

Amorphous Materials for Next-Generation Batteries

Jie Zhao

College of Smart Materials and Future Energy, Fudan University, Shanghai, 200438, China;

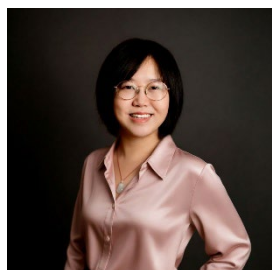
Email: jiezhao@fudan.edu.cn

Abstract: The pursuit of high-energy-density storage devices has driven the development of novel materials. Amorphous materials, characterized by their disordered structures, dangling bonds, active sites, and ion channels, have attracted considerable attention. In this talk, I will present our recent research on amorphous materials, focusing on their potential to address critical challenges in energy conversion. Specifically, I will discuss the relationship between oxygen vacancy concentration and sulfur species catalysis in sodium-sulfur batteries,^[1] as well as the mechanical properties of biomimetic structures composed of inorganic amorphous materials and organic fillers for composite solid-state electrolytes.^[2]

References:

- [1] W. Sun, J. Hou, Y. Zhou, T. Zhu, Q. Yuan, S. Wang, F. Manshaili, C. Song, X. Lei, X. Wu, H. Kim, Y. Yu, C. Xiao, H. Zhang, Y. Song, D. Sun, B. Jia, G. Zhou and J. Zhao. *Angew. Chem. Int. Ed.* **2024**, 63, e202404816
- [2] J. Hou, W. Sun, Q. Yuan, L. Ding, Y. Wan, Z. Xiao, T. Zhu, X. Lei, J. Lin, R. Cheacharoen, Y. Zhou, S. Wang, F. Manshaili, J. Xie, W. Li, J. Zhao. *Angew. Chem. Int. Ed.* **2025**, e202421427

Biography:



Jie Zhao is currently an associate professor in College of Smart Materials and Future Energy and State Key Laboratory of Molecular Engineering of Polymers, Fudan University. Jie received her Ph.D. degree in Materials Science and Engineering from Stanford University under the supervision of Prof. Yi Cui. During her postdoctoral work with Prof. John A. Rogers at Northwestern University, she extended her skills to soft electronics. Her research is mainly focused on high-performance electrode and solid electrolyte materials for secondary batteries. Until now, she has published more than 60 papers in high-impact journals, including *Nat. Nanotechnol.*, *Nat. Commun.*, *Adv. Mater.*, *J. Am. Chem. Soc.*, *Proc. Natl. Acad. Sci.* with more than 18000 citations.