



师资队伍

人才团队

教师队伍

研究生导师

无机化学

有机化学

物理化学

高分子化学与物理

资源化学

分析化学

环境科学与工程

材料科学与工程

化学工程与技术

化学工程

资源与环境(环境工程方向)

博士后

物理化学

首页 > 师资队伍 > 研究生导师 > 物理化学 > 正文

【硕导】张紫晴

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张紫晴, 女, 1990年出生, 博士研究生, 副教授、硕士生导师。

2018年毕业于吉林大学并获得无机化学专业博士学位。2018年在黑龙江大学开展光催化方面的博士后研究工作。

主要从事纳米半导体光(电)催化研究领域。主持承担国家自然科学基金青年项目、黑龙江省教育厅科技人才创新类项目。作为第1或通讯作者, 至今已在“Angew Chem Int Ed”、“Appl Catal B: Environ”、“J Mater Chem A”、“CHEM ENG J”等上发表SCI论文15篇, 共被SCI论文引用350余次。研究论文多次被“研之成理”、“催化计”、“隧瞳科学云”等学术媒体和交流平台重点推介。

一、研究方向

1. 光电催化转化
2. 光催化能源生产

二、学术荣誉及获奖情况

1. 荣获“黑龙江省高校科学技术成果奖-特等奖”, 第六完成人。
2. 荣获“黑龙江大学优秀科研成果评奖-三等奖”, 第二完成人。

三、主持科研项目情况

1. 《高效钒酸盐基纳米复合光阳极的可控制备及水氧化动力学过程研究》, 国家自然科学基金青年项目, 主持人, 2022-2025, 在研。
2. 《高性能纳米结构氧化钨基光阳极的制备及光电催化机制研究》, 黑龙江省教育厅科技创新类项目, 主持人, 2022-2023, 在研。
3. 《金属基氧化物的合成及其光(电)催化性能的研究》, 黑龙江省教育厅科技人才创新类项目, 2018-2020, 已结题。

四、发表学术论文情况

1. Ji Bian⁺, Ziqing Zhang⁺, Jiannan Feng, Madasamy Thangamuthu, Fan Yang, Ling Sun, Zhijun Li, Yang Qu, Dongyan Tang, Zewei Lin, Fuquan Bai*, Junwang Tang,* **Liqiang Jing***. Energy platform for directed charge transfer in the cascade Z-scheme heterojunction: CO₂ photoreduction without a cocatalyst. **Angewandte Chemie-International Edition**, 2021, 60, 2-11.

2. Jiawen Sun, Ji Bian, Jiadong Li, Ziqing Zhang*, Zhijun Li, Yang Qu, Linlu Bai, Zhao-Di Yang*, **Liqiang Jing***. Efficiently photocatalytic conversion of CO₂ on ultrathin metal phthalocyanine/g-C₃N₄ heterojunctions by promoting charge transfer and CO₂ activation. **Applied Catalysis B** 2020, 277, 119199.

3. Ziqing Zhang, Linlu Bai, Zhijun Li, Yang Qu*, **Liqiang Jing***. Review of strategies for the fabrication of heterojunctional nanocomposites as efficient visible-light catalysts by modulating excited electrons with appropriate thermodynamic energy. **Journal of Materials Chemistry A**, 2019, 7,10879-10897.

4. Ziqing Zhang, Hongdan Zhang, Xinyang Zhang, Deyang Yu, Ying Ji, Qiushi Sun, Ying Wang, and Xiaoyang Liu*, Facile synthesis of hierarchical CoMoO₄@NiMoO₄ core-shell nanosheet arrays on nickel foam as an advanced electrode for asymmetric supercapacitors. **Journal of Materials Chemistry A**, 2016, 4, 18578-18584.

5. Rui Sun, Yilin Wang, Ziqing Zhang,* Yang Qu, Zhijun Li, Bin Li, Hongjun Wu, Xiuyi Hua, Shengyu Zhang,* Fengjun Zhang, **Liqiang Jing***. Ultrathin phosphate-modulated zinc phthalocyanine/perylene diimide supermolecule Z-scheme heterojunctions as efficiently wide visible-light photocatalysts for CO₂ conversion. **Chemical Engineering Journal**, 2021, 426, 131266.

6. Ji Bian, Ling Sun, **Ziqing Zhang***, Zhijun Li, Mingna Chu, Xin Li, Dongyan Tang,* and **Liqiang Jing***. Au modulated Z-scheme CuPc/BiVO₄ nanosheet heterojunctions towards efficient CO₂ conversion under wide-visible-light irradiation. **ACS Sustainable Chemistry & Engineering**, 2021, 9, 2400-2408.

7. Ziqing Zhang, Fuxi Bao, Yingnan Zhang, Likun Feng, Ying Ji, Hongdan Zhang, Qiushi Sun, Shouhua Feng, Xudong Zhao* and Xiaoyang Liu*, Formation of hierarchical CoMoO₄@MnO₂ core-shell nanosheet arrays on nickel foam with markedly enhanced pseudocapacitive properties. **Journal of Power Sources**, 2015, 296, 162-168.

8. Zhenlong Zhao, Ji Bian*, Lina Zhao, Hongjun Wu, Shuai Xu, Lei Sun, Zhijun Li, Ziqing Zhang*, **Liqiang Jing***. Construction of 2D Zn-MOF/BiVO₄ S-scheme heterojunction for efficiently photocatalytic CO₂ conversion under visible light irradiation. **Chinese Journal of Catalysis**, 2021, DOI:10.1016/S1872-2067(21)64005-6.

9. Ji Bian, Jiannan Feng, **Ziqing Zhang***, Jiawen Sun, Mingna Chu, Ling Sun, Xin Li, Dongyan Tang* and **Liqiang Jing***. Graphene-modulated assembly of zinc phthalocyanine on BiVO₄ nanosheets for efficient visible-light catalytic conversion of CO₂. **Chemical Communications** 2020, 56, 4926.

10. Qingyang Zhang, Zhijun Li, Shuangying Chen, **Ziqing Zhang***, Sharafat Ali and **Liqiang Jing***. Improved photocatalytic activities of porous In₂O₃ with large surface area by coupling with K-modified CuO for degrading pollutants. **Catalysis Today** 2020, 339, 403-410.

11. Rui Sun, Haochun Yin, Ziqing Zhang,* Yilin Wang, Teng Liang, Shengyu Zhang,* and Liqiang Jing*. Graphene-modulated PDI/g-C₃N₄ all-organic S-Scheme heterojunction photocatalysts for efficient CO₂ reduction under full-spectrum irradiation. **The Journal of Physical Chemistry C**, 2021, 125, 23830-23839.

12. Rui Sun, Ziqing Zhang*, Zhijun Li, **Liqiang Jing***. Review on photogenerated hole modulation strategies in photoelectrocatalysis for solar fuel production. **ChemCatChem**, 2019, 11, 5875-5884.

13. Deyang Yu, **Ziqing Zhang***, Yifei Teng, Ya'nan Meng, Xudong Zhao* and Xiaoyang Liu*. Controllable synthesis of cobalt molybdate nanoarrays on nickel foam as the advanced electrodes of alkaline battery-

supercapacitor hybrid devices. **Journal of Alloys and Compounds** 2020, 835, 155244.

14. Ziqing Zhang, Xinyang Zhang, Yi Feng, Xiaofeng Wang, Qiushi Sun, Deyang Yu, Wenming Tong, Xudong Zhao and Xiaoyang Liu*, Fabrication of Porous ZnCo₂O₄ Nanoribbon Arrays on Nickel Foam for High-Performance Supercapacitors and Lithium-Ion Batteries. **Electrochimica Acta**, 2018, 260, 823-829.

15. Xianglin Li, Qingyang Zhang, Bin Li, Zhijun Li, **Ziqing Zhang*** and **Liqliang Jing***, Improved photocatalytic activity of porous In₂O₃ by co-modifying nanosized CuO and Ag with synergistic effects.

Chemical Research in Chinese Universities 2020, 36, 1116-1121.

五、联系方式

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