Professor Baohua Li

Shenzhen International Graduate School

Tsinghua University

Education Background

PhD in Chemical Engineering (1997 - 2002)

Chinese Academy of Sciences, Shanxi Institute of Coal Chemistry

Bachelor in Chemical Engineering (1993 - 1997)

Shandong University of Technology

Research and Work Experience

2019 – Present Professor

Tsinghua University, Shenzhen International Graduate School

2014 – 2019 Professor

Tsinghua University, Shenzhen Graduate School

2007 – 2014 Associate Researcher

Tsinghua University, Shenzhen Graduate School

2004 – 2007 Lecturer

Tsinghua University, Shenzhen Graduate School

2002 – 2004 Postdoctoral Researcher

Tsinghua University, Shenzhen Graduate School

Academic Positions

Director of the Shenzhen Next Generation Power and Energy Storage Battery Key Technology Engineering Laboratory

Deputy Director of the Guangdong Electric Vehicle Standardization Technical Committee

Chairman of the CSTM/FC59 Committee for Battery and Related Materials within the China Society for Materials and Testing Standards Committee

Deputy Editor of the journal Energy & Environmental Materials

Deputy Editor of the journal Energy Materials and Devices

Editorial board member of the Journal of Materials Chemistry A

Research Interests

Prof. Li is mainly engaged in research on carbon materials, lithium-ion batteries, solid-state electrolytes and battery recycling technology. He has published more than 460 peer-reviewed papers in journals such as Nature, Science, Nature Reviews Materials, Nature Energy, Nature Communications, Advanced Materials, and Energy & Environmental Science etc., with more than 35,000 citations, and a H-index of 100. He has been selected as a highly cited scientist by Clarivate Analytics for four consecutive years from 2020 to 2023. He possesses over 100 authorized invention patents, including numerous US and PCT patents, with more than 30 patents successfully transitioning to industry.

Selected Publications

1.Qidi Wang*, Zhenpeng Yao, Jianlin Wang, Hao Guo, Chao Li, Dong Zhou, Xuedong Bai, Hong Li*, **Baohua Li***, Marnix Wagemaker* & Chenglong Zhao*, Chemical short-range disorder in lithium oxide cathodes. Nature, 2024, 629, 341–347.

2. Yuefeng Meng, Dong Zhou*, Ruliang Liu, Yao Tian, Yifu Gao, Yao Wang, Bing Sun, Feiyu Kang, Michel Armand*, **Baohua Li***, Guoxiu Wang* & Doron Aurbach*, Designing phosphazene-derivative electrolyte matrices to enable high-voltage lithium metal batteries for extreme working conditions. ***Nature Energy***, 2023, 8, 1023–1033.

3. Yun Zhao, Yuqiong Kang, John Wozny, Jian Lu, Hao Du, Chenglei Li, Tao Li, Feiyu Kang, Naser Tavajohi & **Baohua Li***, Recycling of sodium-ion batteries. ***Nature Reviews Materials***, 2023, 8, 623–634.

4. Yanyan Wang, Zhijie Wang, Wei Kong Pang, Wilford Lie, Jodie A.Yuwono, Gemeng Liang, Sailin Liu, Anita M.D' Angelo, Jiaojiao Deng, Yameng Fan, Kenneth Davey, **Baohua Li***, Zaiping Guo*,Solvent control of water O-H bonds for highly reversible zinc ion batteries. ***Nature Communications***, 2023, 14, 2720.

5. Xu Yang, Bao ZhangYao Tian, Yao Wang, Zhiqiang Fu, Dong Zhou*, Hao Liu, Feiyu Kang, **Baohua Li***, Chunsheng Wang*, Guoxiu Wang*, Electrolyte design principles for developing quasi-solid-state rechargeable halide-ion batteries. ***Nature Communications***, 2023, 14, 925.

6. Xia Hu, Jiahao Yu, Yao Wang, Weiqian Guo, Xiang Zhang, Michel Armand, Feiyu Kang, Guoxiu Wang,* Dong Zhou,* and **Baohua Li***,A Lithium Intrusion-Blocking Interfacial Shield for Wide-Pressure-Range Solid-State Lithium Metal Batteries. ***Advanced Materials***, 2023, 35, 2308275.

7. Junru Wu, Ziyao Gao, Yao Tian, Yun Zhao, Yilong Lin, Kang Wang, Hexin Guo, Yanfang Pan, Xianshu Wang*, Feiyu Kang, Naser Tavajohi, Xiulin Fan, **Baohua Li***, Unique Tridentate Coordination Tailored Solvation Sheath Toward Highly Stable Lithium Metal Batteries. ***Advanced Materials***, 2023, 35, 2303347.

8. Zhijia Zhang, Xu Yang, Peng Li, Yao Wang, Xin Zhao, Javad Safaei, Hao Tian, Dong Zhou*, **Baohua Li***, Feiyu Kang*, Guoxiu Wang*, Biomimetic Dendrite-Free Multivalent Metal Batteries. ***Advanced Materials***, 2022, 34, 2206970.

9. Junru Wu，Xianshu Wang, Qi Liu, Shuwei Wang, Dong Zhou*, Feiyu Kang, Devaraj Shanmukaraj, Michel Armand*, Teofilo Rojo, **Baohua Li***, Guoxiu Wang*, A synergistic exploitation to produce high-voltage quasi-solid-state lithium metal batteries. ***Nature Communications***, 2021, 12, 5746.

10. Xianshu Wang, Shuwei Wang, Huirong Wang, Wenqiang Tu, Yun Zhao, Song Li, Qi Liu, Junru Wu, Yongzhu Fu, Cuiping Han*, Feiyu Kang, and **Baohua Li***, Hybrid

electrolyte with dual-anion aggregated solvation sheath for stabilizing high Voltage lithium metal batteries.***Advanced Materials***, 2021, 33, 2007945.

11. Qidi Wang, Zhenpeng Yao, Chenglong Zhao, Tomas Verhallen, Daniel P Tabor, Ming Liu, Frans Ooms, Feiyu Kang, Al á n Aspuru-Guzik, Yongsheng Hu, Marnix Wagemaker*, **Baohua Li***, Interface chemistry of an amide electrolyte for highly reversible lithium metal batteries. ***Nature Communications***, 2020, 11, 4188.

12. Chenglong Zhao, Qidi Wang, Zhenpeng Yao, Jianlin Wang, Benjamín Sánchez-Lengeling, Yaxiang Lu*, Xuedong Bai, **Baohua Li**, Hong Li, Alán Aspuru-Guzik*, Xuejie Huang, Claude Delmas*, Marnix Wagemaker*, Liquan Chen, Yongsheng Hu*,Rational design of layered oxide materials for sodium-ion batteries. ***Science***, 2020, 370, 708.

13. Lihan Zhang, Xianying Qin*, Shiqiang Zhao, Aurelia Wang, Jun Luo, Zhong Lin Wang, Feiyu Kang, Zhiqun Lin*, **Baohua Li*,** Advanced matrixes for binder - free nanostructured electrodes in lithium-ion batteries. ***Advanced Materials***, 2020, 32, 1908445.

14. Dongqing Liu, Zulipiya Shadike, Ruoqian Lin, Kun Qian, Hai Li, Kaikai Li, Shuwei Wang, Qipeng Yu, Ming Liu, Swapna Ganapathy, Xianying Qin, QuanHong Yang, Marnix Wagemaker*, Feiyu Kang, Xiao-Qing Yang*, **Baohua Li***. ***Advanced Materials***, 2019, 31,1806620.

15. Xiaofu Xu, Dong Zhou, Xianying Qin, Kui Lin, Feiyu Kang, **Baohua Li***, Devaraj Shanmukaraj, Teofilo Rojo, Michel Armand*, Guoxiu Wang*, A room-temperature sodium-sulfur battery with high capacity and stable cycling performance.***Nature Communications***, 2018, 9, 3870.

16. Qingwen Lu, Yanbing He, Qipeng Yu, **Baohua Li***, Yusuf Valentino Kaneti, Youwei Yao, Feiyu Kang, Quanhong Yang*, Dendrite-free, high-rate, long-life lithium metal batteries with a 3D cross-linked network polymer electrolyte. ***Advanced Materials***, 2017, 1604460.

17. Tianhong Zhou, Wei Lv*, Jia Li, Guangmin Zhou, Yan Zhao, Shaoxun Fan, Bilu Liu, **Baohua Li***, Feiyu Kang, Quanhong Yang*, Twinborn TiO_2-TiN hetero structures enabling smooth trapping-diffusion-conversion of polysulfides towards ultralong life lithium-sulfur batteries. ***Energy & Environmental Science***, 2017, 10, 1694-1703.