Hua Zhong

Associate Professor (tenured), **Senior Research Scientist**
Department of Environmental Engineering
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RESEARCH INTERESTS

My research is focused on integrating physical, chemical, and biological principles, and employing innovative experimental methods from the molecular to the field scale, to develop mechanistic understanding of contaminant transport and transformation processes in groundwater systems. I am also interested in the development of innovative technologies for characterization and remediation of contaminated groundwater and soils. In addition, I do research on water and wastewater treatment as minor interests. Specific research interests include (1) inter-phase contaminant mass transfer behaviors in porous media; (2) coupled processes of contaminant mass transfer, transport and transformation; (3) colloid and nanoparticle transport; (4) advanced oxidation processes for in situ groundwater remediation and water treatment; (5) bioretention systems for removal of contaminants from rain water for low-impact development; (6) novel materials for contaminant removal in natural or constructed porous media; (7) simulation of contaminant removal in groundwater systems and the risk assessment

EMPLOYMENT

Associate Professor (tenured) 1/2023 – present
Department of Environmental Engineering, Eastern Institute of Advanced Study, Ningbo, Zhejiang, China

Professor 7/2016 – 12/2022
Department of Water Resources Engineering, School of Water Resources and Hydropower Engineering Science, Wuhan University, Wuhan, Hubei, China

Research Scientist 3/2013 – 6/2016
Department of Soil, Water and Environmental Science, School of Earth and Environmental Sciences, University of Arizona, Tucson, AZ, US

Research Specialist 6/2012 – 2/2013
Department of Soil, Water and Environmental Science, School of Earth and Environmental Sciences, University of Arizona, Tucson, AZ, US

Postdoctoral Research Associate 6/2011 – 5/2012
Department of Soil, Water and Environmental Science, School of Earth and Environmental Sciences, University of Arizona, Tucson, AZ, US

Assistant professor 8/2008 – 6/2011
Department of Environmental Engineering, College of Environmental Science and Engineering, Hunan University, Changsha, Hunan, China.

PROFESSIONAL EXPERIENCE

Visiting Scientist 5/2019 – 11/2019
Department of Civil and Environmental Engineering, University of Macau, Macau SAR, China

EDUCATION

Ph.D. in Environmental Engineering, College of Environmental Science and Engineering, Hunan University, Aug. 2008.
Area of study: Water and Soil Chemistry, Environmental Microbiology, Contaminant Transport and Transformation, Water Remediation or Treatment

M.Sc. in Environmental Engineering, College of Environmental Science and Engineering, Hunan University, Jun. 2005.
Area of study: Water and Soil Chemistry, Environmental Microbiology, Water and Wastewater Treatment, Municipal and Agricultural Waste

B.E. in Environmental Engineering, College of Environmental Science and Engineering, Hunan University, Jun. 2002.

AWARDS AND HONORS

- Annual academic staff of best service, School of Water Resources and Hydropower Engineering, Wuhan University, 2021
- Elsevier BV-Stanford University global 2% top scientists, ecological and environmental science, 2019, 2020, 2022
- Best presentation award, the 5th International Conference on Water Resources and Engineering (WRE2018), Jul 16-22 2018, Kaohsiung, Taiwan, China
- Technology Development Award (Level 2), A new method for bridge construction wastewater treatment, China Highway and Transportation Society, 2016
- Supervisor of the Excellent Poster Award of the 10th National Conference on Environmental Chemistry (10th NCEC) (Student: Guansheng Liu; presentation title: Transport of Pseudomonas aeruginosa in porous media mediated by low-concentration surfactants: the critical role of surfactant to change cell surface hydrophobicity), Tianjin, 2019
- Supervisor of the 3rd prize winner of Best Presentations in 12th Environment Forum for Graduate Students of China (EFGSC) (Student: Peng Cui; presentation title: In-situ activation of persulfate by magnetite nanoparticles for degradation of 1,2-dichloroethane), Shanghai, 2017
- Supervisor of the 2nd prize winner of Best Presentations in 11th EFGSC (Student: Yang Liu; presentation title: Effect of rhamnolipid solubilization on hexadecane bioavailability: enhancement or reduction), Shanghai, 2016
- Supervisor of the 3rd prize winner of Best Presentations in 11th EFGSC (Student: Lina Zhang; presentation title: Heterogeneous activation of persulfate by Fe_3O_4 for degradation of refractory organic contaminants), Shanghai, 2016
- Supervisor of the 2nd prize winner of Best Presentations in 10th EFGSC (Student: Guansheng Liu; presentation title: Effect of low-concentration monorhamnolipid on the transport of Pseudomonas aeruginosa ATCC 9027 in porous media), Shanghai, 2015

- Supervisor of the 3rd prize winner of Best Presentations in 9th EFGSC (Student: Zhibin Wu; presentation title: Adsorptive removal of methylene blue by rhamnolipid-functionalized graphene oxide from wastewater), Shanghai, 2014
- Outstanding Ph.D. dissertation award, Hunan University (2009)
- Outstanding M.Sc. thesis award, The Education Department of Hunan Province, China (2006)

PROFESSIONAL QUALIFICATIONS

- Licensed National Environmental Protection Engineer, Ministry of Housing and Urban-Rural Development of China
- Licensed National Environmental Impact Assessment Engineer, Ministry of Environmental Protection of China

MEMBERSHIPS

- International Water Association (IWA), 2015-present
- American Geophysical Union (AGU), 2013-present
- Soil Science Society of America (SSSA), 2015-present
- Chinese Society for Environmental Sciences, Senior Member, 2012-present

GRANTS AND CONTRACTS

CURRENT

- **"The materials and key technologies for the in situ reactive zone method for remediation of groundwater contaminated by multiple organic contaminants in petrochemical industrial park"**
  "The Yongjiang talent developing program of Ningbo – the team of innovation", the Organization Department of the Government of Ningbo, 4/2024-12/2028, CNY 5,000, 000 (Single PI)
- **"The groundwater pollution investigation and management plan for the "Double Source" area in Zhaoqing, Guangdong province, China"**
  South China Institute of Environmental Science, 10/2023-5/2024, CNY 350, 000 (Single PI)

COMPLETED

- **"Coupling low heat and in situ chemical oxidation for cost-effective remediation of the site contaminated by multiple organic compounds"**
  "Integration of heating technology and other technologies for efficient and low-cost remediation of the sites contaminated by multiple organic compounds" (2019YFC1805700), National Key Research and Development Project, Ministry of Science and Technology of China, 6/2020-5/2023, CNY 1,080, 000 (Co-PI)
- **"In situ heterogeneous activation of persulfate for degradation of the refractory organic**

contaminants in groundwater"
National Natural Science Foundation of China (No. 51979203), 1/2020-12/2023, CNY 610,000 (Single PI)

- **"From contaminant transport and transformation to soil and groundwater remediation"**
  Foundation for Construction of First-class Universities and Disciplines of the World, Ministry of Education/Wuhan University, 3/2021-12/2023, CNY 1,000,000 (Single-PI)

- **"The national high-level talent support program of China"**
  The Organization Department of the Central Government of China, 3/2019-2/2022, CNY 2,200,000 (Single PI)

- **"Natural-engineered ecological process research"**
  Foundation for Joint Research Institute of Wuhan University and China Baowu Steel Group Corporation Limited, 4/2022-3/2023, CNY 600,000 (Co-PI)

- **"Chemical denaturalization and deep dewatering of municipal sludge"**
  The Aquaroot Co. Ltd, 4/2021-1/2022, CNY 191,000 (Single PI)

- **"The effect of low-concentration surfactants on mobilization and solubilization of nonaqueous phase liquid in porous media and their control"**
  National Natural Science Foundation of China (No. 51779182), 1/2018-12/2021, CNY 600,000 (Single PI)

- **"Efficient in-situ activation of persulfate in porous media and degradation of organic contaminants"**
  Distinguished Young Scholar Fund, the Science Foundation of Hubei Province (2017CFA058), China, 8/2017-7/2020, CNY 200,000 (Single PI)

- **"The platform for water quality management and early warning for south-to-north water diversion project"**
  "Construction of technological systems for safe urban water supply with multiple water sources", Major Science and Technology Program for Water Pollution Control and Treatment (2017ZX07108-001), 1/2017-6/2020, CNY 600,000 (Co-PI)

- **"Attenuation of some typical agricultural non-point-source contaminants in porous media and its enhancement"**
  Outstanding Young Scholar Fund, Wuhan University, 1/2017-12/2018, CNY 150,000 (Single PI)

- **"Behaviors of rhamnolipid – self Aggregation, HOC solubilization and the effect on bioavailability of HOCs"**
  Fundamental Research Funds for the Central Universities, Ministry of Education of China, 7/2016-6/2018, CNY 500,000 (Single PI)

- **"The mechanisms for surfactants to affect the bioavailability of hydrophobic organic compounds in saturated porous media"**
  The National Natural Science Foundation of China (No. 51378192), 1/2014-12/2017, CNY 800,000 (Single PI)

- **"Role of rhamnolipid in changing cell surface hydrophobicity for petroleum degrading microorganisms and its relation with petroleum uptake"**
  National Natural Science Foundation of China for Young Scientist (No.50908081), 1/2010-12/2012, CNY 200,000 (Single PI)

- **"Technologies for metal contaminated sediment dredging and cleaning at xiawan river"**
  "Key Technologies and Their Demonstrations for Metal Pollution Control In Xiangjiang Waters", Major Science and Technology Program for Water Pollution Control and treatment (2009ZX07212-001-02), 1/2009-6/2012, CNY 500,000 (Co-PI)
- **"Facilitated transport enabled in situ chemical oxidation of 1,4-dioxane- contaminated groundwater"**
  Strategic Environmental Research and Development Program (ER-2302), U.S. Department of Defense, 5/2013-1/2017, $1,203,000 (Key participant)
- **"In-situ biosequestration for remediation of uranium in groundwater at the monument valley umtra site"**
  U.S. Department of Energy (LMCP5482), 5/2015-11/2016, $275,000 (Key participant & project leader)
- **"Mass-transfer and mass-flux dynamics of chlorinated solvents in heterogeneous systems"**
  The SUPERFUND Basic Research Program (No. E504940), U.S. National Institute of Environmental Health Sciences, 7/2010-6/2015, $875,000 (Key participant)
- **"A mechanistic study of the transport and fate of biosolid colloids in soil"**
  National Research Initiative (No.2007-35107-1835), U.S. Department of Agriculture, 2007-2011, $390,000 (Participant)

TEACHING EXPERIENCE

ENGLISH

- **Contaminant Transport in Porous Media** (graduate, joint teaching)
  Department of Soil, Water and Environmental Science, University of Arizona; Spring 2015
- **Soil and Groundwater Remediation** (graduate, joint teaching)
  Department of Soil, Water and Environmental Science, University of Arizona; Fall 2015
- **Fundamentals in Contaminant Hydrogeology** (undergraduate and graduate)
  Short-Term Open Courses, Hunan University, Summer 2016
- **Professional English for Environmental Science and Engineering** (undergraduate)
  Department of Environmental Engineering, Hunan University; Fall 2008, Fall 2009, Fall 2010

CHINESE

- **Chemistry for Engineering** (undergraduate)
  Department of Water Resources Engineering, Wuhan University; Fall 2021, Fall 2022
- **Introduction to Ecology and Environmental Science** (undergraduate)
  Department of Water Resources Engineering, Wuhan University; Spring 2020
- **Soil Science** (undergraduate)
  Department of Water Resources Engineering, Wuhan University; Fall 2018
- **Water Resources Engineering: Environmental** (undergraduate)
  Department of Water Resources Engineering, Wuhan University; Spring 2017, Spring 2018

- **Processes and Technologies for Environmental Remediation** (graduate)
  Department of Environmental Engineering, Hunan University; Fall 2009, Fall 2010
- **Environmental Chemistry** (undergraduate)
  Department of Environmental Engineering, Hunan University; Fall 2009
- **Environmental Engineering Principles** (undergraduate)
  Department of Environmental Engineering, Hunan University; Spring 2009, Spring 2010
- **Environmental Impact Assessment** (undergraduate)
  Department of Environmental Engineering, Hunan University; Spring 2009
- **Urban wastewater collection, treatment, and remediation** (entrepreneurial training course)
  China Construction Third Engineering Bureau Co.,Ltd, Wuhan; May 2017

STUDENT/POSTDOCTORATE/RESEARCHER SUPERVISION

RESEARCHERS (2 current)

- Juan Yin (Visiting Scholar), Environmental Engineering, EIT Institute for Advanced Study (7/2023-present)
  Research interest: Contamination of heavy metals and the environmental health
- Chengjia Xia (Engineer), Environmental Science, EIT Institute for Advanced Study (1/2024-present)
  Research interest: Machine learning and AI-based data analysis for contaminant simulation in water environment

POSTDOCS (4 current + 1 former)

- Lian Zhou, Environmental Engineering, EIT Institute for Advanced Study (10/2022-present)
  Research interest: Simulation of reactive transport of contaminants in porous media
- Yake Wang, Environmental Engineering, EIT Institute for Advanced Study (10/2022-present)
  Research interest: Persulfate-based in situ chemical oxidation for contaminant removal in groundwater
- Lili Huo, Water Resources Engineering, Wuhan University (08/2022-present)
  Research interest: Chemical transport and mass transfer for surfactant-enhanced aquifer remediation
- Guansheng Liu, Water Resources Engineering, Wuhan University (08/2021-present)
  Research interest: Transport of colloids and nanoparticles in porous media; groundwater remediation
- ► Zulfiqar Ahmad, Water Resources Engineering, Wuhan University (01/2018-05/2020)
  Research interest: Soil and environmental microbiology, application of biosurfactants in bioremediation of environmental contaminants and biofertilizer development
  Work experience: 4/2016-12/2017 Assistant Professor, Department of Environmental Sciences, Pir Mehr Ali Shah Arid Agriculture University, Pakistan; 08/2013-05/2014, Junior Specialist, Department of Environmental Science, University of California, Riverside U.S.

PH.D. STUDENTS (11 current + 6 graduated)

- Junyi Wang, Environmental Engineering, EIAS-SJTU (09/2023-present)

Research interest: to be determined

- Liang Wei, Environmental Engineering, EIAS-PolyU (09/2023-present)
  Research interest: to be determined
- Xianyao Ma, Environmental Engineering, EIAS-SJTU (09/2022-present)
  Research interest: In situ AOPs catalyzers for groundwater remediation
- Jingyi Gao, Environmental Engineering, EIAS-PolyU (09/2022-present)
  Research interest: Biochar-based materials for contaminant removal in passive water treatment systems
- Mengdi Zhao, Environmental Engineering, EIAS-PolyU (09/2022-present)
  Research interest: Activation of persulfate for groundwater remediation
- Xiaojing Tang, Water Resources Engineering, Wuhan University (09/2021-present)
  Research interest: Co-transport of PFAS and micro-plastics in porous media
- Weiyong Zhan, Water Resources Engineering, Wuhan University (09/2021-present)
  Research interest: Effect of clay colloids on transport of carbon and microplastic nanoparticles in porous media
- Yan Li, Water Resources Engineering, Wuhan University (09/2020-present)
  Research interest: Removal of concurrent organic contaminants from aquifer based on ISCO
- Tianyuan Gu, Water Resources Engineering, Wuhan University (09/2020-present)
  Research interest: Biosequestion of Cr(VI) in groundwater
- Buriro Ghous Bakhsh, Water Resources Engineering, Wuhan University (09/2019-present)
  Research interest: Activation of persulfate for degradation of refractory organic contaminants
- Wei Chen, Water Resources Engineering, Wuhan University (09/2019-present)
  Research interest: Modification of Fe-containing particles with mesoporous silica for transport enhancement in porous media
- ► Yalu Shao, Water Resources Engineering, Wuhan University (09/2017-06/2023)
  Research interest: Natural attenuation of nitrate and denitrification enhancement
- ► Xin Yang, Environmental Engineering, Hunan University (09/2016-09/2022)
  Research interest: Dissolution of nonaqueous phase liquids in porous media by low-concentration surfactants and transport of the aggregates
- ► Lili Huo, Water Resources Engineering, Wuhan University (09/2018-06/2022)
  Research interest: Chemical transport and mass transfer for surfactant-enhanced aquifer remediation
- ► Guansheng Liu, Water Resources Engineering, Wuhan University (09/2017-06/2021)
  Research interest: Transport of Fe-based nanoparticles in porous media for groundwater remediation enhancement
- ► Zhibin Wu, Environmental Engineering, Hunan University (09/2014-01/2018, co-advisor)
  Dissertation title: Applications and mechanisms of graphene-based adsorbent/ photocatalysts for organic pollutant removal from water
- ► Yang Liu, Environmental Engineering, Hunan University (09/2013-06/2018, co-advisor)
  Research interest: Surfactant-mediated bioavailability and biodegradation of hydrophobic organic compounds

MASTER STUDENTS (2 current + 29 graduated)

- Wei Fang. Water Resources Engineering, Wuhan University (09/2021-present)
  Research interest: Simulation on coupling of persulfate and heat for site remediation

- Douangsone, Environmental Science, Hunan University (09/2018-present)
  Research interest: Use of surfactants to enhance degradation of hydrophobic organic compounds by persulfate
- Liang Wei. Water Resources Engineering, Wuhan University (09/2021-06/2023)
  Research interest: Dewatering of municipal sludge based on advanced oxidation
- Junyi Wang. Water Resources Engineering, Wuhan University (09/2021-06/2023)
  Research interest: Water removal from municipal sludge
- Yufei Jia. Water Resources Engineering, Wuhan University (09/2020-06/2023)
  Research interest: Solid-phase denitrification for nitrogen removal from soil
- Jing Cao. Water Resources Engineering, Wuhan University (09/2019-06/2021)
  Research interest: The relation between the structure of our electron layer and the ability of cycle 4 transition metals for persulfate activation.
- Hang Shen. Water Resources Engineering, Wuhan University (09/2019-06/2021)
  Research interest: Modeling the contaminant degradation behavior in porous meida.
- Hongwei Zhang, Water Resources Engineering, Wuhan University (09/2018-06/2021)
  Research interest: Nitrate removal from urban rain water using bioretention approach
- Wuqi Huang, Environmental Engineering, Hunan University (09/2018-06/2021)
  Research interest: Heterogeneous activation of persulfate using hydrotalcite
- Sa Xiao, Environmental Engineering, Hunan University (09/2017-06/2020)
  Research interest: Heterogeneous activation of persulfate in porous media
- Lun Gao, Water Resources Engineering, Wuhan University (09/2017-06/2020)
  Research interest: Water chemistry analysis and water quality assessment
- Ying Cheng, Environmental Engineering, Hunan University (09/2016-06/2019)
  Research interest: Solid electron donor for sustainable denitrification
- Wenjing Niu, Environmental Engineering, Hunan University (09/2016-06/2019)
  Research interest: Efficient electron donors for biosequestration of chromate
- Wenli Wang, Environmental Engineering, Hunan University (09/2016-06/2019)
  Research interest: Slow-release of persulfate for groundwater remediation
- Lin Zhang, Environmental Engineering, Hunan University (09/2016-06/2019)
  Research interest: In situ chemical oxidation for organic pollutant removal from water
- Lili Huo, Environmental Engineering, Hunan University (09/2016-06/2018)
  Research interest: Surfactant-based solubilization of NAPLs in porous media
- Chenghao Zhao, Environmental Engineering, Hunan University (09/2015-06/2018)
  Research interest: Biodegradation of polybrominated diphenyl ether
- Zhengdong Fang, Environmental Engineering, Hunan University (09/2015-06/2018)
  Research interest: Effect of surfactants on transport of bacteria in porous media.
- Juntao Zhang, Environmental Engineering, Hunan University (09/2015-06/2018)
  Research interest: In-situ activation of persulfate by naturally occurring iron minerals
- Yaling Tian, Environmental Engineering, Hunan University (09/2014-05/2017)
  Thesis title: In situ chemical oxidation of landfill leachate contaminated groundwater by persulfate
- Lina Zhang, Environmental Engineering, Hunan University (09/2014-05/2017)
  Thesis title: Fe_3O_4-based activated persulfate for the degradation of organic contaminants in groundwater (09/2014-07/2017)

- Peng Cui, Environmental Engineering, Hunan University (09/2014-06/2017)
  Thesis title: In-situ activation of persulfate by magnetite nanoparticles for degradation of 1,2-dichloroethane
- Hui Zhang, Environmental Engineering, Hunan University (09/2014-05/2017)
  Thesis title: Sub-CMC solubilization of dodecane by rhamnolopid in saturated porous medium (09/2014-06/2017)
- Xin Yang, Environmental Engineering, Hunan University (09/2013-06/2016)
  Thesis title: Aggregation of low-concentration rhamnolipid biosurfactant and the solubilization of dodecane in a sand porous media
- Guansheng Liu, Environmental Engineering, Hunan University (09/2013-06/2016)
  Thesis title: Effect of low-concentration rhamnolipid on the transport of *pseudomonas aeruginosa* ATCC 9027 in natural porous media
- Zhiquan Wang, Environmental Engineering, Hunan University (09/2013-06/2016)
  Thesis title: The bioavailability of hydrophobic organic pollutants (HOCs) under the action of surfactants
- Lei Yang, Environmental Engineering, Hunan University (09/2013-06/2016)
  Thesis title: Low-concentration solubilization behavior of surfactants and its effect on chemical oxidation of perchloroethene
- Lele Wang, Environmental Engineering, Hunan University (09/2012-06/2015)
  Thesis title: Effect of microwave-assisted hydrogen peroxide oxidation on heavy metals in sediment and fesibility of this method to remediate sediment
- Yongbing Jiang, Environmental Engineering, Hunan University (09/2011-06/2014)
  Thesis title: Influence of low-concentration rhamnolipid on the adsorption and transport of *pseudomonas aeruginosa* ATCC 9027 in glass beads
- Fei Tan, Environmental Engineering, Hunan University (09/2011-06/2014)
  Thesis title: Research on the solubilization behavior of alkanes by rhamnolipid
- Asma El Ouni, Soil, Water and Environmental Sciences, University of Arizona (08/2011-05/2013, co-advisor)
  Thesis title: Measuring air-water interfacial area in unsaturated porous media using the interfacial partitioning tracer test method

UNDERGRADUATE STUDENTS

- Luyao Jin, Yanni Kong, National University Student Social Practice and Science Contest on Energy Saving & Emission Reduction, Ministry of Education, China (8/2022-7/2023)
  Title: Effect of aging for transport of micro-plastics in soil and health of vegetables
- Qiyou Guo, Kaicheng Wang, Meng Xiang, National University Student Social Practice and Science Contest on Energy Saving & Emission Reduction, Ministry of Education, China (12/2017-8/2018)
  Title: Facilitated emplacement of Fe_3O_4 nanoparticles into porous media for sustainable in situ activation of persulfate
- Weibo Liu, Jiayu Zhang, Yu Wang, Hongyang Zhang, Feiyu Li, National University Student Social Practice and Science Contest on Energy Saving & Emission Reduction, Ministry of Education, China (12/2017-8/2018)
  Title: Bioretention facilities for sustainable nitrate removal in the construction of the sponge city
- Zhihan Zhang, Jia Feng, Xiaoyu Zhao, Student Innovation Training Program, Hunan

University (09/2010-06/2011)
Title: Screening of biosurfactant-production bacteria from hydrocarbon-contaminated soil

- Lei Yang, Yang Li, Yake Wang, Student Innovation Training Program, Hunan University (09/2009-06/2010)
  Title: Solubilization of alkanes by surfactants at sub-CMC concentrations
- Hongwei Zhang (2018), Yongwei Zhan (2018), Fule Zheng (2017). Graduation Internship, Wuhan University
- Yunhao Wang (2013), Zuimou Yi (2013), Yunpeng Li (2013), Jianfeng Li (2013), Yi Han (2012), Zhuoyuan Chen (2012), Zhihan Zhang (2012), Biao Zeng (2011), Lingling Guan (2011), Yating Zhu (2010), Huayue Ou (2009). Graduation Internship, Hunan University

MEMBER OF GRADUATE STUDENT COMMITTEES

- Shu Fang, ph.D., Department of Water Resources Engineering, Wuhan University
- Longfei Li, Master, Department of Water Resources Engineering, Wuhan University
- Chuhui Yang, Master, Department of Water Resources Engineering, Wuhan University
- Asma El Ouni, Master, Department of Soil, Water and Environmental Science, the University of Arizona
- Diana Gutierrez, Master, Department of Soil, Water and Environmental Science, the University of Arizona
- Erin Abel, Master, Department of Geoscience, the University of Arizona

CONFERENCE CHAIR/COMMITTEE POSITIONS

- Convener and chair, session of "The behaviors of contaminants in soil and groundwater and the technologies for remediation", The 1st young scientist forum of China Environmental Science, the journal of *China Environmental Science*, July 22-23, 2023, Guangzhou, China
- Convener and chair, session of "the advances in theories and technologies of soil and groundwater remediation", the annual environmental science and technology conference, Chinese Society for Environmental Sciences, October 19-21, 2021, Tianjin, China
- Session chair, the 5th International Conference on Water Resources and Environment (WRE2019), Jul 16-19 2019, Macau SAR, China
- Publication chair & session chair, 2018 International Conference on Environmental and Water Resources Engineering (EWRE2018), Oct 12-14 2018, Jeju Island, Korea
- Session chair, the 4th International Conference on Water Resources and Environment (WRE2018), Jul 16-22 2018, Kaohsiung, Taiwan, China
- Program chair & session chair, the 6th Annual International Conference on Sustainable Energy and Environmental Sciences (SEES 2017), Mar 6-7 2017, Singapore
- Session chair, the 3rd International Conference on Water Resources and Environment (WRE2017), Jun 26-29 2017, Qingdao, China
- Session chair, International Perspectives on Water Resources and Environment (IPWE2017), Jan 4-6 2017, Wuhan, China

- Technical Program Committee member, 2017 International Conference on Environmental Science and Sustainable Energy (ESSE 2017), June 23-25 2017, Suzhou, Jiangsu, China
- Technical Program Committee member, The 2nd International Conference on Energy Engineering and Environmental Protection (EEEP 2017), Dec 15-17 2017, Guangzhou, Guangdong, China
- Technical Program Committee member, 2018 International Conference on Environmental Science and Sustainable Energy (ESSE 2018), Jun 22-24 2018, Suzhou, China

INVITED CONFERENCE PRESENTATIONS

1. The differences of ZVI, Fe_3O_4 and α-Fe_2O_3 in activating persulfate and it implication for in situ groundwater remediation. The 1st National Congress on Groundwater Resources and Eco-Environment, April 13-15, 2024, Wuhan, China
2. The aggregation behavior of clay particles and *n*C_{60} and the effect on their transport. The 12th National Conference of Environmental Chemistry of China, October 17-21, 2023, Wuhan, China
3. The difference of the Fe-containing materials frequently found in soils on activation of persulfate for contaminant degradation. The 1st Young Scientist Forum by *China Environmental Science*, July 22-23, 2023, Guangzhou, China
4. Co-transport of clay particles and *n*C_{60} in quartz sand. The 2nd soil remediation conference of China, October 24-27, 2021, Nanjing, China
5. The effect of xanthan gum on stability and transport of Fe-based nanoparticles. The annual environmental science and technology conference, Chinese Society for Environmental Sciences, October 19-21, 2021, Tianjin, China
6. Redistribution of surfactants and its effect on solubilization of NAPL in porous media at low surfactant concentrations. The 8th symposium on soil and groundwater, CSES, June 18-20, 2021, Tianjin, China
7. Removal of pharmaceuticals by immobilized *Phanerochaete chrysosporium*. 2019 CHES Annual Conference, Oct 22-24, 2019, Yichang, China
8. Effect of microelements (copper and zinc) on co-metabolism of trichloroethylene with toluene by *Pseudomonas plecoglossicida*. ISWPT2019, Oct 17-18, 2019, Bangkok, Thailand
9. Degradation of pharmaceutically active compounds by immobilized *Phanerochaete Chrysosporium* under non-sterile condition. The 10th National Conference on Environmental Chemistry, Aug 15-19, 2019, Tianjin, China
10. Effect of xanthan gum on stability of magnetite nanoparticles and their transport in quartz sand. WRE2019, Jul 16-19, 2019, Macau SAR, China
11. Stabilization and Transport of Fe-based Nanoparticles. 2019 International Forum on Groundwater and Cross-Strait Symposium on Application of Hydrogeology, Jul 13-14, 2019, Guilin, China
12. Surfactants mediate transport of bacteria in porous media by changing cell surface hydrophobicity. The 5th Earth Science Forum for Young Scientists, Oct 26-29, 2018, Nanjing,

China

13. Surfactant-mediated transport of *Pseudomonas aeruginosa* in porous media: the critical role of cell surface hydrophobicity. EWRE2018, Oct 12-14, 2018, Seogwipo, Jeju Island, Korea

14. Sustainable activation of persulfate by magnetite for degradation of refractory organic compounds. WRE2018, Jul 16-22, 2018, Kaohsiung, Taiwan, China

15. In situ heterogeneous activation of persulfate for ISCO remediation of groundwater. 2018 International Forum on Groundwater: Sustainable Utilization of Groundwater Resources and Optimization of Industrial Structure, Jul 9-10, 2018, Shijiazhuang, China

16. Sub-CMC solubilization of alkane by surfactants in porous media. 2017 International Forum on Groundwater and Cross-Strait Symposium on Application of Hydrogeology, Jul 6-7, 2017, Hefei, China

17. In-situ activation of persulfate by magnetite nanoparticles in a sand porous media for degradation of 1,2-dichloroethane. WRE2017, Jun 26-29, 2017, Qingdao, China

18. Heterogeneous activation of persulfate using Fe_3O_4 for degradation of refractory organic compounds in water. 6th Annual International Conference on Sustainable Energy and Environmental Sciences (SEES 2017), Mar 6-7, 2017, Singapore

19. In-situ biosequestration of uranium in groundwater: bench and pilot scale studies. IPWE2017, Jan 4-6, 2017, Wuhan, China

20. Sub-CMC solubilization of hydrocarbons by surfactants. ASA, CSSA and SSSA International Annual Meetings, Nov 6-9, 2016, Phoenix, AZ

21. Heterogeneous activation of persulfate by Fe-based materials for oxidative removal of refractory organic compounds. WRE2016, Jul 23-26, 2016, Shanghai, China

22. Innovative in-situ oxidation technology for treating groundwater contaminated by chlorinated solvents and 1,4-dioxane. IC EST Conference 2016, Jun 6-9, 2016, Houston, TX

23. In-situ oxidation technologies for treating groundwater contaminated by chlorinated solvent compounds and concurrent contaminants. WRRC Annual Conference 2016, Mar 27, 2016, Tucson, AZ

24. Pilot Scale In-situ Biosequestration of Uranium in Groundwater at the Monument Valley UMTRA Site. American Geophysical Union 2015 fall meeting, Dec 14-18, 2015, San Francisco, CA

25. Interfacial partitioning tracer test measurement of NAPL-water interfacial areas in porous media under two-phase flow condition. American Geophysical Union 2013 fall meeting, Dec 9-13, 2013, San Francisco, CA

26. Effect of preliminary cell permeabilization with monorhamnolipid on degradation of glucose, rhamnolipid-solubilized hexadecane and separate-phasal hexadecane by *Pseudomonas aeruginosa*. 2nd IWA conference, 2013, Nanjing, China

INVITED COLLOQUIUM/SEMINAR PRESENTATIONS

1. The characteristics of persulfate activation by several typical Fe-containing materials for contaminant degradation. Seminar on the technology advances on remediation of soils

contaminated by heavy metals. Ningbo Association for Science and Technology, December 23, 2023, Ningbo, China

2. The problems in English article writing often found among native Chinese scholars and how to improve. Hubei Polytechnic University, July 14, 2023, Wuhan, China
3. Enhanced bioremoval of hexavalent chromium and nitrate from contaminated rainwater/groundwater. Institute of Microbiology, Jiangxi Academy of Science, April 21, 2023, Nanchang, China
4. In-situ biosequestration of uranium and anion removal at the monument valley UMTRA site in US. School of Environmental Science and Engineering, Hubei Polytechnic University, April 10, 2023, Wuhan, China
5. The effect of xanthan gum on dispersive stability of Fe-containing nanoparticles and transport of the particles in quartz sand. Webinar on pollution of POPs and its control, China Association for Science and Technology (Ningbo), October 29, 2022
6. Remediation of groundwater contaminated by TCE at the Tucson International Airport SUPERFUND site: a case study. Webinar on environmental remediation, season 2, China Association of Environmental Protection Industry and BCEG environmental remediation Co. Ltd., July 8, 2022
7. In situ heterogeneous activation of persulfate for contaminant removal from groundwater. College of Resources and Environment, Yangtze University, April 16, 2021, Wuhan, China
8. Some scientific problems and the potential technological innovation in in situ groundwater and soil remediation. The second colloquium on academic progress and innovation of Wuhan University, January 12-13, 2021, Wuhan, China
9. Facilitating transport of Fe-based nanoparticles using polymers. School of Civil and Environmental Engineering, Southern University of Science and Technology, Jun 19, 2020, Shenzhen, China
10. Pilot-Scale in-situ biosequestration of uranium and anion removal in groundwater at the monument valley UMTRA site. The colloquium on protection and remediation of the coastal water ecosystem and environment, Zhejiang Ocean University, Sep 21-22, 2019, Zhoushan, China
11. Remediation of the TCE-contaminated site at Tucson International Airport – a case study. Yangtze river protection colloquium-water/wastewater treatment and contaminated water remediation, Wuhan University, Mar 16, 2019, Wuhan, China
12. Organic contamination of groundwater and the remediation technologies. Zhongnan Engineering Corporation Limited, Feb 18, 2019, Changsha, China
13. Sustainable activation of persulfate for groundwater remediation. School of Civil and Environmental Engineering, Southern University of Science and Technology, Jan 4, 2018, Shenzhen, China
14. Attenuation of nitrate in groundwater and its enhancement. The 2nd international forum on remediation-protection of soil and water environment and environmentally friendly fertilizer. Jun 25-26, 2017, Ma'anshan, China
15. Biosequestration of Uranium in Groundwater – Use Monument Valley UMTRA Site as an Example. Sustainable Use of Resources and Energy, East Lake Forum, Apr 21-23, 2017,

Wuhan, China

16. Advances of technologies for in situ groundwater remediation. School of Civil and Environmental Engineering, Nanyang Technological University, March 7, 2017, Singapore

17. Persulfate-based ISCO for removal of persistent organic contaminants from groundwater. Sino-German Symposium on Fate, Transport and Remediation of POPs in Soil and Groundwater, Institute of Soil Science, CAS, Apr 17-20, 2017, Nanjing, China

18. Biosequestration of uranium in groundwater. Forum of School of Environmental Science and Engineering, Jan 6, 2016, Jiangnan University, Wuxi, China

19. In-situ Biosequestration of Uranium in Groundwater. School of Environment forum, Nanjin University, Jan 5, 2016, Nanjing, China

20. In-situ oxidation technologies for groundwater remediation. Environmental Engineering Laboratory, University of Science and Technology of China, Jan 4, 2016, Hefei, China

21. Innovative in-situ oxidation technologies for treating groundwater contaminated by chlorinated solvents and 1,4-dioxane. State key laboratory seminar forum, Wuhan University, Dec 29, 2015, Wuhan, China

22. Application of low-concentration surfactants for remediation of solvent contaminated aquifers: measurement of NAPL-Water interfacial areas and NAPL solubilization. Green Earth Forum, China University of Geoscience, Dec 28, 2015, Wuhan, China

EDITORIALS

Editorial Board, *International Journal of Environmental Research and Public Health* (2021-present)

Editorial Board (young scientists), *China Environmental Science* (in Chinese), (2024-present)

Topic Editor, *Applied Sciences* (2020-2023)

Editorial Board, *Journal of Environmental Science and Public Health* (2017-2022)

REVIEWER FOR FUNDING AGENCIES AND SCIENTIFIC JOURNALS

FUNDING AGENCIES

National Science Foundation of China (NSFC)
Science Foundation of Ireland (SFI)
National Center of Science and Technology Evaluation (NCSTE) of Kazakhstan
Department of Science and Technology, Guangxi Province, China
Department of Science and Technology, Jiangxi Province, China
Department of Science and Technology, Heibei Province, China

SCIENTIFIC JOURNALS

Water Research (16 manuscripts)
Journal of Hazardous Materials (17)
Chemical Engineering Journal (13)

Environmental Science & Technology (8)
Chemosphere (6)
Science of the Total Environment (8)
Applied Microbiology and Biotechnology (3)
Journal of Hydrologic Engineering (2)
Process Biochemistry (2)
Ceramics international (2)
Journal of Contaminant Hydrology (3)
Colloids and Surfaces A (3)
Archives of Environmental Contamination and Toxicology
ACS Sustainable Chemistry and Engineering
Biochemical Engineering Journal
Bioresource Technology
Biotechnology Advances
Current Organic Chemistry
Ecotoxicology
Environmental Science and Pollution Research (2)
Fibers and Polymers
International Biodeterioration and Biodegradation
International Journal of Environmental Science and Technology
Journal of Chemical & Engineering Data
Journal of Environmental Science
Journal of Hydrology
Separation Science and Technology
Waste Management
Water, Air and Soil Pollution

OTHER PROFESSIONAL SERVICE

- **Field Team Leader**, Monument Valley UMTRA Site, AZ (Site characterization, sediment and groundwater sample collection and analysis, well building, etc)
- **Advisory Board,** Qingyuanhuajian Environmental Co. Ltd, Beijing, China (2017-present)
- **Advisory Board,** Hongdong Environmental Protection Co. Ltd, Shantou, China (2016-2018)
- **Environmental Impact Assessment Reviewer Board,** Department of Ecology Environment of Hubei Province, China, 10/2016 to present
- **Project Closure Assessment Committee**, Public Welfare and Social Development Project (2015C33012, 2015C32035 and 2016C33037), Department of Science and Technology of Zhejiang Province, 12/2017 and 4/2018

PUBLICATIONS

(* corresponding author; Total citation = **5005,** H-index = **37** (Web of Science Core Collection); Total citation = **6323,** H-index = **42** (Google Scholar)**)**

Refereed Journal Articles

2024 (6 articles)

J1. Liu GS, Huo LL, Zhan WY, Chen W, **Zhong H***. Kinetic stability of Fe-based nanoparticles with rheological modification by xanthan gum: A critical stabilization concentration and the underlying mechanism. International Journal of Biological Macromolecules. 2024, 266: 131270

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J3. Xiao S, Zhang LN, Zhou L, **Zhong H***, Brusseau ML, Li Y, Wang YK, Liu GS, Zhang JT. The long-term effect of Fe_3O_4 in activating persulfate to degrade refractory organic contaminants for groundwater remediation. Chemical Engineering Journal. 2024, 482: 148801

J4. Zhan WY, Zhao XD, **Zhong H***, Liu GS*. Cotransport of fullerene nanoparticles and montmorillonite colloids in porous media: Critical role of divalent cations of montmorillonite. Science of the Total Environment. 2024, 912: 169470

J5. Gu TY, Niu WJ, Huo LL, Zhou L, Jia YF, Li RF, Wu YM, **Zhong H***. Molasses-based in situ bio-sequestration of Cr(VI) in groundwater under flow condition. Environmental Pollution. 2024, 344: 123337

J6. Li Y, Zhou L, Zhang JT, Wang YK, Liu GS, He JP*, **Zhong H***. Hematite as a natural mineral in activating persulfate to degrade chlorinated compounds: combined effects of soluble iron release and surface activation. Journal of Environmental Chemical Engineering 2024, 12: 112184

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J9. Zhan WY, **Zhong H***, Liu GS*, Liu XL. Rheological behavior of xanthan gum suspensions with Fe-based nanoparticles: the effect of nanoparticles and the mechanism. Soft Matter. 2023. DOI: 10.1039/d3sm00769c

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J11. Zheng H*, Du JK, **Zhong H**, et al. Enhanced persulfate activation by sulfur-modified Fe_3O_4 composites for atrazine degradation: performance and mechanism. Process Safety and Environmental Protection. 2023, 170: 1052-1065

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J27. Ahmad Z, Zhang XZ, Imran M, **Zhong H***, Andleeb S, Zulekha R, Liu GS, Ahmad I, Coulon F. Production, functional stability, and effect of rhamnolipid biosurfactant from *Klebsiella* sp. on phenanthrene degradation in various medium systems. Ecotoxicology and Environmental Safety. 2021, 207: 111514

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J38. Elbashier MMA*, Shao YL*, Wang LK, Chen DL, **Zhong H**. Effects of organic amendments on soil properties and growth characteristics of Melon (*Cucumis melo L*.) under saline irrigation. International Journal of Agricultural and Biological Engineering. 2021, 14: 123-129

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porous media and its enhancement for remediation of contaminated groundwater. Critical Reviews in Environmental Science and Technology. 2020, 50: 2301-2378

J42. **Zhong H**[#], Cheng Y[#], Ahmad Z, Shao YL, Zhang HW, Lu QH, Shim H[*]. Solid-phase denitrification for water remediation: processes, limitations, and new aspects. Critical Reviews in Biotechnology. 2020. DOI: 10.1080/07388551.2020.1805720.

J43. Huo LL, Liu GS, Yang X, Ahmad Z, **Zhong H***. Surfactant-enhanced aquifer remediation: mechanisms, influences, limitations and the countermeasures. Chemosphere. 2020, 252: 126620

J44. Yang X, Tan F, **Zhong H***, Liu GS, Ahmad Z, Liang QH. Sub-CMC solubilization of n-alkanes by rhamnolipid biosurfactant: the influence of rhamnolipid molecular structure. Colloids and Surfaces B: Biointerfaces. 2020, 192: 111049

J45. Shao YL, **Zhong H***, Mao XY, Zhong HW. Biochar-immobilized Sphingomonas sp. and Acinetobacter sp. isolates to enhance nutrient removal: potential application in crab aquaculture. Aquaculture Environment Interactions. 2020, 12: 251-262

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J48. Ahmad Z, **Zhong H**, Mosavi A[*], Sadiq M, Saleem H, Khalid A, Mahmood S, Nabipour N. Machine learning modeling of aerobic biodegradation for azo dyes and hexavalent chromium. Mathematics. 2020, 8: 1-17

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J54. Zeng ZT[#], Liu Y[#], **Zhong H**[#], Xiao R, Zeng GM[*], Liu ZF, Cheng M, Lai C, Zhang C, Liu GS, Qin L. Mechanisms for rhamnolipids-mediated biodegradation of hydrophobic organic compounds. Science of the Total Environment. 2018, 634: 1-11

J55. Zhao CH, Yan M*, **Zhong H***, Liu ZF, Chen M, Zeng GM, Song B, Shao BB, Feng HP. Biodegradation of polybrominated diphenyl ethers and strategies for acceleration: A review. International Biodeterioration & Biodegradation. 2018, 192: 23-32

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J60. Li ZG, Liu ZF*, Wu ZB, Zeng GM, Shao BB, Liu YJ, Jiang YL, **Zhong H**, Liu Y. Fabrication of the tea saponin functionalized reduced graphene oxide for fast adsorptive removal of Cd(II) from water. Applied Physics A-Materials Science and Processing. 2018, 124: 398

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