

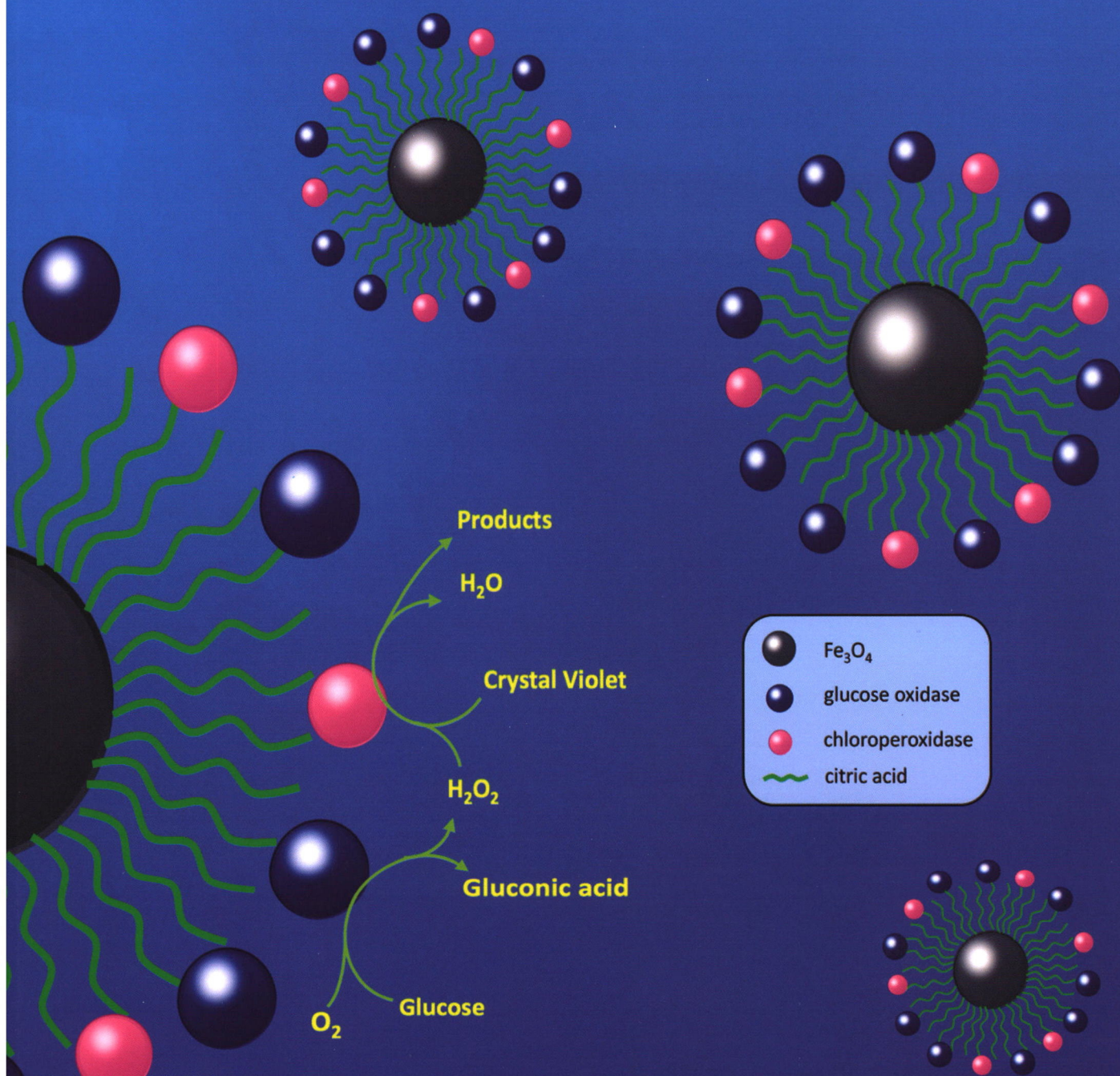
ISSN 0567-7351
CN 31-1320/O6
CODEN HHHPA4
<http://sioc-journal.cn>

90th
1933-2023

化学学报

ACTA CHIMICA SINICA

Volume 81 Number 4 April 2023



ISSN 0567-7351



9 770567 735233

万方数据



中国化学会
中国科学院上海有机化学研究所

主办

化学学报

Acta Chimica Sinica

(Huaxue Xuebao)

第 81 卷 第 4 期 2023 年 4 月 15 日

目次

研究论文

- 氟氮共掺杂多孔碳纳米片的制备及其储钾性能研究 蒋江民, 郑欣冉, 孟雅婷, 贺文杰, 陈亚鑫, 庄全超, 袁加仁*, 鞠治成*, 张校刚*, 化学学报, 2023, 81(4), 319-327
- 高氯酸铵热分解机理的密度泛函理论研究 杨洁, 凌琳, 李玉学*, 吕龙*, 化学学报, 2023, 81(4), 328-337
- 羧基功能化 Fe₃O₄ 固定化酶反应器的构筑及性能研究 高丰琴*, 刘洋, 张引莉, 蒋育澄, 化学学报, 2023, 81(4), 338-344
- 溶剂对四苯基卟啉氯化锰飞秒瞬态吸收光谱的影响 李万红, 于明月, 王丽丽, 朱德煌, 彭素红*, 王惠, 刘海洋, 化学学报, 2023, 81(4), 345-350
- 多功能磷化铁碳布(FeP/CC)中间层高效催化多硫化物实现锂硫电池的高容量与高稳定性 周俊粮, 赵振新, 武庭毅, 王晓敏*, 化学学报, 2023, 81(4), 351-358
- 过氧化氢激活型近红外氟硼二吡咯光敏剂的设计、合成及光动力治疗研究 吕鑫, 吴仪, 张勃然, 郭炜*, 化学学报, 2023, 81(4), 359-370
- 一种高效窄带蓝色荧光粉 Ba₃Y₂B₆O₁₅:Bi³⁺ 及其应用研究 梁攀, 张宏淑, 黄宏升, 李飒英, 张笑恬, 王英, 李连庆*, 刘志宏*, 化学学报, 2023, 81(4), 371-380

综述

- 过渡金属催化的硫酯的交叉偶联反应研究进展 韩明亮*, 徐丽华, 化学学报, 2023, 81(4), 381-392
- 用于制备全息光波导的光致聚合物的研究进展 郭斌, 王铭轩, 张获琴, 孙敏远, 毕勇, 赵榆霞*, 化学学报, 2023, 81(4), 393-405
- 石墨烯纳米带的可控制备研究进展 宁聪聪, 杨倩*, 毛阿敏, 唐梓嘉, 金燕, 胡宝山*, 化学学报, 2023, 81(4), 406-419
- 高分子聚合物基碳纳米膜的电催化降解污水性能及机理 张慧颖, 于淑艳*, 李从举*, 化学学报, 2023, 81(4), 420-430

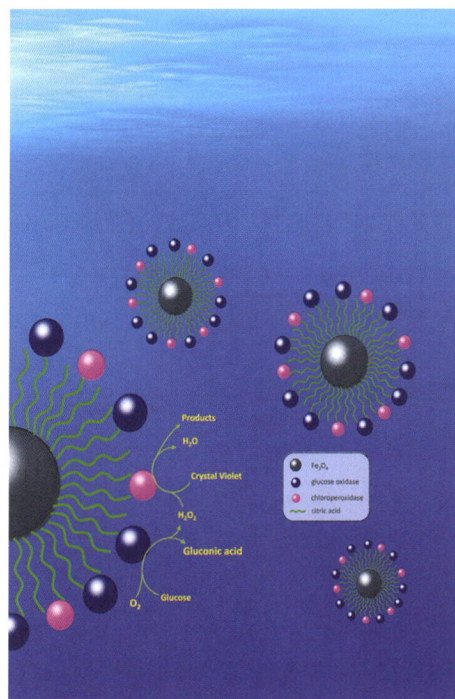
* 通信联系人.

ACTA CHIMICA SINICA

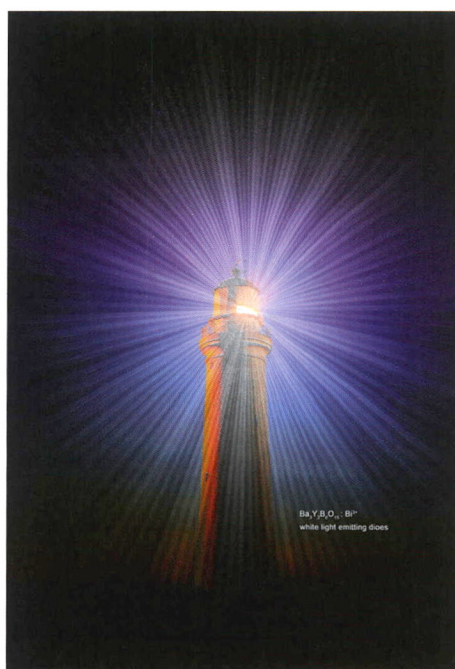
Vol. 81, No. 4 April 15, 2023

Contents

On the front cover: The co-immobilized chloroperoxidase (CPO) and glucose oxidase (GOx) reactor was prepared by a carrier of Fe_3O_4 modified with citric acid, which had good catalytic effect due to the *in-situ* formation of H_2O_2 in the cascade reaction. [Gao, Fengqin *et al.* on page 338-344.]



On the inside front cover: We prepared an efficient narrow-band blue-emitting phosphor $\text{Ba}_3\text{Y}_2\text{B}_6\text{O}_{15}:\text{Bi}^{3+}$ which can be used to fabricate white light emitting diodes with 5679 K correlated color temperature and 95.3% NTSC color gamut. [Liang, Pan *et al.* on page 371-380.]

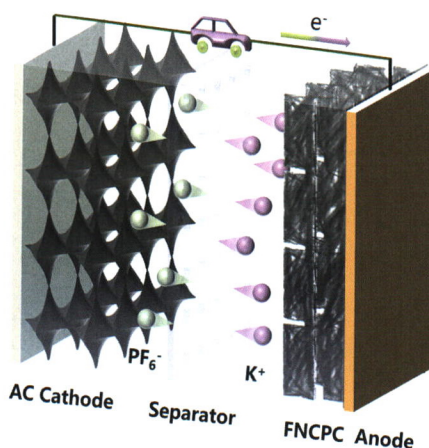


Article

Research on the Preparation and Potassium Storage Performance of F, N Co-doped Porous Carbon Nanosheets

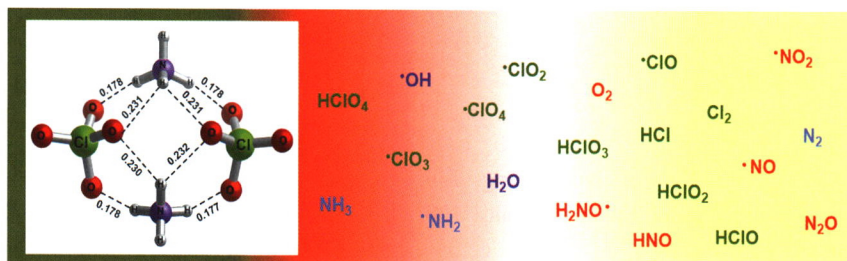
Jiang, Jiangmin; Zheng, Xinran; Meng, Yating; He, Wenjie; Chen, Yaxin; Zhuang, Quanchao; Yuan, Jiaren*; Ju, Zhicheng*; Zhang, Xiaogang*

Acta Chim. Sinica 2023, 81(4), 319-327



The prepared F and N co-doped carbon nanosheets effectively shorten the transport path of ions, widen the layer spacing, alleviate the volume expansion problem, and also form more surface defects, which provide more reactive sites for K^+ storage.

Density Functional Theory Study on Thermal Decomposition Mechanisms of Ammonium Perchlorate

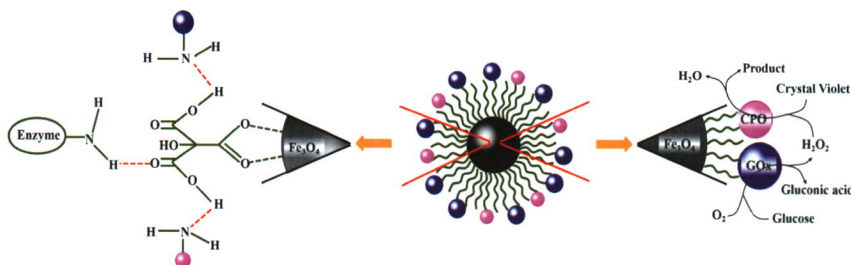


Yang, Jie; Ling, Lin; Li, Yuxue*; Lu, Long*

Acta Chim. Sinica 2023, 81(4), 328-337

The thermal decomposition characteristics of ammonium perchlorate (AP) have a great influence on the performance of solid propellant. In this work, the overall thermal decomposition pathways of AP were studied systematically using broken-symmetry density functional theory method (BS-UB3LYP/6-311+G(d,p)).

Study on Construction and Performance of Immobilized Enzyme Reactors by Carboxyl-functionalized Fe_3O_4

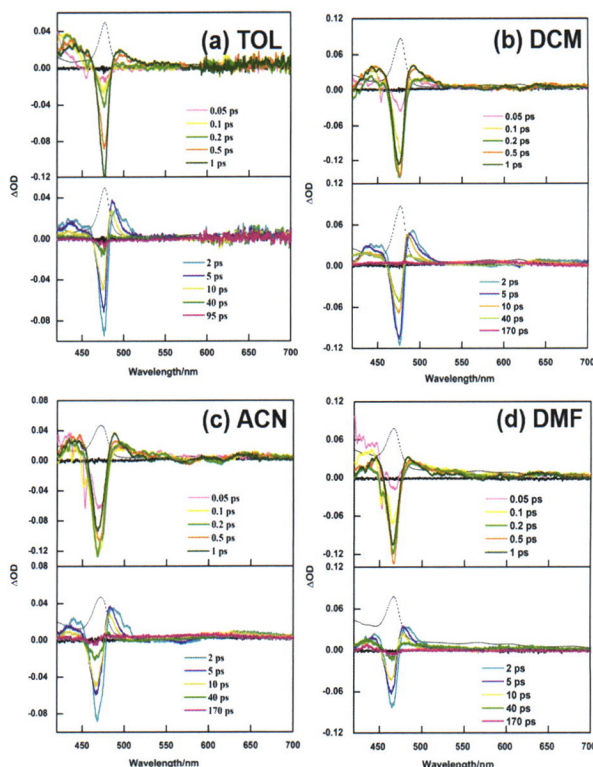


Gao, Fengqin*; Liu, Yang; Zhang, Yinli;
Jiang, Yucheng

Acta Chim. Sinica 2023, 81(4), 338-344

Fe₃O₄ modified by citric acid was used as a carrier (CA-Fe₃O₄), and the co-immobilized chloroperoxidase (CPO) and glucose oxidase (GOx) reactor was prepared by adsorption. In the decolorization reaction of crystal violet, the enzyme reactor of GOx&CPO@CA-Fe₃O₄ had good catalytic effect due to the *in-situ* formation of H₂O₂ in the cascade reaction.

Solvent Influence on the Femtosecond Transient Absorption Spectra of Tetraphenylporphyrin Manganese(III) Chloride

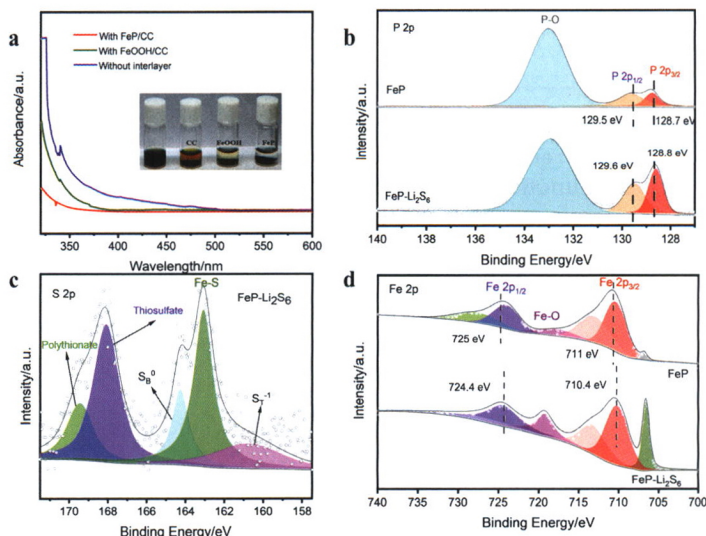


The bleaching signal of the femtosecond transient absorption of $\text{Mn}^{\text{III}}(\text{TPP})\text{Cl}$ exhibited blue-shift, the lifetimes of the first excited singlet state ($^5\text{S}_1$) and the first excited triplet state ($^5\text{T}_1$) shortened with the solvent polarity increasing from dichloromethane (DCM), acetonitrile (ACN) to *N,N*-dimethylformamide (DMF). In these four solvents, its $^5\text{S}_2$ lifetime in nonpolar solvent toluene (TOL) was the longest and the $^5\text{S}_1$ lifetime, $^5\text{T}_1$ lifetime were the shortest. With the solvent polarity increasing from nonpolar solvent TOL to the more polar solvent ACN, the $^5\text{S}_2$ lifetime shortened. While its $^5\text{S}_2$ lifetime became longer in polar solvent DMF.

Li, Wanhong; Yu, Mingyue; Wang, Lili; Zhu, Dehuang; Peng, Suhong*; Wang, Hui; Liu, Haiyang

Acta Chim. Sinica **2023**, 81(4), 345-350

Efficient Catalytic Conversion of Polysulfides in Multifunctional FeP/Carbon Cloth Interlayer for High Capacity and Stability of Lithium-sulfur Batteries

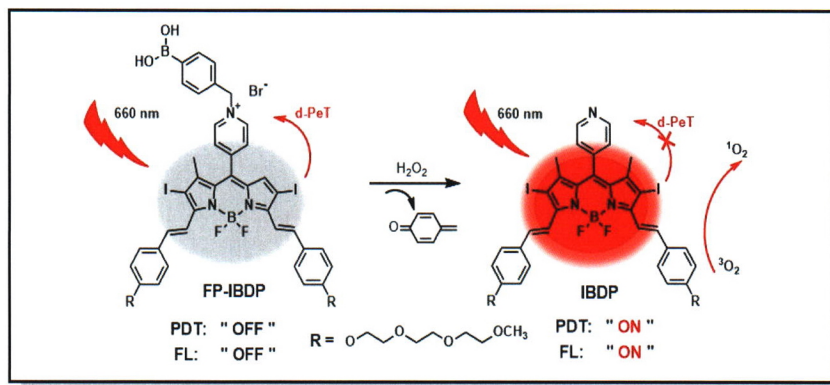


In this work, a multifunctional FeP/carbon cloth (FeP/CC) interlayer is designed, whose special morphology and catalytic characteristics of phosphate greatly improve the cycle stability and reaction kinetics of lithium-sulfur batteries, and provide a feasible scheme to alleviate the shuttle effect.

Zhou, Junliang; Zhao, Zhenxin; Wu, Tingyi; Wang, Xiaomin*

Acta Chim. Sinica **2023**, 81(4), 351-358

Design, Synthesis and Photodynamic Therapy of a H₂O₂-Activatable Near Infrared Borondipyrromethene (BODIPY) Photosensitizer

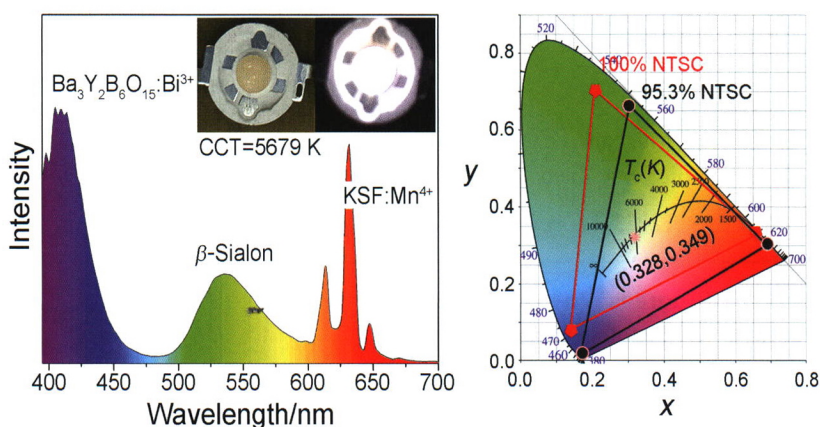


Based on the strategy of modulating photo induced electron transfer process, a H₂O₂-activatable near infrared photosensitizer *meso*-*N*-(4-boronobenzyl)pyridinium substituted diiododistyryl-borondipyrromethene (FP-IBDP) was designed and synthesized. Photodynamic therapy with FP-IBDP under 660 nm light irradiation in cell level demonstrated much enhanced fluorescence and amplified phototoxicity for cancer cells.

Ly, Xin; Wu, Yi; Zhang, Boran; Guo, Wei*

Acta Chim. Sinica 2023, 81(4), 359-370

An Efficient Narrow-band Blue-emitting Phosphor Ba₃Y₂B₆O₁₅:Bi³⁺ and Its Application



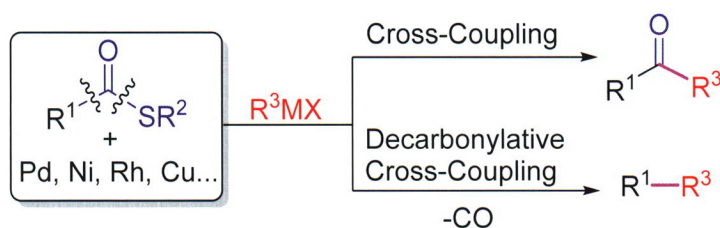
Liang, Pan; Zhang, Hongshu; Huang, Hongsheng; Li, Saying; Zhang, Xiaotian; Wang, Ying; Li, Lianqing*; Liu, Zhihong*

Acta Chim. Sinica 2023, 81(4), 371-380

A novel efficient narrow-band blue emitting phosphor Ba₃Y₂B₆O₁₅:Bi³⁺ was prepared, which can be used as the backlight of wide color gamut display.

Review

Progress on the Transition Metal-catalyzed Cross-coupling Reaction of Thioesters

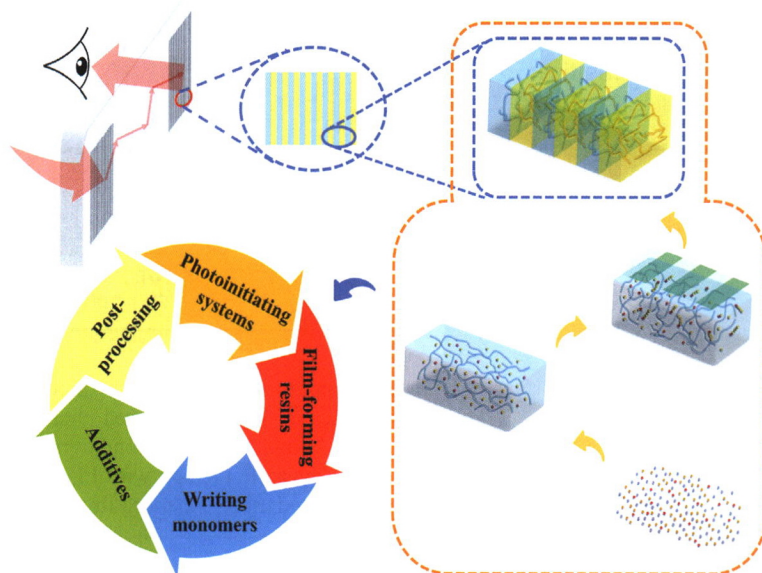


The advances in transition-metal-catalyzed cross-coupling reaction of thioesters are summarized in this review, which is presented by the categories of transition metals including Pd, Ni, Cu and Rh. Despite the reaction between thioester and selected organometallic reagents to furnish ketones, thioesters could also be employed as decarbonylative coupling electrophiles. Transition-metal-catalyzed cross-coupling reaction of thioesters provides alternative and efficient ways to construct C—C bonds.

Han, Mingliang*; Xu, Lihua

Acta Chim. Sinica 2023, 81(4), 381-392

Research Progress of Photopolymers for the Preparation of Holographic Optical Waveguide

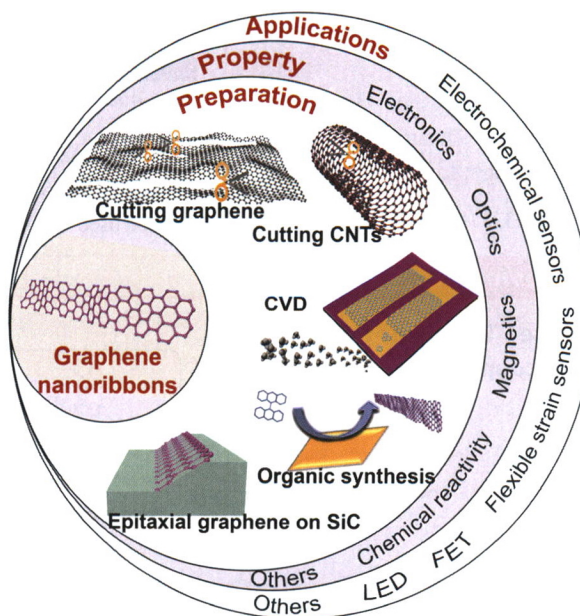


Guo, Bin; Wang, Mingxuan; Zhang, Diqin;
Sun, Minyuan; Bi, Yong; Zhao, Yuxia*

Acta Chim. Sinica **2023**, 81(4), 393-405

The working principle of holographic optical waveguide in head-mounted augmented reality displays (HMD-AR) and the preparation principle of photopolymer volume holographic gratings (VHG) are introduced, the recent research progress of photopolymers in this field is reviewed, the influence of different components in photopolymer formulations and the post-treatment methods of the recording media on their holographic optical properties are summarized.

Research Progress in Controllable Preparation of Graphene Nanoribbons

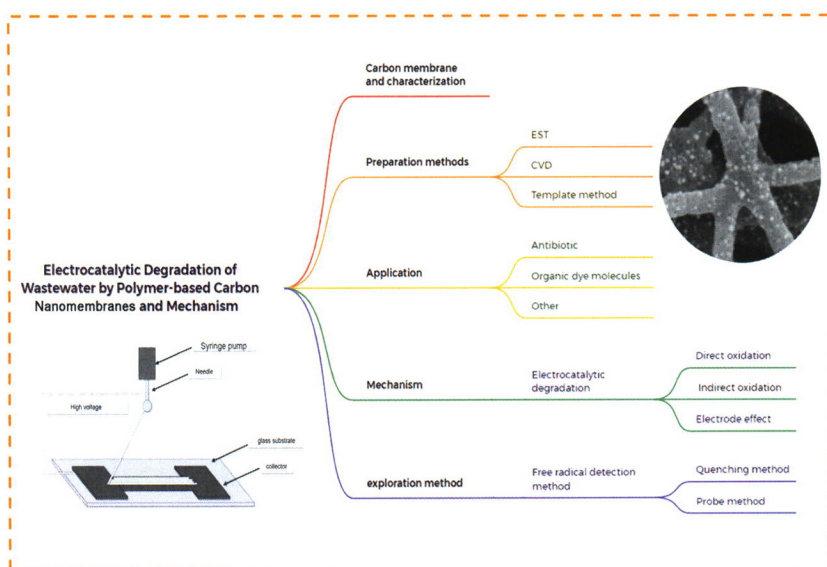


Ning, Congcong; Yang, Qian*; Mao, Amin;
Tang, Zijia; Jin, Yan; Hu, Baoshan*

Acta Chim. Sinica **2023**, 81(4), 406-419

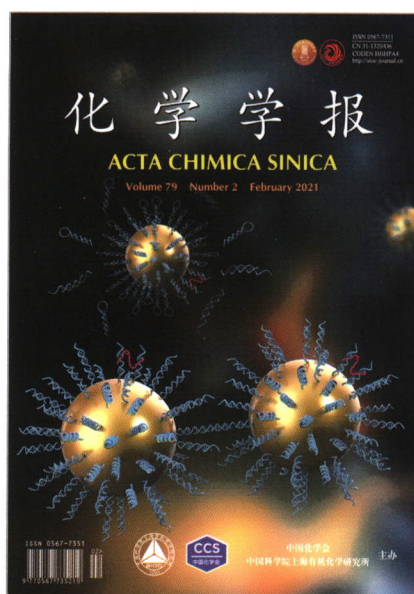
Electrocatalytic Degradation of Wastewater by Polymer-based Carbon Nanomembranes and Mechanism

Zhang, Huiying; Yu, Shuyan*; Li, Congju*
Acta Chim. Sinica **2023**, *81*(4), 420-430



Go Now!!

<http://sioc-journal.cn>



化学学报

ACTA CHIMICA SINICA

主编：唐勇 院士

- SCI收录、中文核心、入选卓越计划
- 中国创刊最早的化学期刊(始于1933年)
- 中国最早被SCI收录的化学期刊
- 中国“百强科技期刊”
- SCI影响因子最高的中文期刊
- 免费审稿、免费发表
- 免费阅读、开放获取

Tel.: +86-21-54925242

E-mail: hxxb@sioc.ac.cn



CHINESE JOURNAL OF CHEMISTRY

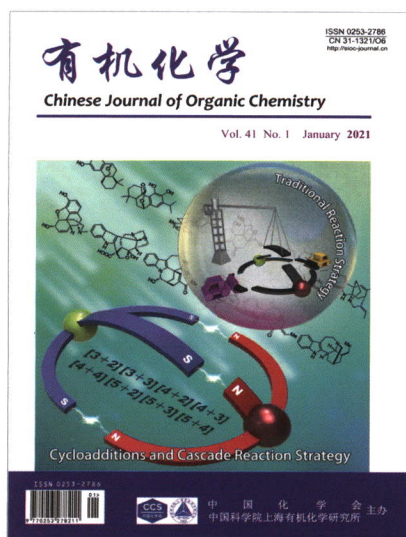
中国化学

主编：麻生明 院士

- SCI收录、入选卓越计划
- 1983年创刊(原名 *Acta Chimica Sinica English Edition*)
- 与Wiley-VCH合作出版
- 免费审稿、免费发表

Tel.: +86-21-54925243-27

E-mail: cjc@sioc.ac.cn



有机化学

Chinese Journal of Organic Chemistry

主编：丁奎岭 院士

- SCI收录、中文核心
- 1980年创刊
- 全面覆盖有机化学领域
- 设有研究专题、综述与进展、研究论文、研究简报、亮点介绍等栏目
- 免费阅读、开放获取

Tel.: +86-21-54925244-28

E-mail: yjhx@sioc.ac.cn