

# Curriculum Vita

## Personal Information

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## Education Background

**Since 2024.03** PhD in Geoecology  
Institute of Environmental Science and Geography, University of Potsdam  
**2020.09-2023.06** M.S. in Ecology  
College of Environment and Ecology, Chongqing University  
**2016.09-2020.06** B.E. in Environmental and Ecological Engineering  
College of Environment and Ecology, Chongqing University

**Main research areas:** Lake sediment remediation and ecosystem construction. Impact of reservoir water level fluctuations on ecosystems. Water quality monitoring and early warning systems.

## Publication

1. Y. He, **G. Wei**, B. Tang, M. Salam, A. Shen, Y. Wei, X. Zhou, M. Liu, Y. Yang, H. Li, Y. Mao, Microplastics benefit bacteria colonization and induce microcystin degradation, *J Hazard Mater* 431 (2022.02). <https://doi.org/10.1016/j.jhazmat.2022.128524>. Impact Factor: 14.224
2. **G. Wei**, R. Yuan, M. Salam, L. Zhang, Y. Wei, B. Tang, X. Yuan, B. Liu, X. Yu, H. Li, X. Miao, Achieving simultaneous removal of nitrogen and phosphorus in sediment via combined adsorption and oxygen supplement, *Chemical Engineering Journal* 441 (2022.03). <https://doi.org/10.1016/j.cej.2022.136056>. Impact Factor: 16.744
3. **G. Wei**, J. Xu, B. Yang, H. Li, R. Wang, Controlling internal nutrients loading at low temperature using oxygen-loading zeolite and submerged macrophytes enhances environmental resilience to subsequent high temperature, *Environmental Research* (2023.08). doi: 10.1016/j.envres.2023.116101. Impact Factor: 7.7

## Conferences

1. Poster presented in the 8th National Symposium on Sediment Environment and Pollution Control and the 2020 Annual Conference of Sediment Environment Committee (November 2020)
2. Oral talk about "Achieving simultaneous removal of nitrogen and phosphorus in sediment via combined adsorption and oxygen supplement" in National Environmental Conference for Doctoral Students (October 2022).
3. Oral talk about "Summer disease cured in winter: controlling internal nutrients loading at low temperature enhances environmental resilience to subsequent high temperature" in the 2022 Annual Conference of Sediment Environment Committee (December 2022).

## Research Experiences

### Department of Ecology

09/2020-01/2022

- Project: Multiple mechanisms of hydrodynamic mediated microplastic influence on the environmental behavior of microcystins
- Topic: Interactions between the adsorbed toxic substances and the MPs biofilm  
Task:
  - a. Correlation between adsorption behavior of PS-MPs and their structural characteristics
  - b. Explore the adsorption mechanism between PS-MPs and MC-LR
  - c. Research the interaction between microplastics, the bacterial community, and the behavior of toxic substances in a turbulent scenario

- Skills: Characterization of PS-MPs: FTIR, SEM, BET, XRD, CLSM; HPLC; Physical and chemical analysis of water; High-throughput sequencing; R Programming Language.

### **Department of Ecology**

**02/2021-02/2022**

Chongqing University

- Project: In-situ remediation and ecosystem induction technology for lake contaminated sediment
- Topic: Develop a multifunction geoenvironmental material (LOZ) for sediment remediation through the synergistic functions of nutrient adsorption and delivery of oxygen micro/nano-bubbles
- Task:
  - a. Study LOZ's configuration, characterization, adsorption and oxygen delivery mechanism
  - b. Analysis of the adsorption, immobilization and biotransformation functions of LOZ at SWI
  - c. Explore an effective method of combining LOZ and submerged macrophytes to help contaminated water construct a self-organized aquatic ecosystem
- Skills: Characterization of zeolites: SEM, BET, XRD, XRF, IGA, ICP-MS; Physical and chemical analysis of water; Diffusive gradients in thin-films technique; High-throughput sequencing; PLS-PM model.

### **Institute of Hydrobiology**

**03/2022-06/2023**

Chinese Academy of Sciences

- Project: Ecological scheduling research on eutrophication and algal blooms in reservoir based on water level fluctuations (U2040210)
- Topic: Effects of water level fluctuations on bacterial communities and their effects on the migration and transformation of nitrogen in the Three Gorges Reservoir.
- Task:
  - a. Explore nitrogen component transformation characteristics and metabolic activity of aerobic denitrifiers
  - b. Analyze the microbial transcriptional activity of functional genes involved in the denitrification process
  - c. Investigate the temporal connection between microbial metabolic activity and nitrogen cycle progress
- Skills: Microbial culture and identification; Physical and chemical analysis of water; High-throughput sequencing and metagenomic analysis; Stable isotope analysis.

### **Institute of Environmental Science and Geography**

**03/2024-NOW**

University of Potsdam

- Project: Digital, networked, and interactive water quality monitoring, a concept for autonomous early warning systems for water protection
- Topic: Integrated Monitoring and Modeling of Water Bodies for Early Detection of Algal Blooms for the example of Wahnbach Reservoir, Germany
- Task:
  - d. Investigate the vertical and spatial dynamics of water quality parameters and algal spatio-temporal distribution in aquatic ecosystems using Biolift and Biofish techniques.
  - e. Analyze the flow vectors around the Biolift using Acoustic Doppler Current Profiler (ADCP) and assess their impact on the vertical dynamics of algal distribution.
  - f. Study the sediment characteristics (cores and bulk sediment) and the sediment-water interface to identify the remobilization potentials for nutrients such as phosphorus, which contribute to algal bloom formation.
  - g. Develop an early warning model for algal blooms by integrating the data obtained from the above techniques.
- Skills: Water quality monitoring with Biolift and Biofish; Vertical and spatial water data analysis; Flow dynamics assessment using ADCP; Sediment core analysis and characterization; Proficiency in statistical and modeling software (MATLAB, R, Python).