

高晓春 博士、讲师

材料工程专业研究生导师

电话: 15589615117

邮件: Xiaochun.Gao@ldu.edu.cn



教育经历:

2016.9-2020.2	博士	悉尼科技大学	能源材料	清洁能源中心
2013.9-2016.7	硕士	山东大学	物理化学	化学与化工学院
2009.9-2013.7	学士	延边大学	应用化学	理学院

工作经历:

2021.1-至今	讲师	鲁东大学	物理与光电工程学院
2020.2-2020.11	博士后	悉尼科技大学	清洁能源中心

目前研究领域:

- 电化学储能应用 (锂硫电池, 钠硫电池)
- 光催化产氢

承担课题:

“二合一”载体界面工程实现室温钠硫电池全保护研究; 山东省青年基金; 主持; 15 万; 2023-2025。
鲁东大学人才引进科研启动资金; 主持; 30 万; 2021-2026。
功能磁性量子材料创新团队; 参与; 180 万; 2019-2022。

研究生培养:

主要招收物理、化学、材料等方向的研究生。

主讲课程:

《光学》《普通物理实验》

研究成果:

设计具备优异界面催化性能的半导体材料, 结合理论计算, 探讨其在光催化水分解制氢、CO₂ 还原、电化学储能反应的反应动力学过程, 目前已累计发表高水平 SCI 论文 39 篇, 其中以第一作者身份和通讯作者发表 13 篇, 其中 JCR 一区 11 篇, IF 在 10~20 的论文 4 篇 (Nano Energy*1 篇, IF=19.069; Small *2 篇, IF=15.153; J. Mater. Chem. A *2 篇, IF=14.511); IF>20 的论文 2 篇 (Trends in chemistry, IF=22.448; Nano-micro Letters, IF=26.2), 包含 National Science Open 1 篇 (中文名《国家科学进展》, 系 National Science Review 《国家科学评论》姊妹刊) *1 篇。

第一作者&通讯作者:

- [1] **Gao, X.**; Feng, J.; Su, D.; Ma, Y.; Wang, G.; Ma, H.; Zhang, J. In-Situ Exfoliation of Porous Carbon Nitride Nanosheets for Enhanced Hydrogen Evolution. *Nano Energy* **2019**, *59*, 598–609. (1 区, 影响因子: 19.069)
- [2] Hou, S.; **Gao, X.***; Wang, S.; Yu, X.; Liao, J.; Su, D*. Precise Defect Engineering on Graphitic Carbon Nitrides for Boosted Solar H₂ Production. *Small* **2023**, n/a (n/a), 2302500. (1 区, 影响因子: 13.3)
- [3] Hou, S., **Gao, X.***, Lv, X., Zhao, Y., Yin, X., Liu, Y., ... & Su, D*. (2024). Decade Milestone Advancement of Defect-Engineered g-C₃N₄ for Solar Catalytic Applications. *Nano-Micro Letters*, *16*(1), 70. (1 区, 影响因子: 26.6)

- [4] Chen, Y.[†]; **Gao, X.**[†]; Su, D.; Wang, C.; Wang, G. Accelerating Redox Kinetics of Lithium-Sulfur Batteries. *Trends in Chemistry*. **2020**, 2 (11), 1020-1033. (1 区, 影响因子: 22.448, 共一)
- [5] Zhang, L.; Hou, S.; Wang, T.; Liu, S.; **Gao, X.**^{*}; Wang, C. ^{*}; Wang, G. ^{*} Recent Advances in Application of Graphitic Carbon Nitride-Based Catalysts for Photocatalytic Nitrogen Fixation. *Small* **2022**, 2202252, 1–29. (1 区, 影响因子: 13.3)
- [6] **Gao, X.**; Yang, N.; Feng, J.; Liao, J.; Hou, S.; Ma, X.; Su, D.; Yu, X.; Yang, Z.; Safaei, J.; Wang, D.; Wang, G. Defect and Interface Control on Graphitic Carbon Nitrides/Upconversion Nanocrystals for Enhanced Solar Hydrogen Production. *Natl. Sci. Open* 20220037. (新刊, 中文名《国家科学进展》, 系 *Nat. Sci. Rev.* 《国家科学评论》姊妹刊)
- [7] Luo, X.; Lu, X.; Chen, X.; Chen, Y.; Song, C.; Yu, C.; Wang, N.; Su, D.; Wang, C.; **Gao, X.**^{*}; Wang, G.^{*}; Cui, L.^{*} A Robust Flame Retardant Fluorinated Polyimide Nanofiber Separator for High-Temperature Lithium-Sulfur Batteries. *J. Mater. Chem. A* **2020**, 8, 14788-14798. (1 区, 影响因子: 14.511)
- [8] Chu, Z.[†]; **Gao, X.**[†]; Wang, C.; Wang, T.; Wang, G. Metal–Organic Frameworks as Separators and Electrolytes for Lithium–Sulfur Batteries. *J. Mater. Chem. A* **2021**, 9 (12), 7301–7316. (1 区, 影响因子: 14.511)
- [9] Zhou, X.; Wang, T.; Liu, H.; **Gao, X.**^{*}; Wang, C.^{*}; Wang, G.^{*}. Desulfurization through Photocatalytic Oxidation: A Critical Review. *Chemsuschem* **2021**, 14 (2), 1–21. (1 区, 影响因子: 9.140)
- [10] **Gao, X.**; Zhou, D.; Chen, Y.; Wu, W.; Su, D.; Li, B.; Wang, G. Strong Charge Polarization Effect Enabled by Surface Oxidized Titanium Nitride for Lithium-Sulfur Batteries. *Commun. Chem.* **2019**, 2 (1), 66. (1 区, 影响因子: 7.211, nature 系列子刊)
- [11] **Gao, X.**; Li, S.; Li, T.; Li, G.; Ma, H. g-C₃N₄ as a Saturable Absorber for the Passively Q-Switched Nd:LLF Laser at 1.3 μm; *M. Photonics Res.* **2017**, 5 (1), 33–36. (1 区, 影响因子: 7.254)
- [12] **Gao, X.**; Wang, L.; Ma, J.; Wang, Y.; Zhang, J. Facile Preparation of Nitrogen-Doped Graphene as an Efficient Oxygen Reduction Electrocatalyst. *Inorg. Chem. Front.* **2017**, 4 (9), 1582–1590. (1 区, 影响因子: 7.779)
- [13] **Gao, X.**; Jiao, X.; Zhang, L.; Zhu, W.; Xu, X.; Ma, H.; Chen, T. Cosolvent-Free Nanocasting Synthesis of Ordered Mesoporous g-C₃N₄ and Its Remarkable Photocatalytic Activity for Methyl Orange Degradation. *RSC Adv.* **2015**, 5 (94), 76963–76972. (2 区, 影响因子: 4.036)

共同作者:

- [14] Tang, X.; Zhou, D.; Zhang, B.; Wang, S.; Li, P.; Liu, H.; Guo, X.; Jaumaux, P.; **Gao, X.**; Fu, Y. A Universal Strategy towards High Energy Aqueous Multivalent–Ion Batteries. *Nat. Commun.* **2021**, 12 (1), 1–11.
- [15] Zhang, F.; Guo, X.; Xiong, P.; Zhang, J.; Song, J.; Yan, K.; Gao, X.; Liu, H.; Wang, G. Interface Engineering of MXene Composite Separator for High-Performance Li–Se and Na–Se Batteries. *Adv. Energy Mater.* **2020**, 2000446.
- [16] Yu, X.; Yu, Z.-Y.; Zhang, X.-L.; Li, P.; Sun, B.; **Gao, X.**; Yan, K.; Liu, H.; Duan, Y.; Gao, M.-R. Highly Disordered Cobalt Oxide Nanostructure Induced by Sulfur Incorporation for Efficient Overall Water Splitting. *Nano Energy* **2020**, 104652.
- [17] Wang, S.; Xiong, P.; Guo, X.; Zhang, J.; **Gao, X.**; Zhang, F.; Tang, X.; Notten, P. H. L.; Wang, G. A Stable Conversion and Alloying Anode for Potassium-Ion Batteries: A Combined Strategy of Encapsulation and Confinement. *Adv. Funct. Mater.* **2020**, 2001588.
- [18] Zhou, D.; Tang, X.; Guo, X.; Li, P.; Shanmukaraj, D.; Liu, H.; Gao, X.; Wang, Y.; Rojo, T.; Armand, M.; Wang, G. Polyolefin–Based Janus Separator for Rechargeable Sodium Batteries. *Angew. Chemie Int. Ed.* **2020**, 59, 16725.
- [19] Yang, W.; Yang, W.; Dong, L.; **Gao, X.**; Wang, G.; Shao, G. Enabling Immobilization and Conversion of Polysulfides through a Nitrogen-Doped Carbon Nanotubes/Ultrathin MoS₂ Nanosheet Core-Shell Architecture for Lithium-Sulfur Batteries. *J. Mater. Chem. A* **2019**, 7 (21), 13103–13112.
- [20] Chen, Y.; Choi, S.; Su, D.; **Gao, X.**; Wang, G. Self-Standing Sulfur Cathodes Enabled by 3D Hierarchically Porous Titanium Monoxide-Graphene Composite Film for High-Performance Lithium-Sulfur Batteries. *Nano Energy* **2018**, 47, 331–339.
- [21] Zhang, L.; Jia, C.; He, S.; Zhu, Y.; Wang, Y.; Zhao, Z.; **Gao, X.**; Zhang, X.; Sang, Y.; Zhang, D.; Xu, X.; Liu, H. Hot Hole Enhanced Synergistic Catalytic Oxidation on Pt-Cu Alloy Clusters. *Adv. Sci.* **2017**, 4 (6), 1600448.
- [22] Liu, L.; Qi, W.; **Gao, X.**; Wang, C.; Wang, G. Synergistic Effect of Metal Ion Additives on Graphitic Carbon Nitride Nanosheet-Templated Electrodeposition of Cu@CuO for Enzyme-Free Glucose Detection. *J. Alloys Compd.* **2018**, 745, 155–163.
- [23] Huang, H.; Zhu, W.; **Gao, X.**; Liu, X.; Ma, H. Synthesis of a Novel Electrode Material Containing Phytic Acid-Polyaniline Nanofibers for Simultaneous Determination of Cadmium and Lead Ions. *Anal. Chim. Acta* **2016**, 947, 32–41.
- [24] Fan, M.; Li, T.; Zhao, S.; Li, G.; **Gao, X.**; Yang, K.; Li, D.; Kränkel, C. Multilayer Black Phosphorus as Saturable Absorber for an Er:Lu₂O₃ Laser at ~3 μm; *M. Photonics Res.* **2016**, 4 (5), 181–186.

[25] Zhu, W.; Huang, H.; **Gao, X.**; Ma, H. Electrochemical Behavior and Voltammetric Determination of Acetaminophen Based on Glassy Carbon Electrodes Modified with Poly(4-Aminobenzoic Acid)/Electrochemically Reduced Graphene Oxide Composite Films. *Mater. Sci. Eng. C* **2014**, *45*, 21–28.

... ..