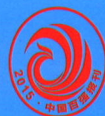


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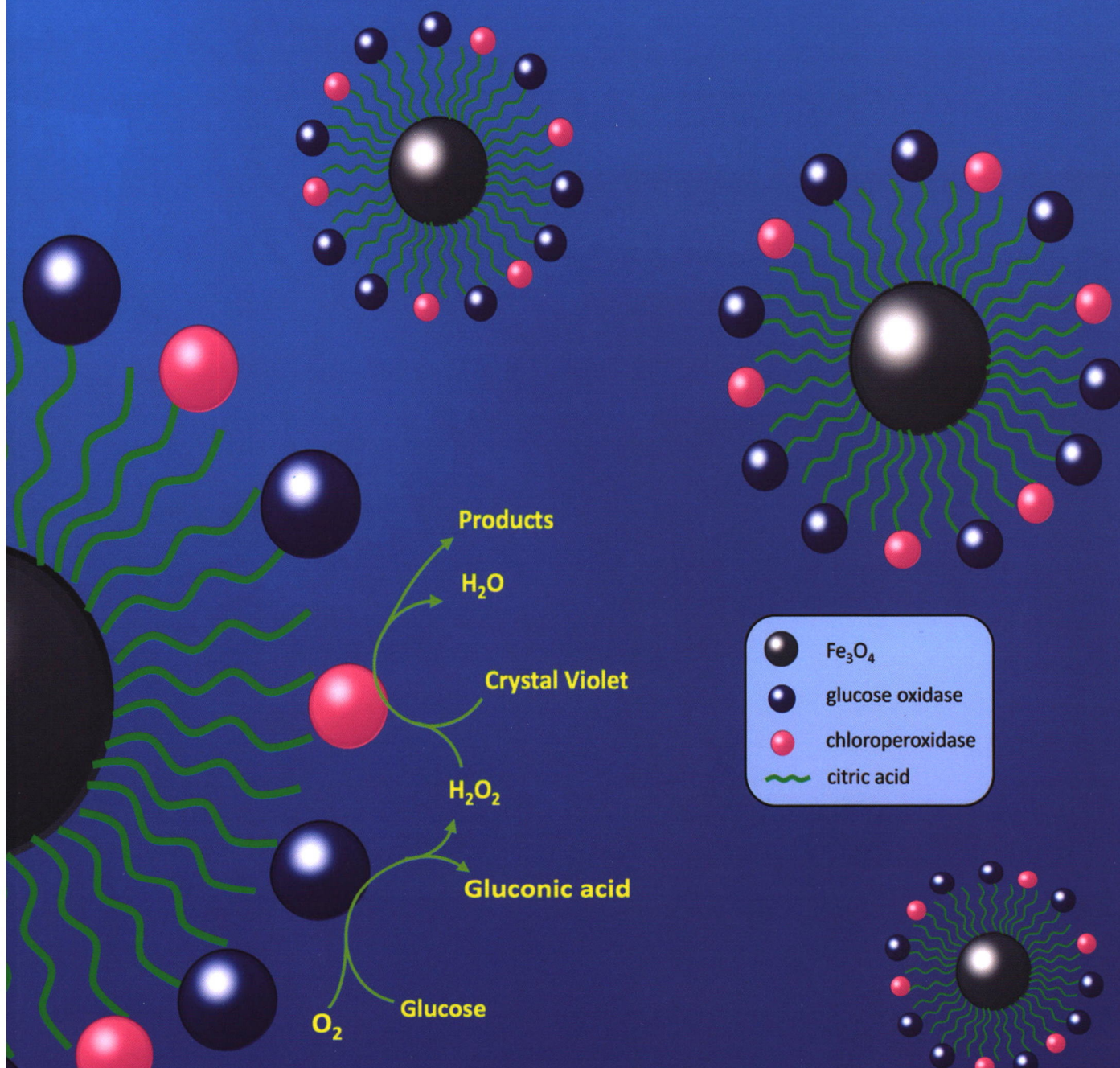
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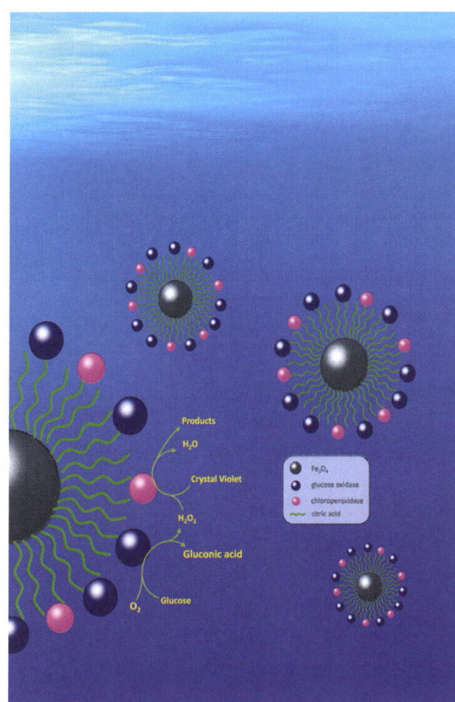
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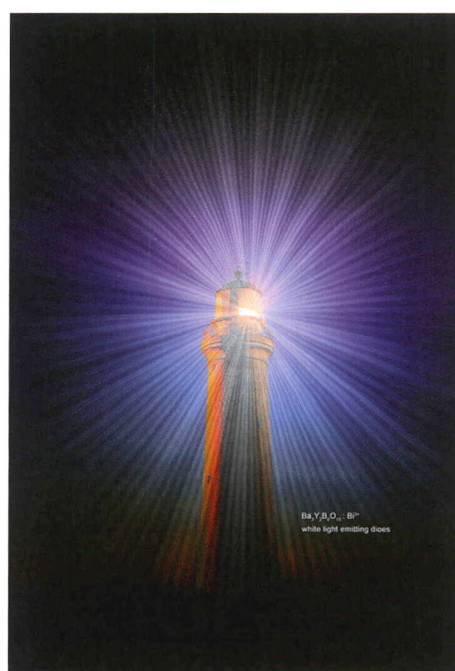
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Contents

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.]

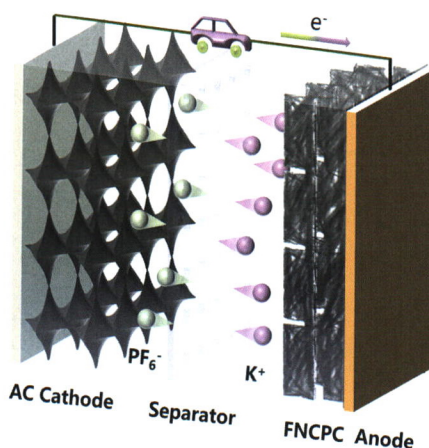


Article

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

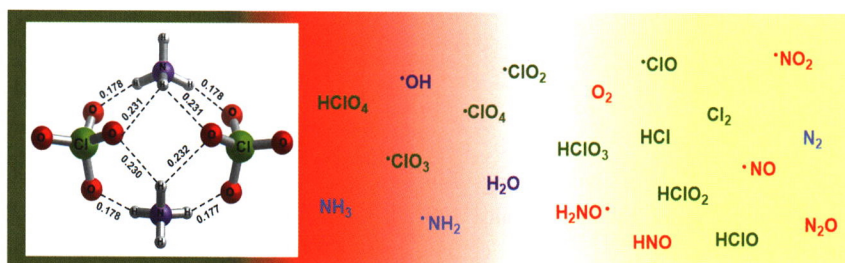


The prepared F and N co-doped carbon nanosheets effectively shorten the transport path of ions, widen the layer spacing, alleviate the volume expansion problem, and also form more surface defects, which provide more reactive sites for K^+ storage.

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

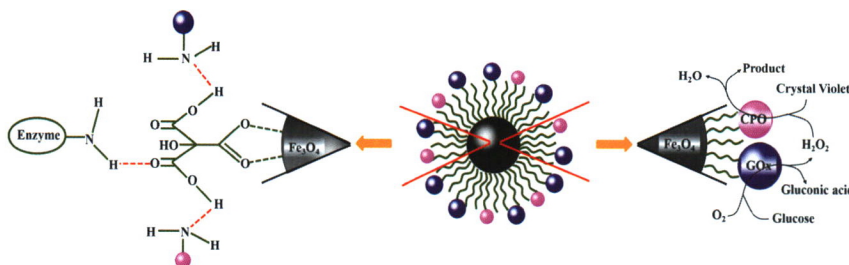


The thermal decomposition characteristics of ammonium perchlorate (AP) have a great influence on the performance of solid propellant. In this work, the overall thermal decomposition pathways of AP were studied systematically using broken-symmetry density functional theory method (BS-UB3LYP/6-311+G(d,p)).

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

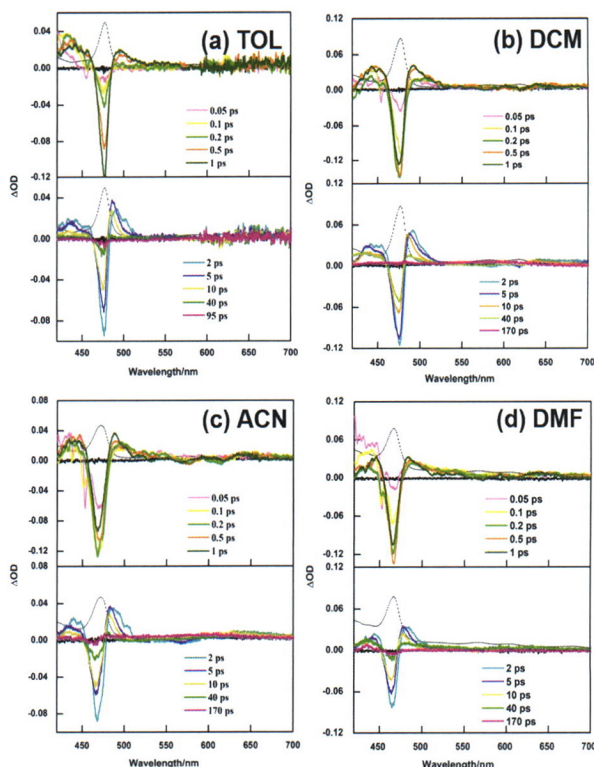
Gao, Fengqin*; Liu, Yang; Zhang, Yinli; Jiang, Yucheng

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



Fe_3O_4 modified by citric acid was used as a carrier (CA- Fe_3O_4), 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- Fe_3O_4 had good catalytic effect due to the *in-situ* formation of H_2O_2 in the cascade reaction.

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

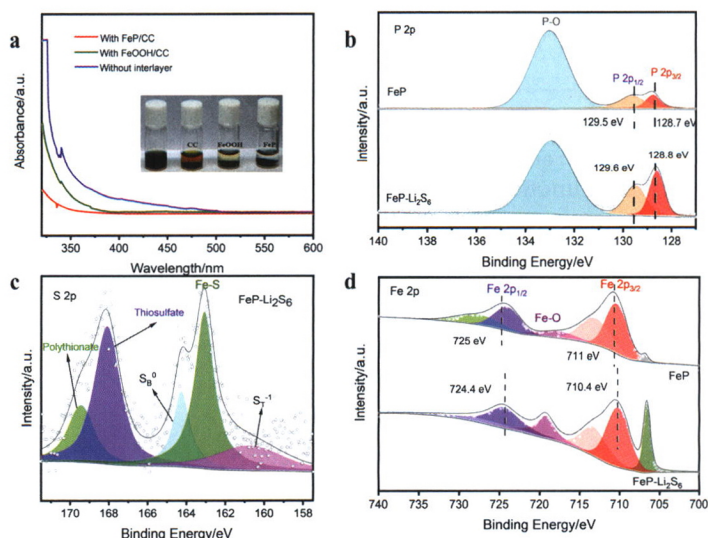


The bleaching signal of the femtosecond transient absorption of $\text{Mn}^{\text{III}}(\text{TPP})\text{Cl}$ exhibited blue-shift, the lifetimes of the first excited singlet state ($^5\text{S}_1$) and the first excited triplet state ($^5\text{T}_1$) shortened with the solvent polarity increasing from 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 $^5\text{T}_1$ 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

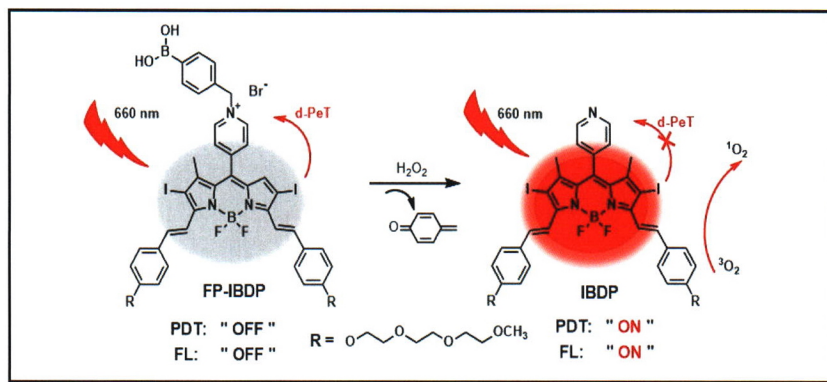


Zhou, Junliang; Zhao, Zhenxin; Wu, Tingyi; Wang, Xiaomin*

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

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.

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

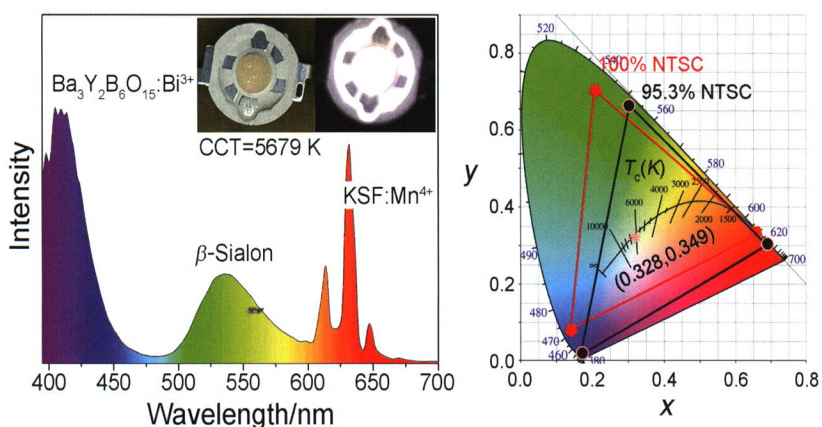


Based on the strategy of modulating photo induced electron transfer process, a H₂O₂-activatable near infrared photosensitizer *meso*-*N*-(4-boronobenzyl)pyridinium substituted diiododistyryl-borondipyrromethene (FP-IBDP) was designed and synthesized. Photodynamic therapy with FP-IBDP under 660 nm light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

Lv, 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



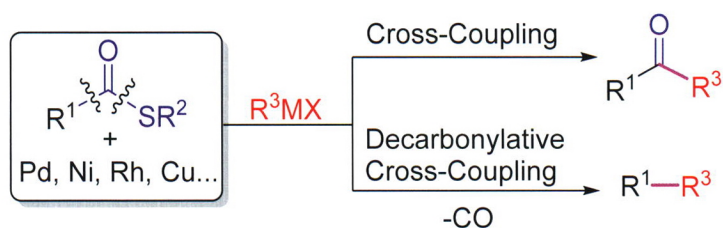
Liang, Pan; Zhang, Hongshu; Huang, Hongsheng; Li, Saying; Zhang, Xiaotian; Wang, Ying; Li, Lianqing*; Liu, Zhihong*

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

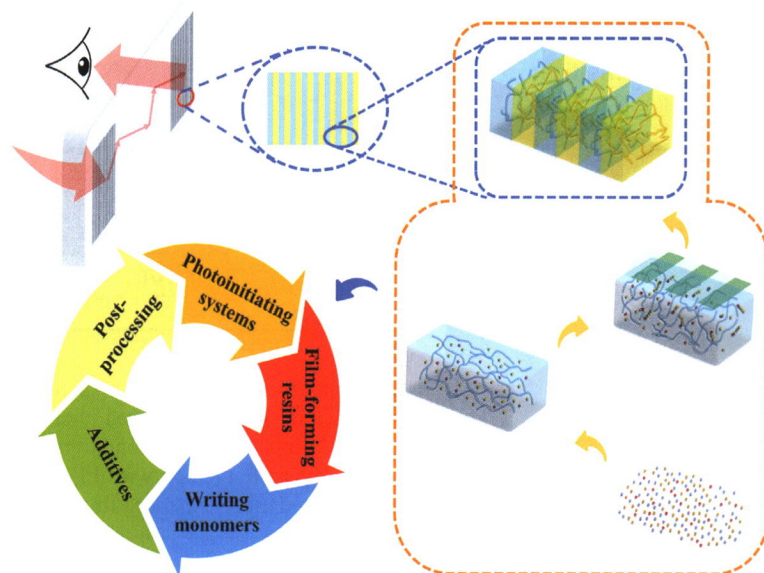


The advances in transition-metal-catalyzed cross-coupling reaction of thioesters are summarized in this review, which is presented by the categories of transition metals including Pd, Ni, Cu and Rh. Despite the reaction between thioester and selected organometallic reagents to furnish ketones, thioesters 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

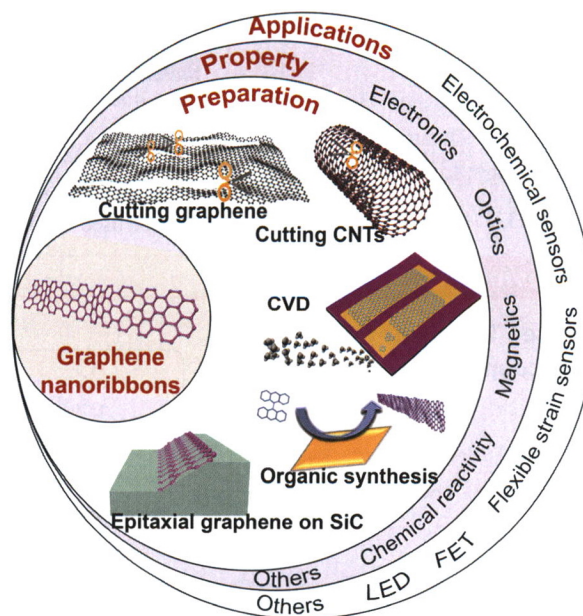


The working principle of holographic optical waveguide in head-mounted augmented reality displays (HMD-AR) and the preparation principle of photopolymer volume holographic gratings (VHG) are introduced, the recent research progress of photopolymers in this field is reviewed, the influence of different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

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

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

Research Progress in Controllable Preparation of Graphene Nanoribbons



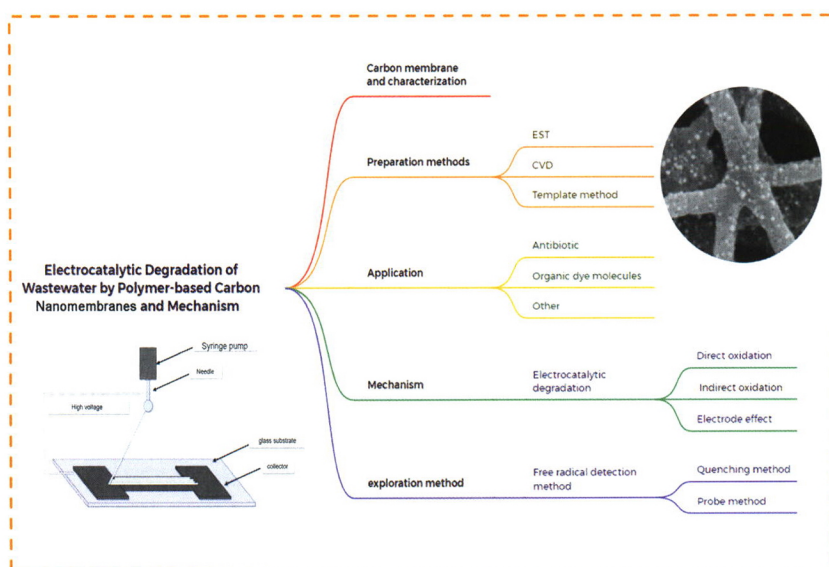
Ning, Congcong; Yang, Qian*; Mao, Amin;
Tang, Zijia; Jin, Yan; Hu, Baoshan*

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

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

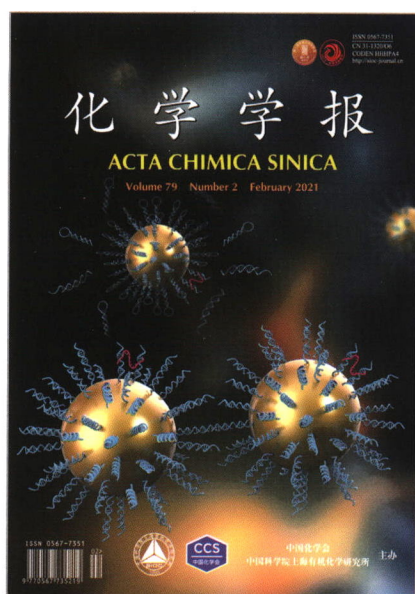
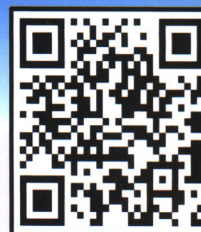
Zhang, Huiying; Yu, Shuyan*; Li, Congju*

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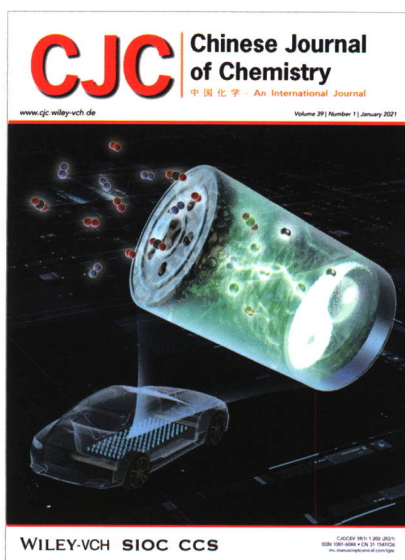
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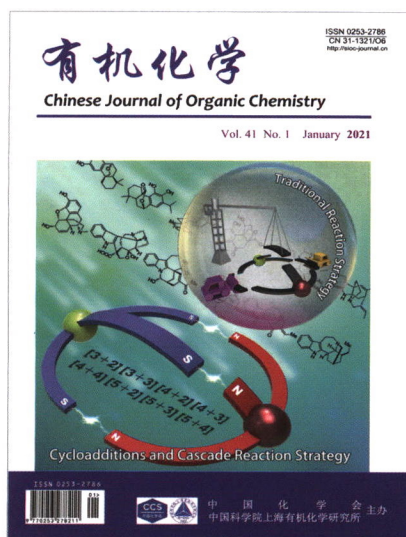
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