

Fan Yao Publication List

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Research Areas

Dynamic Catalyst Evolution • Catalyst Design • Operando Characterization • Defect Chemistry
• Catalytic Reaction Mechanism

First-Author Publications

Published

1. **F. Yao**, Y. Peng*, A. Cao, et al., Mechanochemical Force–Electron–Chemical Coupling at MnCe/BaTiO₃ Interfaces for Synergistic Multi-Pollutant Catalysis, *Journal of Colloid and Interface Science*, 722 (2026) 140894
2. **F. Yao**, Y. Peng, Z. Gong, et al., Degradation of o-DCB and Dioxins by MnCe Catalysts Prepared via the Mechanochemical Method, *Journal of Environmental Chemical Engineering*, 13 (2025) 117071.
3. **F. Yao**, X. Wang, Y. Zhao, et al., Nitrogen-Doped Porous Biochar via Azotobacter chroococcum-Based Nitrogen Fixation for Improved VOC Adsorption, *ACS ES&T Engineering*, 2025, 5, 402–413.
4. **F. Yao**, G. Ye, W. Peng, et al., Preparation of Activated Biochar with Adjustable Pore Structure for Efficient VOC Adsorption, *Journal of Environmental Chemical Engineering*, 11 (2023) 109611.

Submitted

1. **F. Yao**, Y. Peng*, A. Cao, et al., Interfacial oxygen circulation over Mn-Ov-Ce centers enables the synergistic removal of NO_x and o-dichlorobenzene, *Applied Catalysis B: Environment and Energy*, Submitted.
2. **F. Yao**, Y. Peng*, D. Debecher, et al., Dynamic oxygen circulation and sulfur redistribution over MnO_x-Ru nanocluster interfaces for synergistic NO_x and o-dichlorobenzene elimination, Submitted.
3. **F. Yao**, C. Pischetola, et al., Dynamic Surface Reconstruction Enables Cu Exsolution for Efficient CO₂ Hydrogenation to Methanol over Perovskite SrTiO₃, in press.

Co-author Publications

1. Wang, **F. Yao**, W. Zhu, et al., Experimental and computational investigation on the organic acid modification of porous carbon for toluene adsorption under humid conditions, *Chemical Engineering Journal*, 450 (2022) 138070.
2. Zhu, Y., Wang, **F. Yao**, X. Wang, et al., One-pot synthesis of N-doped petroleum coke-based microporous carbon for high-performance CO₂ adsorption and supercapacitors, *Journal of Environmental Sciences*, 139 (2024) 93–104
3. H. Li, M. Tang, L. Wang, Q. Liu, **F. Yao**, et al., Hydroxylation and N-doping synergistically enhance the CO₂ adsorption and regeneration of amine-loaded mesoporous carbon in flue gas, *Journal of Environmental Chemical Engineering*, 13 (2025) 115223.
4. H. Li, M. Tang, L. Wang, Q. Liu, **F. Yao**, et al., Molecular simulation combined with DFT calculation guided heteroatom-doped biochar rational design for highly selective and efficient CO₂ capture, *Chemical Engineering Journal*, 481 (2024) 148362.
5. Cheng, G. Ye, X. Wang, C. Su, W. Zhang, **F. Yao**, et al., Micro-mesoporous carbon fabricated by Phanerochaete chrysosporium pretreatment coupling with chemical activation: Promoting effect and toluene adsorption performance, *Journal of Environmental Chemical Engineering*, 9 (2021) 105054.

6. Wang, H. Cheng, G. Ye, **F. Yao**, et al., Preparation of porous carbon based on partially degraded raw biomass by *Trichoderma viride* to optimize its toluene adsorption performance, *Environmental Science and Pollution Research*, (2021) 28:46186–46195.

Selected Conference Contributions (Oral Presentations)

1. Oral Presentation, The 15th International Symposium on Catalytic Science and Technology | Guangzhou, China | Nov. 2025.
2. Oral Presentation, The 18th Forum on Persistent Organic Pollutants and Chemical Product Environmental Safety | Chongqing, China | May 2025.
3. Oral Presentation, The 14th National Conference on Environmental Catalysis and Materials | Kunming, China | Nov 2024.
4. Oral Presentation, The 17th Forum on Persistent Organic Pollutants and Chemical Product Environmental Safety | Guiyang, China | May 2024.
5. Poster Presentation, Chinese Society of Engineering Thermophysics Annual Meeting | Hangzhou, China | Nov 2024.