Longgang Chu

Date of Birth: Jun. 1997

Hometown: Zhoukou, Henan, China

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Research Area: Interface Chemistry and Organic Carbon Cycling

Education

- 2014.09–2018.06, College of Resources and Environmental Sciences, China Agricultural University, B.S.
- 2018.09–2023.06, Institute of Soil Science, Chinese Academy of Sciences, Ph.D.

Work

- 2023.07–2026.06, School of the Environment, Nanjing University, Postdoctoral Fellow
- 2026.08–present, OUC Key Lab of Marine Chemistry Theory & Technology, Associate Professor

Projects

- NSFC Young Scientists Fund; National Postdoctoral Program; 2025 National Postdoctoral Research Performance Evaluation Subsidy; China Postdoctoral Science Foundation General Program; Jiangsu Excellent Postdoctoral Program

Honors

- National Scholarship (2017, 2022); Outstanding Volunteer (2018); Merit Student, UCAS (2022); CAS President’s Excellence Award (2023); Outstanding CPC Member, Nanjing University (2023)

Publications

- Haoran Yu, **Longgang Chu*,** Ruobing Wang, Zhaoyue Sun, Zhanghao Chen, Davide Vione, Chongqin Zhu*,Joseph S. Francisco*, Cheng Gu*. Self-photopolymerization of phenolics in microdroplets contributes to brown carbon formation. Journal of the American Chemical Society, 2026, 148(29), 31487–31497. Q1
- Haoran Yu[1], **Longgang Chu[1]*,** Ruobing Wang, Zhaoyue Sun, Zhanghao Chen, Davide Vione, Hongqiang Ren, Joseph S. Francisco*, Cheng Gu*. Unexpected spontaneous photochemical formation of hydrogen peroxide in water microdroplets on silicate mineral surfaces. Angewandte Chemie International Edition, 2026, 24(138), e9633132. Q1
- Haoran Yu, **Longgang Chu,*** Ziyan Zhou, Yunping Tong, Zhaoyue Sun, Danning Lu, Xiru Chen, Ruobing Wang, Xing Liu, Zhanghao Chen, Juan Gao, Davide Vione, Cheng Gu.* Solid-water-air interface accelerated photochemical reactions in mineral dust microdroplets: An overlooked source of atmospheric ·OH. Environmental Science & Technology, 2026, 60, 12374–12385. Q1
- Xing Liu[1]**, Longgang Chu[1],** Haiyi Chen, Paul N. Williams, Haitao Sun, Baoying Wang, Jun Luo,* Cheng Gu.* Root-driven ROS controls multi-dimensional arsenic speciation in the rice rhizosphere. Environmental Science & Technology, 2026, 60, 12953–12964. Q1

Publications

- Ruobing Wang**, Longgang Chu*,** Haoran Yu, Yicong Ma, Zhaoyue Sun, Danning Lu, Zhanghao Chen, Juan Gao, Davide Vione, and Cheng Gu*. Accelerated photolysis mechanism of neonicotinoids at the air-water interface of microdroplets. Environmental Science & Technology, 2026, 60, 7337–7348. Q1
- **Longgang Chu,** Haoran Yu, Xinhao Wang, Zhaoyue Sun, Danning Lu, Ruobing Wang, Hongjian Li, Zhanghao Chen, Juan Gao, Davide Vione, and Cheng Gu*. Accelerated photochemical generation of reactive species in microdroplets by humic-like substances: Role of the air–water interface and molecular mechanism. Environmental Science & Technology, 2025, 59(24), 12221–12231. Q1
- Danning Lu, **Longgang Chu,*** Haoran Yu, Zhaoyue Sun, Xiru Chen, Ruobing Wang, Xing Liu, Zhanghao Chen, Juan Gao, Cheng Gu*. Galvanic effects between mackinawite and pyrogenic carbon: Enhancing radical-mediated ciprofloxacin transformation. Journal of Hazardous Materials, 2025, 495, 138835. Q1
- **Longgang Chu,** Long Cang, Zhaoyue Sun, Xinghao Wang, Hong Chen, Guodong Fang, Juan Gao.* The overlooked formation of nitro-byproducts during electrokinetic delivered persulfate coupling electrical resistance heating for remediation of anthracene contaminated soil. Journal of Hazardous Materials, 2023, 453, 131396. Q1
- **Longgang Chu,** Long Cang, Zhaoyue Sun, Xinghao Wang, Guodong Fang, Juan Gao.* Efficient hydrogen peroxide electrosynthesis using anthraquinone covalently bonded CNT on superhydrophobic air-breathing cathode. Journal of Cleaner Production, 2022, 378, 134578. Q1
- **Longgang Chu,** Long Cang, Zhaoyue Sun, Xinghao Wang, Guodong Fang, Juan Gao.* Reagent-free electrokinetic remediation coupled with anode oxidation for treatment of phenanthrene-polluted soil. Journal of Hazardous Materials, 2022, 433, 128724. Q1
- **Longgang Chu,** Long Cang, Guodong Fang, Zhaoyue Sun, Xinghao Wang, Dongmei Zhou, Juan Gao.* A novel electrokinetic remediation with in-situ generation of H_2O_2 for soil PAHs removal. Journal of Hazardous Materials, 2022, 428, 128273. Q1
- **Longgang Chu,** Zhaoyue Sun, Guodong Fang, Long Cang, Xinghao Wang, Dongmei Zhou, Juan Gao*. Highly effective removal of BPA with boron-doped graphene shell-wrapped FeS_2 nanoparticles in electro-Fenton process: performance and mechanism. Separation and Purification Technology, 2021, 267, 118680. Q1
- **Longgang Chu,** Zhaoyue Sun, Long Cang, Guodong Fang, Xinghao Wang, Dongmei Zhou, Juan Gao.* A novel sulfite-coupled electro-Fenton reaction with ferrous sulfide cathode for anthracene degradation. Chemical Engineering Journal, 2020, 400, 125945. Q1
- **Longgang Chu,** Zhaoyue Sun, Long Cang, Xinghao Wang, Guodong Fang, Juan Gao.* Identifying the roles of oxygenated groups in carbon materials for electrochemical synthesis of H_2O_2. Journal of Environmental Chemical Engineering, 2023, 11, 109826. Q2
- Zhaoyue Sun, Yingying Gu, Xiuxia Zhang, Yunping Tong, **Longgang Chu,*** Long Cang, Dongmei Zhou*. A novel electrokinetic flushing coupled with dual-anode system for enhanced PAHs removal from soil. Journal of Environmental Management, 2025, 396, 128130. Q1
- Zhaoyue Sun, Yingyun Qiao, Yujing Yue, Yunping Tong, Yuanyu Tian**, Longgang Chu,*** Cheng Gu*. Electrochemical flow-through membrane electrodes for sequential H* reduction and HO• oxidation of nitrobenzene. Journal of Environmental Chemical Engineering, 2025, 13, 119413. Q2

Patents

- Juan Gao, **Longgang Chu,** Zhaoyue Sun. Preparation method for a pyrite-composite graphite felt electrode. National invention patent, ZL201911046106.4
- Juan Gao, **Longgang Chu,** Zhaoyue Sun. Electro-Fenton catalyst and its preparation method and application. National invention patent, ZL202011330498.X
- Juan Gao, **Longgang Chu**, Long Cang, Zhaoyue Sun. Method for removing soil polycyclic aromatic hydrocarbons by electrokinetic remediation combined with anodic oxidation. National invention patent, ZL202111401994.4
- Jun Luo, Xing Liu, **Longgang Chu**, Cheng Gu. In situ detection method for reactive oxygen species based on a ratiometric fluorescent probe. National invention patent, ZL202510399326.4

Skills

- Theoretical calculations: Gaussian, VASP, GROMACS, and other computational chemistry platforms
- Interfacial characterization: development of in situ interfacial characterization methods including confocal fluorescence microscopy, surface-enhanced Raman spectroscopy, ATR-FTIR, and nanosecond transient absorption spectroscopy