

I. Featured Research Publications (2024-2025)

Selected representative works published in top-tier international journals.

Title	Lead Author/PI	Journal	Year
Adsorption and immobilization of phosphorus in eutrophic lake water and sediments by a novel red soil based porous aerogel	Xie Xianchuan	Water Research	2025
Life Cycle Greenhouse Gas Emissions and Mitigation Performances of Various Hydrogen Production Routes	Shi Lei	Environmental Science & Technology	2025
Boosting Electrochemical Urea Synthesis via Cooperative Electroreduction	Xie Xianchuan	Advanced Functional Materials	2025

Through the Parallel Reduction			
Temporal and spatial distribution, treatment efficiency and health risk assessment of PFASs in Poyang Lake Basin: Contributions of unknown precursors and fluorides	Yang Hongwei	Water Research	2025
Electron spin polarization of C-doped carbon nitride enhancing PMS activation for deep degradation of emerging contaminants	Zhang Hongxiang	Water Research	2025
Unlocking Mixed-	Li Guobo	Environmental	2024

<p>Metal Oxides Active Centers via Acidity Regulation for K&SO₂ Poisoning Resistance: Self- Detoxification Mechanism of Zeolite-Confined deNO_x Catalysts</p>		<p>Science & Technology</p>	
<p>Unveiling the confinement and interface effect on low temperature degradation of toluene over mesoporous zeolite encapsulated Pt- CeO₂ catalyst</p>	<p>Zhang Hongxiang</p>	<p>Chemical Engineering Journal</p>	<p>2024</p>
<p>Synthesis of HZSM- 5@activated carbon for improving aromatic</p>	<p>Fan Liangliang</p>	<p>Chemical Engineering Journal</p>	<p>2024</p>

production from catalytic pyrolysis of biomass			
Microwave pyrolysis of <i>Choerospondias axillaris</i> seeds with their derived biochar for comprehensive utilization of the biomass	Fan Liangliang	<i>Chemical Engineering Journal</i>	2024
Alkali-resistant catalytic reduction of NO _x over CeO ₂ -WO ₃ /MCM-22 supported catalyst by releasing Brønsted acid sites	Li Guobo	<i>Applied Catalysis B: Environment and Energy</i>	2024

II. Major Research Awards (2024-2025)

Recognition for excellence in scientific research and technological innovation.

1. Fundamental Theoretical Research on Microalgae-based High Ammonia Nitrogen Wastewater Treatment and Recovery Technology
 - Lead PI: Zhou Wenguang
 - Participants: Qian Jun, Li Jingjing, Han Pei, Li Jun
 - Award: Jiangxi Provincial Natural Science Award (Second Class)
 - Year: 2025
2. Fundamental Research on Catalytic Purification and Resource Utilization of Small Molecule Air Pollutants and Greenhouse Gases
 - Lead PI: Peng Honggen
 - Participants: Liu Wenming, Zhang Pengfei, Li Yonglong
 - Award: Jiangxi Provincial Natural Science Award (Second Class)
 - Year: 2024
3. Key Technology Development and Equipment Industrialization for Online Monitoring of Atmospheric Volatile Organic Compounds (VOCs)
 - Lead PI: Liu Xiaozhen
 - Participants: Li Jianlong, Peng Xilong, Zhu Zhongbang
 - Award: Jiangxi Provincial Science and Technology Progress Award (Second Class)
 - Year: 2024

III. Key Research Projects and Grants (2024-2025)

Funding from the National Natural Science Foundation of China (NSFC) and other national-level programs.

Project Title	Category	Principal Investigator	Budget (10k CNY)	Year

Theories and Technologies for Control of PFAAs Formation and Removal Based on Pre-PFAAs Transformation on Mechanisms in Drinking Water	NSFC - General Program	Yang Hongwei	50.0	2025
Joule Heating-assisted Construction of Bifunctional Adsorption-Catalytic Fe@C Catalysts and Mechanism of PDS Activation for Aromatic	NSFC - Young Scientists Fund	Yu Fengbo	30.0	2025

VOCs Degradation				
Multi-source Apportionme nt, Health Risk Assessment, and Hierarchical Control of Atmospheric Lead Pollution in the Poyang Lake Plain: A Coupled Source- Exposure- Risk Study	NSFC - Young Scientists Fund	Huang Shan	30.0	2025
Regulation of Uniform Channels and Functionalize d Covalent Organic Framework (COF)	NSFC - Fund for Less Developed Regions	Huang Guoji	32.0	2025

Separation Membranes and Gas Transport Mechanisms				
Data-driven Analysis and Optimization of Carbon Emission Complexity in Clean Energy Supply Chains	NSFC - Fund for Less Developed Regions	Li Yang	30.0	2025
Impacts and Mechanisms of Rare Earth Metal Co-pollution and Chlorine Disinfection on Bacterial Resistance in Drinking Water in Gannan Rare	NSFC - Fund for Less Developed Regions	Ding Huijun	31.0	2025

Earth Mining Areas				
<p>Construction and Reaction Mechanism of High-efficiency Bifunctional Double-shell Zeolite Core-shell Catalysts for Integrated Passive NO_x Adsorption and Catalytic Reduction</p>	<p>NSFC - General Program</p>	<p>Peng Honggen</p>	<p>50.0</p>	<p>2024</p>
<p>Mechanism of Heavy Rainfall-induced Landslides in Heterogeneous Accumulation Layers and Regional</p>	<p>NSFC - Young Scientists Fund</p>	<p>Chang Zhilu</p>	<p>30.0</p>	<p>2024</p>

Hazard Assessment				
Performance and Mechanism of Transition Metal- Fluorine Dual-site Synergistic Enhanced Fenton-like Reaction for Removal of Emerging Contaminants from Water	NSFC - Young Scientists Fund	Zhang Hongxiang	30.0	2024
Construction and Adsorption Mechanism of Ce-based Bimetallic Oxide/Porous Carbon Based on Advanced	NSFC - Fund for Less Developed Regions	Zhao Rui	32.0	2024

Fluorine Removal				
Construction of High-efficiency Manganese Dioxide Catalysts with Dual Water-resistant Properties for Ozone Decomposition and Their Reaction Mechanisms	NSFC - Fund for Less Developed Regions	Ji Jian	29.0	2024
Mechanism of Microalgal Biofilm Formation Based on Signaling Molecule Regulation of Key Extracellular	NSFC - Fund for Less Developed Regions	Qian Jun	32.0	2024

<i>Secretions</i>				
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