IoT) in environmental management. This direction of research supports the ongoing Smart City development in Shenzhen, in Guangdong-Hong Kong-Macao Greater Bay Area, and in the entire nation. The research foci include the following: 1) innovation of environmental big data techniques, such as new environmental remote sensing data products, software and hardware for data crowdsourcing, and novel methods to fuse multisource environmental big data; 2) precise forecasting of air, soil and water (surface, subsurface and coastal) qualities based on integration of AI and physically based models; and 3) development of intelligent "monitoring-alert-decision-regulation" systems for managing urban water, soil and air pollutions based on AI and IoT.

## 03 智慧环保
## Smart Environmental Protection

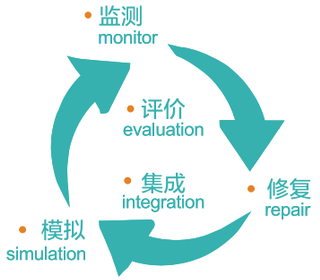
环境大数据采集

人工智能决策

智慧化管控系统



## 04 生态修复
## Ecological Restoration




针对我国生态修复理论基础不完备、技术体系不成熟等问题，构建渐进式生态修复理论，完善“环境治理-生态修复-自然恢复”三大模式，研发生态修复实用技术，制定生态修复标准，为我国山水林田湖修复保护和黑臭水体治理提供科技支撑。该方向已形成具有中国特色的生态修复理论体系和技术方法，并在我国十余个省份河流湿地生态修复工程中开展了技术示范和推广应用。

To address the needs for more complete and mature theoretical base and technologies in ecological restoration, we work to construct the theory of progressive ecological restoration, improve the coupled system of "environmental treatment-ecological restoration-natural restoration", develop practical technology for ecological restoration, and formulate standards for ecological restoration. These research support the nation's need for the protection of mountains, rivers, forests and lakes, as well as the treatments of polluted water bodies. This research group has already developed a theoretical and technological system for ecological restoration with Chinese characteristics. We have also initiated technical demonstrations and applications of ecological restoration engineering projects in rivers and wetlands in more than ten provinces in China.

## 05 无废城市
## Zero-Waste City

我国固体废物污染防治形势日渐严峻，“无废城市”建设是国家重大决策部署，也是从根本上解决固体废物污染问题的必由之路。从组分特征-物相结构-转化规律基础研究出发，围绕固废高效清洁利用、处理处置及资源化过程超低排放、环境功能材料设计等方面，构建新反应体系，开拓新技术，研发新材料，结合产业需求建设先行示范工程，率先为深圳市乃至粤港澳大湾区无废城市建设提供理论和技术支撑。

With the increasingly serious solid waste pollution in China, the development of "Zero-Waste City" is urgently needed to fundamentally solve the solid waste problem and a major national policy. Studies will focus on the structural characteristics and transformation mechanisms of critical components in solid waste, new technologies for efficient and clean utilization of solid waste, the development of technologies for ultra-low emissions, and the design of advanced functional materials. We will take the lead in providing scientific and technical support for the development of "Zero-Waste City" in Shenzhen and the Guangdong-Hong Kong-Macao Greater Bay Area.

固废高效清洁利用

垃圾/危废焚烧超低排放

环境纳米功能材料

# 科研成果
# Scientific Research Achievements

学院2015年成立以来发表SCI论文2900余篇，包括大量发表在Science、Nature及其子刊、PNAS等期刊的高水平论文480余篇；申请专利290余项，获授权专利90余项，其中16件专利以作价入股的方式实现转化，转化总价值5000万；承担包括国家自然科学基金创新研究群体项目、重大项目、重点项目、重大研究计划重点项目、国家科技重大专项、国家重点研发计划、广东省重点领域研发计划、广东省区域联合基金粤港澳研究团队项目、深圳市可持续发展专项等在内的各类科研项目650余项，获批经费总额超过7.1亿元；参与编制国家环境保护标准、行业标准等13项。2021年5月，南科大环境生态学科首次进入ESI全球前1%，2025年5月已进入前1.7‰，实现了高质量快速发展。2024年泰晤士高等教育中国学科评级中，我校环境科学与工程学科获得A+评级；2024“软科世界一流学科排名”，我校水资源工程学科排名20，环境科学与工程学科排名51-75，大气科学排名101-150。

Since 2015, the school has published over 2900 SCI papers, including more than 480 papers published in Science, Nature and its affiliated journals, and PNAS. And more than 90 patents were authorized. The school has been award more than 650 research projects, including major projects funded by the Ministry of Science and Technology, the NSFC, and other national, provincial, and municipal funding agencies. The total granted funding since 2015 exceeds 710 million yuan. ESE has participated in the formulation of 13 national environmental protection standards and industry standards. In May 2021, the environmental ecology discipline of Southern University of Science and Technology (SUSTech) entered the top 1% of ESI global rankings for the first time. By May 2025, it had advanced to the top 1.7‰, achieving high-quality rapid development. In the 2024 Times Higher Education China Subject Rankings, SUSTech's Environmental Science and Engineering discipline received an A+ rating; in the 2024 "Shanghai Ranking's Global Ranking of Academic Subjects," SUSTech's Water Resources Engineering discipline ranked 20th,Environmental Science and Engineering ranked between 51st-75th, and Atmospheric Science ranked between 101st-150th.


冯炼教授在***Nature***发表封面论文
FENG Lian (professor) published a paper in ***Nature***

Title: Coastal phytoplankton blooms expand and intensify in the 21st century

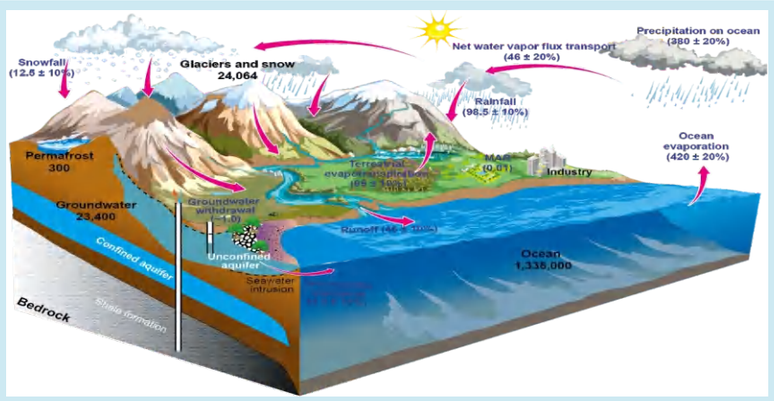


郑一教授在***Nature***发表论文
ZHENG Yi (professor) published a paper in ***Nature***

Title: Fertilizer management for global ammonia emission reduction

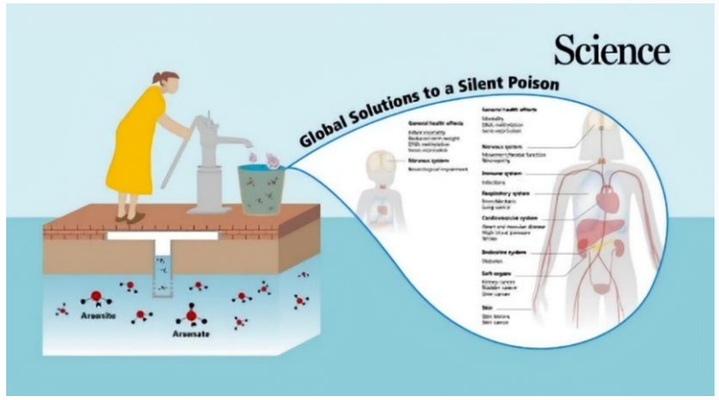
匡星星副教授在***Science***发表论文
KUANG Xingxing (associate professor) published a paper in ***Science***

Title: The changing nature of groundwater in the global water cycle



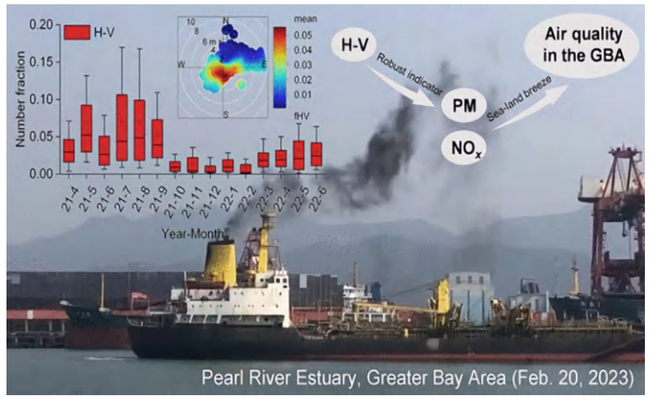

刘俊国讲席教授在***Science***发表论文
LIU Junguo（chair professor) published a paper in ***Science***

Title: Anthropogenic climate change has influenced global river flow seasonality




郑焰讲席教授在 ***Science*** 发表论文
ZHENG Yan (chair professor) published a paper in ***Science***

Title: Global solutions to a silent poison




杨新讲席教授在 ***Environmental Science and Technology*** 发表论文
YANG Xin (professor) published a paper in ***Environmental Science and Technology***

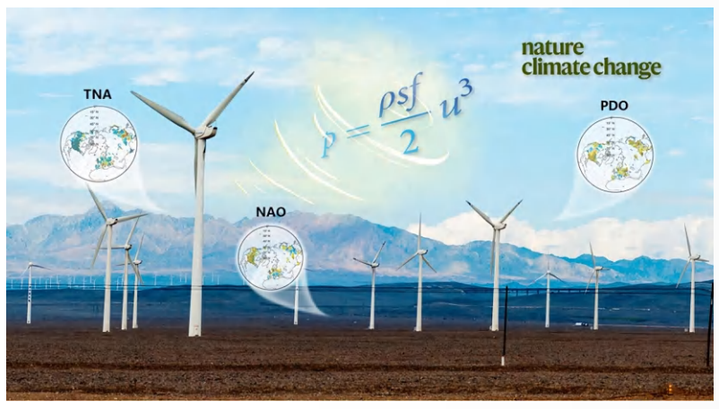
Title: Impact of Ship Emissions on Air Quality in the Greater Bay Area in China under the Latest Global Marine Fuel Regulation

冯炼教授在 ***Nature Water*** 发表封面论文
FENG Lian (professor) published a paper in ***Nature Water***

Title: Global lakes are warming slower than surface air temperature due to accelerated evaporation

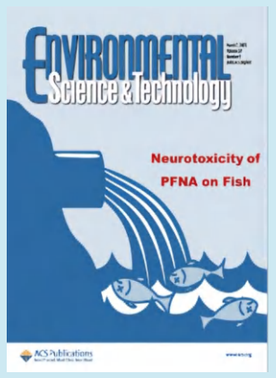
叶建淮副教授在***Environmental Science & Technology*** 发表封面论文
YE Jianhuai (associate professor) published a paper in ***Environmental Science & Technology***

Title: River Winds and Transport of Forest Volatiles in the Amazonian Riparian Ecoregion


曾振中教授在 ***Nature Climate Change*** 发表论文
ZENG Zhenzhong (professor) published a paper in ***Nature Climate Change***

Title: A reversal in global terrestrial stilling and its implications for wind energy production


裘文慧副教授在 ***Environmental Science & Technology*** 发表两篇封面论文
QIU Wenhui (associate professor) published two papers in ***Environmental Science & Technology***

Title：Perfluorononanoic Acid Induces Neurotoxicity via Synaptogenesis Signaling in Zebrafish
Poly-and Perfluoroalkyl Substances Induce Immunotoxicity via the TLR Pathway in Zebrafish：Links to Carbon Chain Length

## 国家级奖项

**胡清，国家技术发明奖一等奖，2023**

**胡清，国家科学技术进步奖二等奖，2017**

## 省部级奖项（含社会力量奖）

胡清，2023年度环境保护科学技术奖一等奖，2023

胡清，2022年度北京市科学技术奖科学技术进步奖一等奖，2023

胡清，2021年度环境保护科学技术奖一等奖，2021

王俊坚，第四届中国环境科学学会青年科学家奖金奖，2021

陈洪，第四届中国环境科学学会青年科学家奖优秀奖，2021

刘俊国、张作泰、唐圆圆，深圳市科技进步奖社会公益类一等奖，2020

郑春苗、易树平、裘文慧、张作泰，2020年度环境保护科学技术奖二等奖，2020

胡清，2019年度环境保护科学技术奖二等奖，2019

冯炼，第二届中国环境科学学会青年科学家奖，2019

刘俊国，第十五届中国青年科技奖，2018

刘俊国，教育部青年科学奖，2017



代表性科研奖项
Scientific Research Awards (selected)

## 协会奖/学会奖

裘文慧、郑春苗，2024年度广东省环境保护科学技术奖一等奖，2024

张作泰，2024年度广东省环境保护科学技术奖一等奖，2024

郑一，2023年度广东省环境保护科学技术奖一等奖，2023

张作泰，2020年度产学研合作促进奖（个人），2021

曾振中，求是杰出青年学者奖，2020

郑一，中国自然资源学会优秀科技奖，2019

郑春苗、张作泰、裘文慧，广东省环境保护科学技术奖二等奖，2019

# 南山环境讲坛
# Nanshan Distinguished Lecture Series on the Environment

学院定期举办高水平杰出系列讲座“南山环境讲坛”，邀请海内外知名学者进行学术讲座。自启动以来，已邀请海内外相关领域的知名学者进行学术讲座百余次。讲座嘉宾包括中国工程院院士王浩，中国科学院院士陶澍、傅伯杰、汪集旸、陈德亮，美国工程院院士Christine Shoemaker、David Maidment、Michael Hoffmann、Bridget Scanlon，英国皇家工程院院士David Lerner，加拿大科学院院士Jeffery McDonnell等。

The School organizes the Nanshan Distinguished Lecture Series on the Environment, which brings in renowned international and Chinese scholars to give lectures on cutting-edge research.To date,the lecture series has featured over 100 presentations by many well-known scholars,including Professor Hao Wang（Academician of the Chinese Academy of Engineering）,Professors Shu Tao,Bojie Fu,Jiyang Wang,and Deliang Chen（Academicians of the Chinese Academy of Sciences）,Professors Christine Shoemaker,David Maidment,Michael Hoffmann,and Bridget Scanlon（Members of the National Academy of Engineering,US）,Professor David Lerner（Fellow of Royal Academy of Engineering,UK）,and Professor Jeffery McDonnell（Member of the National Academy of Engineering,Canada）.



# Technology Innovation and Application 产学研

## 南方科技大学工程技术创新中心（北京）
## SUSTech Engineering Innovation Center (Beijing)

南方科技大学工程技术创新中心(北京)，依托南方科技大学环境科学与工程学院，紧密结合我国环保产业发展现状及行业特点，定位于消除科研成果与产业应用之间的鸿沟，以为社会带来效益、给教师创造机会、为学生带来就业、给企业创造利润为发展宗旨。通过与学术界和工业界的联合，将科研成果有效社会化、产业化、公开化，打造国际化的环境保护领域创新平台。创新中心的主要工作包括：研发关键环保技术，推动关键环保技术的工程化开发和系统集成，推进其示范推广和产业化；参与我国环保行业政策、标准规范、技术导则的制定，为国家环境管理，监督与决策提供技术支持和服务；为广大学生、专业人才和公司技术骨干提供专业培训，建设国际化产学研用交流与合作平台。

The SUSTech Engineering Innovation Center (Beijing) is supported by the School of Environmental Science and Engineering.Closely aligned with the development of the environmental protection industry in China,the Innovation Center focuses on bridging the gap between scientific research and industrial applications.It helps faculty to convert their research product to benefit the society,as well as provides employment opportunities to graduates and profits to enterprises.The Innovation Center connects the academia and the industry by commercializing cost-effective and publicly-accessible products or services,as well as pushes these SUSTech products and technologies to the global stage. The mission of the Innovation Center includes:development of key environmental technologies,promotion and integration of key environmental technologies into engineering applications,anddemonstration and commercialization.The Innovation Center will also participate in developing Chinese environmental protection policies, standards and technicalguidelines,providing technical support and services to central and local authorities in the fields of environmental management,monitoring,and decision-making.

## 深圳市南科环保科技有限公司
## SUSTech Environmental Ltd.

2016年,在深圳市科技创新委员会与南方科技大学的支持下，深圳市南科环保科技有限公司成立。公司充分利用南科大环境学院的技术和人才优势，努力打造一流的技术研发和产业化平台。公司在流域环境规划和综合治理、土壤和地下水污染防治、底泥及固废处置和资源化利用、基于物联网和互联网的环境综合监测管理的“智慧平台”搭建等领域，具有宽阔的国际视野和先进的技术水平。

SUSTech Environmental Ltd.was established in 2016 with support from the Scientific Innovation Commission of Shenzhen City and the Southern University of Science and Technology.SUSTech Environmental Ltd.aims to leverage the expertise of the School's faculty to build up a leading R&D and technology transfer base.The firm currently focuses on watershed planning and management,soil and groundwater pollution control, contaminated sediment and solid waste recycling,and web-based environmental monitoring and sustainable technologies.