DONGHUA UNIVERSITY ENGLISH-TAUGHT MASTER'S DEGREE PROGRAMS

College of Environmental Science and Engineering

NAME OF THE PROGRAM

Environmental Engineering

环境工程

RESEARCH DIRECTIONS:

- Water Pollution Control
- Clean Production and Comprehensive Resource Utilization
- Environmental Biotechnology and Technology
- Environmentally Friendly Materials
- Environmental Monitoring, Assessment, and Planning Management
- Analysis and Control of Atmospheric Environmental Pollution
- Water Environment and Water Resources Utilization

TYPE OF THE DEGREE: Academic Degree
DEGREE CONFERRED: Master of Engineering
SCHOOLING: 3 years

1、BRIEF INTRODUCTION

Depart. Environmental Engineering (EE) of Donghua University is one of the earliest environmental disciplines established in China. It started to enroll undergraduate in 1976, and it obtained doctoral discipline of environment engineering in 2000, first-level doctoral discipline of Environmental Science and Engineering in 2005 and established post-doctoral station in 2007, which has a comprehensive system of cultivating bachelor, master, PhD and post doctorate. The subject is in the forefront of the same kind subject of colleges and universities with 211 Project, and is also with distinctive feature of textile. It is the vice president of China dyeing and Printing Industry Association as well as the vice director unit of Environmental Protection Committee of professional technical. The environment technology specialty has been approved the key subject of Shanghai in 2007, the national characteristic specialty in 2011, and have been incorporated in the national first 'excellent engineers education training plan' and 'Comprehensive reform of the Education Ministry'. In 2012 ESE as the class-one discipline was included in the first-class discipline (class B) construction plan in Shanghai. Depended on this discipline, it equips with grade A qualification certificate of National environmental impact assessment and 'Pollution prevention and control engineering technology center of national environmental protection in textile pollution', it is an important base of the talents cultivation and the transformation of study achievements. Environment and Ecology among top 1% in ESI. The Discipline of Environmental Engineering in Donghua University now includes: Environmental Engineering doctoral discipline, Environmental Engineering master discipline and Environmental Engineering post-doctoral station.

Related national centers and laboratories such as National Environmental Protection Textile Industry Pollution Prevention and Control Engineering Research Center, National Dyeing and Finishing Engineering Technology Research Center, National Advanced Printing and Dyeing Technology Innovation Center, Key Laboratory for Textile Industry Pollution Prevention and Emission Reduction Technology, National Laboratory for Circular Economy Engineering, are available in College of Environmental Science and Engineering.

The qualified teachers of the subject are abundant with 52 professional teachers, 25 of whom are professors, 27 are associate professors. There are 22 doctoral supervisors, and 52 master supervisors. Since the establishment of this discipline, it has trained over 1000 graduate students. Among them, more than 700 have been conferred with master's degrees, and over 100 have been awarded doctoral degrees. In the past five years, the discipline has successfully completed over 100 national and provincial research projects, earning more than 10 national and provincial-level science and technology awards. Additionally, it has obtained authorization for over 50 invention patents and received 8 awards for outstanding teaching achievements.

2、PROGRAM OBJECTIVES

We are recruiting and cultivating Master's degree students in the first-level discipline of Environmental Science and Engineering, welcoming applications from students with backgrounds in environmental engineering, environmental science, chemistry, chemical engineering, or biological science and engineering on a global scale.

Graduates in this field should possess a solid understanding of fundamental theories and systematic professional knowledge in areas such as environmental engineering (pollution control of water, air, and solid waste), sustainable development strategies, environmental management and planning, clean production, waste recycling, urban ecology, etc. They should be familiar with the current status and development trends in this field.

Successful candidates will demonstrate a strong ability to address practical issues encountered in production and daily life within this field, along with excellent professional ethics. They should be capable of undertaking innovative work in environmental pollution control, waste recycling, and clean production technology, or in the innovation and development of environmental management and planning. Candidates should also have the ability to conduct scientific research in this field, laying the foundation for further advanced studies.

Graduates will be equipped to engage in various roles such as scientific research, teaching, engineering design and management, decision-making, consulting, and other related areas.

3、CURRICULUM

1. The 1st & 2nd semesters: courses study
2. November of the 3rd semester: thesis proposal submission and report
3. March of the 6th semester: thesis draft and Pre-defense
4. March of the 6th semester: concealed evaluation on the thesis
5. May of the 6th semester: oral defense on thesis

Main Courses

1. Advanced Analytical Chemistry 高等分析化学
2. Scientific Writing and Literature Seminar 科技论文写作与文献研讨
3. Environmental Microbiology 环境微生物学
4. Environmental Monitoring 环境监测
5. Engineering Unit-Operations 工程单元操作
6. Air Pollution Control Engineering 大气污染控制工程
7. The Basic Principles of Water Purification and Water Pollution Control 水污染控制原理与技术
8. Environmental Comprehensive Experiment 环境综合实验
9. Principles of Environmental Toxicology 环境毒理学原理
10. Membrane Science and Technology 膜科学与技术

11. Scientific Graphs Drawing and Data Analysis　科技绘图与数据处理
12. Environmental Biotechnology　环境生物技术
13. Ecomaterials　环境材料
14. Environmental Chemistry and Water Treatment　环境化学与水处理
15. Organic Pollution Chemistry　有机污染化学
16. Design of Experimental Methods in Wastewater Treatment　废水处理实验方法设计
17. Environmental Health　环境健康
18. Electrochemical Technologies: Fundamentals, Materials, and Applications　电化学技术：机理、材料及应用

Description on Research Areas

(1) **Water Pollution Control:** Innovative treatment technologies for industrial wastewater from industries such as printing and dyeing, chemical engineering, efficient removal of typical refractory pollutants, wastewater membrane treatment technologies, and electrochemical treatment technologies.

(2) **Clean Production and Comprehensive Resource Utilization:** Research on low-water, low-energy consumption processes, waste recycling, and the resource utilization of sludge and organic waste.

(3) **Environmental Biotechnology and Technology:** Research on environmental microbial metabolic pathways, optimization of microbial enzyme activity, and improvement of wastewater biological treatment efficiency.

(4) **Environmentally Friendly Materials:** Design and development of new environmentally friendly materials applied in environmental protection to enhance energy utilization efficiency.

(5) **Environmental Monitoring, Assessment, and Planning Management:** Aimed at cultivating advanced applied professionals with essential knowledge and skills in environmental monitoring, assessment, and planning management, capable of engaging in environmental monitoring and assessment, as well as environmental planning and management.

(6) **Analysis and Control of Atmospheric Environmental Pollution:** Understanding the sources of atmospheric environmental pollution and the migration and transformation of pollutants in the atmosphere, mastering the basic methods, principles, and typical purification processes for removing atmospheric pollutants.

(7) **Water Environment and Water Resources Utilization:** Basic concepts, assessment, and classification of water environments, as well as the interconnection and transformation of various elements in water quality. Regarding water resources, it involves basic concepts, evaluation, as well as rational allocation, comprehensive development, and sensible

utilization. It addresses the relationship and mutual impact between water resources and socio-economic development, as well as the relationship with the environment and ecosystems.'

Requirements for Thesis Work and Publication of Academic Results

In addition to completing the required total credits for the prescribed courses, candidates for a master's degree must finish the thesis proposal, paper publication, and the writing of the master's thesis before submission and formal defense. The master's thesis generally consists of six parts: abstract, introduction or literature review, main body of the thesis, conclusion, reference list, and academic achievements obtained during the period of pursuing the degree. The master's thesis must be a systematic and complete academic paper, reflecting the research work independently conducted by the master's student under the guidance of the supervisor. It should have clear concepts, sound argumentation, rigorous structure, accurate calculations, reliable data, and be well-organized with concise and fluent writing. The use of charts, tables, and referenced materials should adhere to standards.

Before submitting the master's thesis for defense, candidates must ensure that their achievements meet the "Basic Requirements for Graduate Achievements in the College of Environmental Science and Engineering".

4、SUPERVISOR INFORMATION

Prof. Dr. Yanan Liu (Doctor's Supervisor)

Research Area:

1) Non-thermal plasma application in air, water and soil pollution control;
2) Functional catalysts synthesis by Non-thermal plasma used for pollutants removal from air, water and soil.
3) Combined AOPs and biological technology for water and soil treatment

Email: *liuyanan@dhu.edu.cn*

Dr. Yanan LIU got her Ph.D. in Environmental Engineering from Harbin Institute of Technology in 2005, worked in Donghua University since 2005, postdoctoral fellow in Plasma Application in LGPPTS at ENSCP-UMPC (Paris, France) from 2009 to 2011, full Professor of Environmental Engineering in Donghua since 2014. Professor Liu's expertise includes environmental engineering, plasma chemistry and environmental microbiology. The main focus of her research is on developing removal methods for emerging pollutants, such as per- and polyfluoroalkyl substances (PFAS) and other recalcitrant chemicals or organisms, soil remediation and improvement, organic

waste treatment and recycling, and development of physical agriculture technology based on non-thermal plasma and fine bubbles.

Main Achievements: About 50 papers have been published. 5 patents have been authored and 3 projects are being undertaken as chief investigator.

Selected recent publications:

[1] Dahai Zhu, Zhuyu Sun, Han Zhang, Ai Zhang, Yinyin Zhang, Andere Clement Miruka, Luxiang Zhu, Rui Li*, Ying Guo, **Yanan Liu***. Reactive nitrogen species generated by gas-liquid dielectric barrier discharge for efficient degradation of perfluorooctanoic acid from water. Environmental Science &Technology. DOI: 10.1021/acs.est.1c06342

[2] Han Zhang, Pan Li, Ai Zhang, Zhuyu Sun, Jinxia Liu*, Paul Héroux, **Yanan Liu***. Enhancing interface reactions by introducing microbubbles into a plasma treatment process for efficient decomposition of PFOA. Environmental Science &Technology. 2021, doi: 10.1021/acs.est.1c01724

[3] Xiaoting Gao, Keliang Huang, Ai Zhang*, Cihao Wang, Zhuyu Sun, **Yanan Liu***. Simultaneous degradation of glucocorticoids and sterilization using bubbling corona discharge plasma based systems: a promising terminal water treatment facility for hospital wastewater. Chemical Engineering Journal. 2021, 430, part 3, 132845, 2022. 2. 15

[4] Dahai Zhu, Li Cai, Zhuyu Sun, Ai Zhang, Paul Héroux, Hyunjung Kim, Wei Yu,**Yanan Liu***. Efficient degradation of tetracycline by RGO@black titanium dioxide nanofluid via enhanced catalysis and photothermal conversion. Science of The Total Environment. 2021, 787: 147536

[5] **Yanan Liu**, Quan Zhou, Zhenyu Li, Ai Zhang*, Jiaxun Zhan, Andere Clement Miruka, Xiaoting Gao, Jie Wang. Effectiveness of chelating agent-assisted Fenton-like processes on remediation of glucocorticoid contaminated soil using chemical and biological assessment: performance comparison of CaO2 and H2O2. Environmental science and pollution research international. 2021 Environ Sci Pollut Res (2021). https://doi.org/10.1007/s11356-021-15150-4

[6] **Yanan Liu**, Qiancheng Wang, Cihao Wang, Ai Zhang*, Keliang Huang, Jinxia Liu, Andere Clement Miruka, Qianhan Han, Ying Guo. Degradation of dichloroacetic acid in a novel corona discharge reactor integrated with microbubbles generation. Separation and Purification Technology. 2021, 274: 119019.

[7] Jingyi Zhao, Ai Zhang, Paul Héroux, Zhuyu Sun, **Yanan Liu***. Remediation of diesel fuel polluted soil using dielectric barrier discharge plasma. Chemical Engineering Journal. 2021, 417: 128143

[8] Qiancheng Wang, Ai Zhang, Pan Li, Paul Héroux, Han Zhang, Xin Yu, **Yanan Liu***. Degradation of aqueous atrazine using persulfate activated by electrochemical plasma coupling with microbubbles: removal mechanisms and potential applications. Journal of Hazardous Materials. 2021, 403: 124087.

[9] Jiaxun Zhan, Ai Zhang, Paul Héroux, Ying Guo, Zhuyu Sun, Zhenyu Li, Jingyi Zhao, **Yanan Liu***. Remediation of perfluorooctanoic acid (PFOA) polluted soil using pulsed corona discharge plasma. Journal of Hazardous Materials. 2020, 387：121688.

[10] Xiaoting Gao, Ai Zhang, Paul Héroux, Wolfgang Sand, Zhuyu Sun, Jiaxun Zhan, Cihao Wang, Siyu Hao, Zhenyu Li, Zhenying Li, Ying Guo, **Yanan Liu***. Effect of Dielectric

Barrier Discharge Cold Plasma on Pea Seed Growth. J. Agric. Food Chem. 2019, 67 (39): 10813-10822.

[11] **Yanan Liu**, Cihao Wang, Xue Shen, Ai Zhang*, Shuwen Yan, Xiang Li, Andere Clement Miruka, Shimin Wu, Ying Guo, Stéphanie Ognier. Degradation of glucocorticoids in aqueous solution by dielectric barrier discharge: Kinetics, mechanisms, and degradation pathways. Chemical Engineering Journal. 2019, 374: 412-428.

[12] Jiaxun Zhan, Ai Zhang, Paul Héroux, Xiang Li, Zhenyu Li, Jingyi Zhao, Ying Guo, **Yanan Liu***. Gasoline degradation and nitrogen fixation in soil by pulsed corona discharge plasma. Science of The Total Environment. 2019, 661: 266-275.

[13] **Yanan Liu**, Xue Shen, Jihui Sun, Pan Li, Ai Zhang*. Treatment of aniline contaminated water by a self-designed dielectric barrier discharge reactor coupling with micro-bubbles: optimization of the system and effects of water matrix. Journal of Chemical Technology and Biotechnology. 2019, 94 (2): 494-504.

[14] Ai Zhang, Xue Shen, Xueyan Yin, Xiang Li, **Yanan Liu***. Application of calcium peroxide for efficient removal of triamcinolone acetonide from aqueous solutions: mechanisms and products. Chemical Engineering Journal. 2018, 345 (1): 594-603.

[15] **Yanan Liu***, Han Zhang, Jihui Sun, Jinxia Liu, Xue Shen, Jiaxun Zhan, Ai Zhang, Stéphanie Ognier , Simeon Cavadias, Pan Li*. Degradation of aniline in aqueous solution using non-thermal plasma generated in microbubbles. Chemical Engineering Journal. 2018, 345 (1): 679-687.

[16] Jiaxun Zhan, **Yanan Liu***, Wenyan Cheng, Ai Zhang, Rui Li, Xiang Li, Stéphanie Ognier, Shijie Cai, Cheng Yang, Jinxia Liu. Remediation of soil contaminated by fluorene using needle-plate pulsed corona discharge plasma. Chemical Engineering Journal. 2018, 334 (15): 2124-2133.

[17] Rui Li, **Yanan Liu***, Wenyan Cheng, Wenjuan Zhang, Gang Xue, Stephanie Ognier. Study on remediation of phenanthrene contaminated soil by pulsed dielectric barrier discharge plasma: the role of active species. Chemical Engineering Journal. 2016, 296: 132-140.

[18] Ruiwen Mu, **Yanan Liu***, Rui Li, Gang Xue, Stéphanie Ognier. Remediation of pyrene-contaminated soil by active species generated from flat-plate dielectric barrier discharge. Chemical Engineering Journal. 2016, 296: 356–365.

[19] Xiang Li, Wenjuan Zhang, Li Ma, Sizhou Lai, Shu Zhao, Yinguang Chen, **Yanan Liu***, Improved production of propionic acid driven by hydrolyzed liquid containing high concentration of l-lactic acid from co-fermentation of food waste and sludge. Bioresource Technology. 2016, 220: 523-529.

[20] Yu Sun, **Yanan Liu***, Rui Li , Gang xue, Stéphanie Ognier. Degradation of reactive blue 19 by needle-plate non-thermal plasma in different gas atmospheres: kinetics and responsible active species study assisted by CFD calculations. Chemosphere. 2016, 155: 243-249.

Prof. Dengxin Li (Doctor's Supervisor)

Research Area:

Biomass CO2 gasification, soil heavy metal removal, industrial wastewater treatment, flue gas desulfurization and denitrification, as well as solid waste resource utilization.

Email: *lidengxin@dhu.edu.cn*

Requirements for future international students:

Recruitment of international students interested in the fields of CO_2 gasification, soil heavy metal removal, and industrial wastewater treatment. Prospective students should be proficient in English for communication and academic paper writing, demonstrate a strong interest in scientific research, and exhibit resilience and diligence1985-07 to

1989-07, Shandong Normal University, Bachelor's in Chemistry
1989-09 to 1992-07, Shanxi Institute of Coal Chemistry, Chinese Academy of Sciences, Master's in Organic Chemistry
1997-09 to 2000-06, East China University of Science and Technology, Ph.D. in Chemical Engineering
2001-04 to 2003-07, Tsinghua University, Postdoctor
2000-09 to 2001-03, Institute of Resource and Environmental Research, Japan Industrial Technology Research Institute, Researcher
1992-07 to 2003-06, Shandong University of Science and Technology, Department of Chemical Engineering, Associate Professor
2003-07 to Present, Donghua University, College of Environmental Science and Engineering, Professor

Selected recent publications:

[1] Wang, Xi; Hussain, Asif; Li, Qingqing; Ma, Mingyu; Wu, Juan; Deng, Mingqiang; Yang, Jie; Li, Dengxin*. Core-shell design of UiO66-Fe_3O_4configured with EDTA-assisted washing for rapid adsorption and simple recovery of heavy metal pollutants from soil[J]. Journal of Environmental Sciences, 2024, 139: 556-568.

[2] Xiao, Zhengguo; Li, Dengxin*; Wang, Feikun; Sun, Zhihong; Lin, Zhengyou. Simultaneous removal of NO and $SO_2$with a new recycling micro-nano bubble oxidation-absorption process based on HA-Na[J]. SeparationandPurification Technology, 2020, 242.[3] Xiao, Zhengguo; Li, Dengxin*; Zhu, Qiaoling; Sun, Zhihong; Simultaneous removal of NO and SO_2through a new wet recycling oxidation-reduction process utilizing micro-nano bubble gasliquid dispersion system based on Na_2SO_3[J], FUEL, 2020, 263.

[4] Xiao, Zhengguo; Li, Dengxin*; Zhang, Rongliang; Wang, Feikun; Pan, Fanfeng; Sun, Zhihong. Anexperimental study on the simultaneous removal of NO and $SO_2$with a new wet recycling process based on the micro-nano bubble water system[J]. Environmental Science and Pollution Research, 2020, 27(4): 4197-4205.

[5] Xue, Fei; Chen, Qin; Li, Yulong; Liu, Eryan; Li, Dengxin*; Immobilized lysozyme onto 1, 2, 3, 4-butanetetracarboxylic (BTCA)-modified magnetic cellulose microsphere for improving bio-catalytic stability and activities[J]. Enzyme andMicrobial Technology, 2019, 131.

[6] Li, Dengxin *; Shi, Penghui; Wang, Jianbo; Li, Jiebing; Su, Ruijing. High–Efficiency NO_x absorption of high concentration NO_xin water or peg using capillary pneumatic ne bulizer packed with an expanded graphite filter[J]. Chemical Engineering Journal, 237: 8-15, 2014 .

[7] Shi, Penghui; Li, Dengxin*. Supported cobalt oxide on graphene oxide: Highly efficient cataly sts for the removal of Orange II from water[J]. Journal of hazardous materials, 229-230：331-339, 2012.

[8] Su, Ruijing; Shi, Penghui; Zhu, Mincong; Hong, Feng; Li, Dengxin*. Studies on the properties of graphene oxide–alkaline protease bio-composites[J]. Bioresource Technology, 115: 136-140, 2012.

[9] Shi, Penghui; Li, Dengxin*. Co_3O_4nanocrystals on graphene oxide as a synergistic catalyst for degradation of Orange II in water by advanced oxidation technology based on sulfate radicals, Ap plied Catalysis B: Environmental, 123: 265-272, 2012.

[10] Li, Dengxin*; Gao, Guolong; Meng, Fanling; Ji, Chong. Preparation of nano-iron oxide red p igment powders by use of cyanided tailings[J]. Journal of Hazardous Materials, 155(1-2): 369-377 , 2007.

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Prof. Dr. Jinli Qiao (Doctor's Supervisor)

Research Area: Electrochemistry

Email: *qiaojl@dhu.edu.cn*

As a Professor, Ph.D. Supervisor and Scientific Core-Competency Leader at Donghua University, China, she received her PhD in Electrochemistry from Yamaguchi University, Japan. Starting from 2008 to present, she carried out and has been carried out in total 12 projects funded by Chinese Government including NNSF of China. As the first/corresponding author, Dr. Qiao has published over 100 peer reviewed journal articles, 40 conference and Keynote/invited oral presentations, 4 book chapters, 3 co-edited books, more than 30 Japan/China invention patents and 12 authorized. Prof. Qiao is the Vice President of the International Academy of Electrochemical Energy Science (IAOEES) http://www.iaoees.org/, and the Board Committee Member of Electrodriving Membrane Industry Association of China, http://www.membranes.com.cn/xiehuijianjie/fenzhijigou/. She also serves as the Gust Editor for peer-reviewed journals including Electrochimica Acta,Applied Energy and International Journal of Hydrogen Energy. She has more than 20 years of scientific research experience, particularly in the area of electrochemical material development and energy storage and conversion including PEM fuel cells, metal-air batteries, supercapacitors and CO_2 electroreduction.

Selected recent publications:

[1] Yongxia Wang, Xiangzhi Cui, Luwei Peng, Lulu Li, **Jinli Qiao***, Haitao Huang, Jianlin Shi#, Metal-nitrogen-carbon catalysts of specifically coordinated configurations toward typical electrochemical redox reactions, Adv. Energy Mater., 2021, in press (IF:25.245)

[2] Israr Masood ul Hasan, Luwei Peng, Jianfeng Mao, Ruiman He, Yongxia Wang, Jing Fu#, Nengneng Xu, **Jinli Qiao***, Carbon-based metal-free catalysts for electrochemical CO2 reduction: Activity, selectivity, and stability, Carbon Energy. 2021, 3, 24-49 (中国高起点期刊，封面论文)

[3] Luwei Peng, Yaofeng Wang, Yongxia Wang, Nengneng Xu, Wenshuang Lou, Peixuan Liu, Dongqing Cai, Haitao Huang, **Jinli Qiao***, Separated growth of Bi-Cu bimetallic electrocatalysts on defective copper foam for highly converting CO2 to formate with alkaline anion-exchange membrane beyond KHCO3 electrolyte, Appl. Catal. B: Environ., 2021, 288, 120003 (IF:16.683)

[4] Yongxia Wang#, Nengneng Xu, Ruinan He, Luwei Peng, Dongqing Cai, **Jinli Qiao***, Large-scale defect-engineering tailored tri-doped graphene as a metal-free bifunctional catalyst for superior electrocatalytic oxygen reaction in rechargeable Zn-air battery, Appl. Catal. B: Environ., 2021, 285, 119811 (IF:16.683)

[5] NengnengXu, Cameron A.Coco, Yudong Wang,Tianshun Su,Yu Wang, Luwei Peng, Yanxing Zhang, Yuyu Liu, **Jinli Qiao***, Xiao-Dong Zhou#, Electro-conversion of methane to alcohols on “capsule-like” binary metal oxide catalysts, Appl. Catal. B: Environ., 2021, 282, 119572 (IF:16.683)

[6] Xu Wang, Luwei Peng, Nengneng Xu#, Mingjie Wu, Yongxia Wang, Jianing Guo, Shuhui Sun, **Jinli Qiao***, Cu/S-Occupation Bifunctional Oxygen Catalysts for Advanced Rechargeable Zinc−Air Batteries, ACS Appl. Mater. Interfaces, 2020, 12, 52836-52844 (IF:8.758)

[7] Jianing Guo, Nengneng Xu#, Yongxia Wang, Xu Wang, Haitao Huang#, and **Jinli Qiao***, Bimetallic Sulfide with Controllable Mg Substitution Anchored on CNTs as Hierarchical Bifunctional Catalyst toward Oxygen Catalytic Reactions for Rechargeable Zinc−Air Batteries, ACS Appl. Mater. Interfaces 2020, 12, 37164-37172 (IF:8.758)

[8] Yongxia Wang, Mingjie Wu, Jun Li, Haitao Huang#, **Jinli Qiao***, n situ growth of CoP nanoparticles anchored on (N,P) co-doped porous carbon engineered by MOFs as advanced bifunctional oxygen catalyst for rechargeable Zn–air battery, J. Mater. Chem. A, 2020,8, 19043-19049 (IF:11.301)

[9] Nengneng Xu, Jiawen Liu, **Jinli Qiao***, Haitao Huang, Xiao-Dong Zhou#, Interweaving between MnO2 Nanowires/ Nanorods and Carbon nanotubes as Robust Multifunctional Electrode for Both Liquid and Flexible Electrochemical Energy Devices, J. Power Sources, 2020, 455, 227992 (IF:8.247)

[10] Nengneng Xu, Joshua A. Wilsonc, Yu-Dong Wang, Tianshun Su, Yanan Wei, **Jinli Qiao***, Xiao-Dong Zhou#, Yanxing Zhang#, Shunhui Sun, Flexible self-supported bi-metal electrode as a highly stable carbon- and binder-free cathode for large-scale solid-state zinc-air batteries, Appl. Catal. B: Environ. 2020, 272, 118953 (IF:16.683)

[11] Luwei Peng, Yongxia Wang, Israr Masood, Bo Zhou, Yaofeng Wang, Jia Lin, **Jinli Qiao***, Feng-Yuan Zhang#, Self-growing Cu/Sn bimetallic electrocatalysts on nitrogen-doped porous carbon cloth with 3D-hierarchical honeycomb structure for highly active carbon dioxide reduction, App. Catal. B: Environ. 2020, 264, 118447 (IF:16.683)

[12] Junyu Liu, Luwei Peng, Yue Zhou, Li Lv#, Jing Fu#, Jia Lin, Daniel Guay, **Jinli Qiao***, Metal−organic-frameworks-derived Cu/Cu2O catalyst with ultrahigh current density for

continuous-Flow CO2 Electroreduction, ACS Sustainable Chem. Eng. 2019, 7, 15739-15746 (IF:7.632)

[13] Nengneng Xu, Yanxing Zhang, Min Wang, Xiujun Fan, Tao Zhang, Luwei Peng, Xiao-Dong Zhouf, **Jinli Qiao***, High-performing rechargeable/flexible zinc-air batteries by coordinated hierarchical Bi-metallic electrocatalyst and heterostructure anion exchange membrane, Nano Energy, 2019, 65, 104021 (IF:16.602)

[14] Cong Liu, Fang Dong, Mingjie Wu, Yongxia Wang#, Nengneng Xu, Xu Wang, **Jinli Qiao***, Penghui Shi, Haitao Huang#, J. Power Sources, 2019, 438, 226953-353 (IF:8.247)

[15] Fang Dong, Cong Liu, Mingjie Wu, Jianing Guo, Kaixi Li, **Jinli Qiao***, Hierarchical Porous Carbon Derived from Coal Tar Pitch Containing Discrete Co–Nx–C Active Sites for Efficient Oxygen Electrocatalysis and Rechargeable Zn–Air Batteries, ACS Sustainable Chem. Eng., 2019, 7, 8587-8596 (IF:7.632)

[16] Min Wang, Nengneng Xu, Jing Fu, Yuyu Liu, **Jinli Qiao***, High-performance binary cross-linked alkaline anion polymer electrolyte membranes for all-solid-state supercapacitors and flexible rechargeable zinc–air batteries, J. Mater. Chem. A, 2019, 7, 11257-11264 (IF:11.301)

[17] Qi Zhang, Yanxing Zhang, Jianfeng Mo#, Junyu Liu, Yue Zhou, Daniel Guay, **Jinli Qiao***, Electrochemical Reduction of CO2 by SnOx Nanosheets Anchored on Multiwalled Carbon Nanotubes with Tunable Functional Groups, ChemSusChem, 2019, 12, 1443-1450 (IF:7.962)

[18] Min Wang, Nicholas Preston, Nengneng Xu, Yanan Wei, Yuyu Liu, **Jinli Qiao***, Promoter Effects of Functional Groups of Hydroxide-conductive Membranes on Advanced CO2 Electroreduction to Formate, ACS Appl. Mater. & Inter., 2019, 11, 578-587 (IF:8.758)

[19] Xiaofan Hou, Yixiao Cai, Dan Zhang, Lv Li, Xia, Zhang, Zidi Zhue, Yuyu Liu, **Jinli Qiao***, 3D core-shell porous-structured Cu@Sn hybrid electrodes with unprecedented selective CO2-into-formate achieving 100%, J. Mater. Chem. A, 2019, 7, 3197-3205 (IF:11.301)

[20] Nengneng Xu, Yanxing Zhag, Tao Zhang#, Yuyu Liu, **Jinli Qiao***, Efficient Quantum Dots Anchored Nanocomposite for Highly Active ORR/OER Electrocatalyst of Advanced Metal-Air Batteries, Nano Energy, 2019, 57, 176-185 (IF:16.602)

[21] Mingjie Wu, Qingli Wei, Gaixia Zhang#, **Jinli Qiao***, Mingxin Wu, J.H. Zhang, Qiaojuan Gong, Shuhui Sun#, Fe/Co Double Hydroxide/Oxide Nanoparticles on N-Doped CNTs as Highly Efficient Electrocatalyst for Rechargeable Liquid and Quasi-Solid-State Zinc–Air Batteries, Adv. Energy Mater., 2018, https://doi.org/10.1002/aenm.201801836 (IF:25.245)

[22] Xia Zhang, Xiaofan Hou, Qi Zhang, Yixiao Cai, Yuyu Liu#, **Jinli Qiao***, Polyethylene Glycol Induced Reconstructing Bi Nanoparticle Size for Stabilized CO2 Electroreduction to Formate, J. Catalysis, 2018, 365, 63-70 (IF:7.888)

[23] Xuemei Li, Fang Dong, Nengneng Xu, Tao Zhang#, Kaixi Li, **Jinli Qiao***, Co3O4/MnO2/Hierarchically Porous Carbon as Superior Bifunctional Electrodes for Liquid and All-Solid-State Rechargeable Zinc-Air Batteries, ACS Appl. Mater. & Inter., 2018, 10, 15591-15601 (IF:8.758)

[24] Qiaowei Tang, Luming Wang#, Mingjie Wu, Nengneng Xu, Lei Jiang, **Jinli Qiao***, Achieving high-powered Zn/air fuel cell through N and S co-doped hierarchically porous

carbons with tunable active-sites as oxygen electrocatalysts, J. Power Sources, 2017, 365, 348-353 (IF:8.247)

[25] Xia Zhang, Tao Lei, Yuyu Liu#, **Jinli Qiao***, Enhancing CO2 electrolysis to formate on facilely synthesized Bi catalysts at low overpotential, Appl. Catal. B: Environ. 2017, 218, 46-50 (IF:16.683)

[26] Mingjie Wu, **Jinli Qiao***, Kaixi Li, Xuejun Zhou, Yuyu Liu#, Jiujun Zhang#, A large-scale synthesis of heteroatom (N and S) co-doped hierarchically porous carbon (HPC) derived from polyquaternium for superior oxygen reduction reactivity, Green Chem. 2016, 18, 2699-2709 (IF:9.48)

[27] Yishu Fu, Yanan Li, Xia Zhang, Yuyu Liu#, **Jinli Qiao***, Jiujun Zhang#, David P. Wilkinson, Novel hierarchical SnO2 microsphere catalyst coated on gas diffusion electrode for enhancing energy efficiency of CO2 reduction to formate fuel, Appl. Energy., 2016, 175, 536-544 (IF:8.848)

[28] Xuejun Zhou, Sheng Tang, Yan Yin#, Shuihui Sun, **Jinli Qiao***, Hierarchically Porous N-doped Graphene Foams with Superior Oxygen Reduction Reactivity for Polymer Electrolyte Membrane Fuel Cells, Appl Energy, 2016, 175, 459-467 (IF:8.848)

[29] Xuejun Zhou, Zhengyu Bai, Mingjie Wu, **Jinli Qiao***, Zhongwei Chen#, 3-Dimensional Porous N-doped Graphene Foam as Non-Precious Catalysts for Oxygen Reduction Reaction, J. Mater. Chem. A, 2015, 3, 3343-3350 (ESI highly sited/JMC hot paper) (IF:11.301)

[30] **Jinli Qiao**, Yuyu Liu, Feng Hong, Jiujun Zhang, A review of catalysts for the electroreduction of carbon dioxide to produce low-carbon fuels, Chem. Soc. Rev, 2014, 43, 631-675 (ESI highly sited/hot paper)(IF:42.846)

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Dr. Jianyun Liu (Doctor's Supervisor)

Research Area: sensor development for water contaminate analysis, supercapacitor deionization (CDI) for salt removal in seawater and brackish water, Carbon nanomaterials for supercapacitor device and development of catalyst materials for recalcitrant COD removal

Email: *jianyun.liu@dhu.edu.cn*

Dr. Liu is a professor in College of Environmental Science and Engineering, Donghua University. She received her PhD degree of analytical chemistry from Changchun Institute of Applied Chemistry, Chinese Academy of Science in 2001. She worked at the Max-Planck Institute of Polymer Research in Mainz, Germany as a postdoc research fellow (2002 to 2005). And then she moved to Global Research (Shanghai) Center of General Electronic

(GE) Company as a Lead scientist for water treatment and water monitoring research (2006-2010). Her research interests focus on sensor development for water contaminate analysis, supercapacitor deionization (CDI) for salt removal in seawater and brackish water, Carbon nanomaterials for supercapacitor device and development of catalyst materials for recalcitrant COD removal. Her current research projects include the NSFC, product-oriented projects and foundation of the state key lab of electroanalytical chemistry. She has published more than 60 papers in peer-reviewed international journals with the h-index of 21, and has issued 16 patents with 6 authorized patents and 1 US patent. She was awarded outstanding postgraduate prize of president fellowship, the first prize of science and technology progress in Jinlin province and GE Global Research innovation prize.

Selected recent publications:

[1] Pengfei Nie, Junbin Yan, Guodong Zhu, **Jianyun Liu***. Inverted hybrid-capacitive deionization with polyaniline nanotubes doped activated carbon as an anode. Electrochimica Acta, 2020, 339, 135920.

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Dr. Qunshan Wei (Master's Supervisor)

Research Area: the fate and transport of some of POPs (e.g. Antibiotics) in aquatic environment including their relationships and reactions with DOM
Email: *qswei@dhu.edu.cn*

Dr. Qunshan Wei is an Associate Professor, College of Environmental Science and Engineering, Donghua University and an Adjunct Associate Professor in the Institute of Urban Environment (IUE), Chinese Academy of Sciences (CAS). He has over 10 years experience in environmental science & engineering and aquatic chemistry including 8 years experience in drinking water treatment and analytical chemistry. Since joined IUE in 2007, he has

been involved in a number of major water treatment related research projects. His experience included, dissolved organic matter (DOM), disinfection by-products (DBPs) control, removal of algae by coagulation, optimization of water treatment processes (conventional water treatment, membrane filtration, Ultrafiltration, coagulation, MIEX, carbon adsorption, advanced oxidation), recycled water, storm runoff quality & assessment and various analytical techniques related to water quality investigation and process optimization. Recently, one of his research interests is focusing on the fate and transport of some of POPs (e.g. Antibiotics) in aquatic environment including their relationships and reactions with DOM.

Selected recent publications:

[1] Lipeng Tang, Feng Xiao, **Qunshan Wei***, Yanbiao Liu, Yubin Zou, Jianshe Liu, Wolfgang Sand and Christopher Chow. Removal of active dyes by ultrafiltration membrane pre-deposited with a PSFM coagulant: Performance and mechanism. Chemosphere, 2019, 223 (5): 204-210.

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Dr. Lisha Zhang (Master's Supervisor, the editor member of Scientific Report)

Research Area: design and preparation of advanced functional materials, photocatalysis technology, photoelectric conversion technology and water pollution control technology

Email: *seanlee@dhu.edu.cn*

Dr. Lisha Zhang is an associate professor in College of Environmental Science and Engineering, Donghua University. She received her PhD degree in school of life science from the Chinese University of Hong Kong in 2010. Her research interests focus on the design and preparation of advanced functional materials, photocatalysis technology, photoelectric

conversion technology and water pollution control technology. As first or corresponding author, she has 25 papers published in peer-reviewed scientific journals on these research field, including Chemical Society Reviews, Scientific Report, Environmental Science & Technology, Water Research, Nano Energy and etc. Among these papers， there are 8 ESI high cited papers and one hot paper. Her publications have been cited over 2575 times and have H index of 18.

Selected recent publications:

[1] Ruru Meng, Jun Lyu, Liming Zou, Qiuping Zhong, Zixiao Liu, Bo Zhu, Meiyue Chen,**Lisha Zhan***, Zhigang Chen, CNT-based gel-coated cotton fabrics for constructing symmetrical evaporator with up/down inversion property for efficient continuous solar desalination.Desalination,2023,554,116494(IF=11.211).

[2] Congcong Li, Bo Zhua, Zixiao Liu, Jiangtong Zhao, Ruru Meng, **Lisha Zhang***, Zhigang Chen*, Polyelectrolyte-based photothermal hydrogel with low evaporation enthalpy for solar-driven salt-tolerant desalination. Chemical Engineering Journal 2022, 431, 134224. (IF=16.744)

[3] Xiaolong Li, Ting Liu, Yan Zhang, Jiafeng Cai, Mengqiang He, Maoquan Li, Zhigang Chen*, **Lisha Zhang***, Growth of BiOBr/ZIF-67 Nanocomposites on Carbon Fiber Cloth as Filter-Membrane-Shaped Photocatalyst for Degrading Pollutants in Flowing Wastewater. Advanced Fiber Materials 2022,4,1620(IF= 12.958)

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[10] Gumila•Duoerkun, Yan Zhang, Zhun Shi, Xiaofeng Shen, Wei Cao, Ting Liu, Jianshe Liu, Quanyuan Chen, **Lisha Zhang***, Construction of n-TiO2/p-Ag2O Junction on Carbon Fiber Cloth with Vis–NIR Photoresponse as a Filter-Membrane-Shaped Photocatalyst. Advanced Fiber Materials,2020, 2(1):13-23. (IF =12.958)

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Dr. Yuhui Wang (Master's Supervisor)

Research Area: Ecological Control on Pollutants, and Environmental modeling

Email: *yhwang@dhu.edu.cn*

Dr. Wang is an associate professor in College of Environmental Science and Engineering, Donghua University. He received PhD of Environmental Science and Engineering from Donghua University in 2012. Dr. Wang's research interests focus on the Ecological Control on Pollutants, and Environmental modeling.

Selected recent publications:

[1] Li MJ, **Wang YH***, Liu ZW, Sha Y, Korshin GV, Chen YYC, Metal-release potential from iron corrosion scales under stagnant and active flow, and varying water quality conditions. Water Research. 2020, 175, 115675.

[2] Si ZH, **Wang YH***, Song XS, Cao X, Zhang X, Sand W. Mechanism and performance of trace metal removal by continuous-flow constructed wetlands coupled with a micro-electric field. Water Research. 2019, 164, 114937.

[3] **Wang YH**, Li MJ, Liu ZW, et al., Interactions between pyrene and heavy metals and their fates in a soil-maize (Zea mays L.) system: Perspectives from the root physiological functions and rhizosphere microbial community. Environmental Pollution, 2021, 287, 117616..

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affected by substrate material size and aquatic macrophyte in constructed wetland-microbial fuel cell. Bioresource Technology. 2017, 245(12)： 372-378.

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[19] **Wang YH**, Wang JF, Zhao XX*, Song XS, Gong J. The Inhibition and Adaptability of Four Wetland Plant Species to High Concentration of Ammonia Wastewater and Nitrogen Removal Efficiency in Constructed Wetlands. Bioresource Technology. 2016, 202(2)： 198-205.

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[21] Song XS, Ding Y, **Wang YH***, Wang W, Wang G, Zhou B. Comparative study of nitrogen removal and bio-film clogging for three filter media packing strategies in vertical flow constructed wetlands. Ecological Engineering. 2015, 74(1)： 1-7.

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Dr. Chensi Shen (Master's Supervisor)

Research Area: water pollution control using the environmental friendly materials

Email: *shencs@dhu.edu.cn*

Dr. Chensi Shen, PhD, is a teacher of the Environmental Science at Donghua University. Shen's work is focused on water pollution control using the environmental friendly materials. She has published 17 peer-reviewed papers in Water Research, Journal of Hazardous materials, etc. Her researches about the application of chitosan-metal complex in wastewater treatment were supported by National Natural Science Foundation of China and the Shanghai Yang-Fan Program of Science and Technology Commission of Shanghai.

Selected recent publications:

[1] Feng Zhao, Di Zhang, Chenye Xu, Jianshe Liu, **Chensi Shen（沈忱思）***, The enhanced degradation and detoxification of chlortetracycline by Chlamydomonas reinhardtii. Ecotoxicology and Environmental Safety, 2020, 196: 110552.

[2] **Chensi Shen（沈忱思）**, Hao Li, Yuezhong Wen, Feng Zhao, Yaopeng Zhang, Deli Wu, Yanbiao Liu, Fang Li*, Spherical Cu2O-Fe3O4@chitosan bifunctional catalyst for coupled Cr-organic complex oxidation and Cr(VI) capture-reduction, Chemical Engineering Journal, 2020, 383: 123105.

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[4] **Chensi Shen（沈忱思）**, Yuting Pan, Deli Wu, Yanbiao Liu, Chunyan Ma, Fang Li*, Huijie Ma, Yaopeng Zhang, A crosslinking-induced precipitation process for the simultaneous removal of poly(vinyl alcohol) and reactive dye: The importance of covalent bond forming and magnesium coagulation, Chemical Engineering Journal, 2019, 374: 904-913.

[5] Yanbiao Liu*, Peng Wu, Fuqiang Liu, Fang Li, Xiaoqiang An, Jianshe Liu, Zhiwei Wang, **Chensi Shen（沈忱思）***, Wolfgang Sand, Electroactive Modified Carbon Nanotube Filter for Simultaneous Detoxification and Sequestration of Sb(III), Environmental Science & Technology, 2019, 533: 1527-1535.

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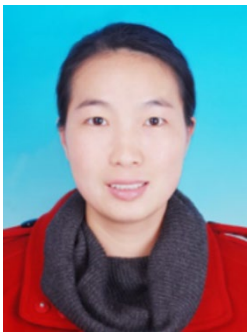

Dr. Xuehui Xie (Master's Supervisor)

Research Area: environmental microbial ecology, environmental toxicology, water treatment biotechnology, bioremediation of contaminated sites and so on

Email: *xiexuehui@dhu.edu.cn*

Dr. Xie is a lecturer in College of Environmental Science and Engineering, Donghua University. She received her PhD of Environmental Science and Engineering from Donghua University in 2010. In 2009, Dr. Xie had been to Professor Zhou Jizhong's laboratory, US Environmental Genome Center, University of Oklahoma, for short-term study. In 2011, Dr. Xie was selected by "Shanghai Young Teachers' Training Scheme". As a visiting scholar, 2012-2013, she joined the research group of Dr. Hongying Hu in Tsinghua University. Her research interests focus on: environmental microbial ecology, environmental toxicology, water treatment biotechnology, bioremediation of contaminated sites and so on.

Selected recent publications:

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Dr. Xiang Li (Master's Supervisor)

Research Area: sludge resource recovery and metabolism regulation of anaerobic microbe fermentation, industry wastewater new treatment technology and application.

Email: *lix@dhu.edu.cn*

Dr. Li is the lecture in Department of Environmental engineering. He received his PhD of environmental engineering degree in 2014 from Tongji University. Dr. Li is the recipient of New Scientist Award from State Education Ministry, Young Scientist Sailing Program in Shanghai Deputy. He once visited TU Delft and Wageningen UR in the Netherlands, Bordeaux in France, HKU of Science and Technology. His research interests focus on the sludge resource recovery and metabolism regulation of anaerobic microbe fermentation. Also, he interests in industry wastewater new treatment technology and application.

Selected recent publications:

[1] **Xiang Li**, Hong Chen, Lanfang Hu, Lei Yu, Yinguang Chen*, Guowei Gu. Pilot-scale waste activated sludge alkaline fermentation, fermentation liquid separation, and application of fermentation liquid to improve biological nutrient removal. Environmental Science & Technology, 2011, 45: 1834-1839.（一区 TOP）

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