

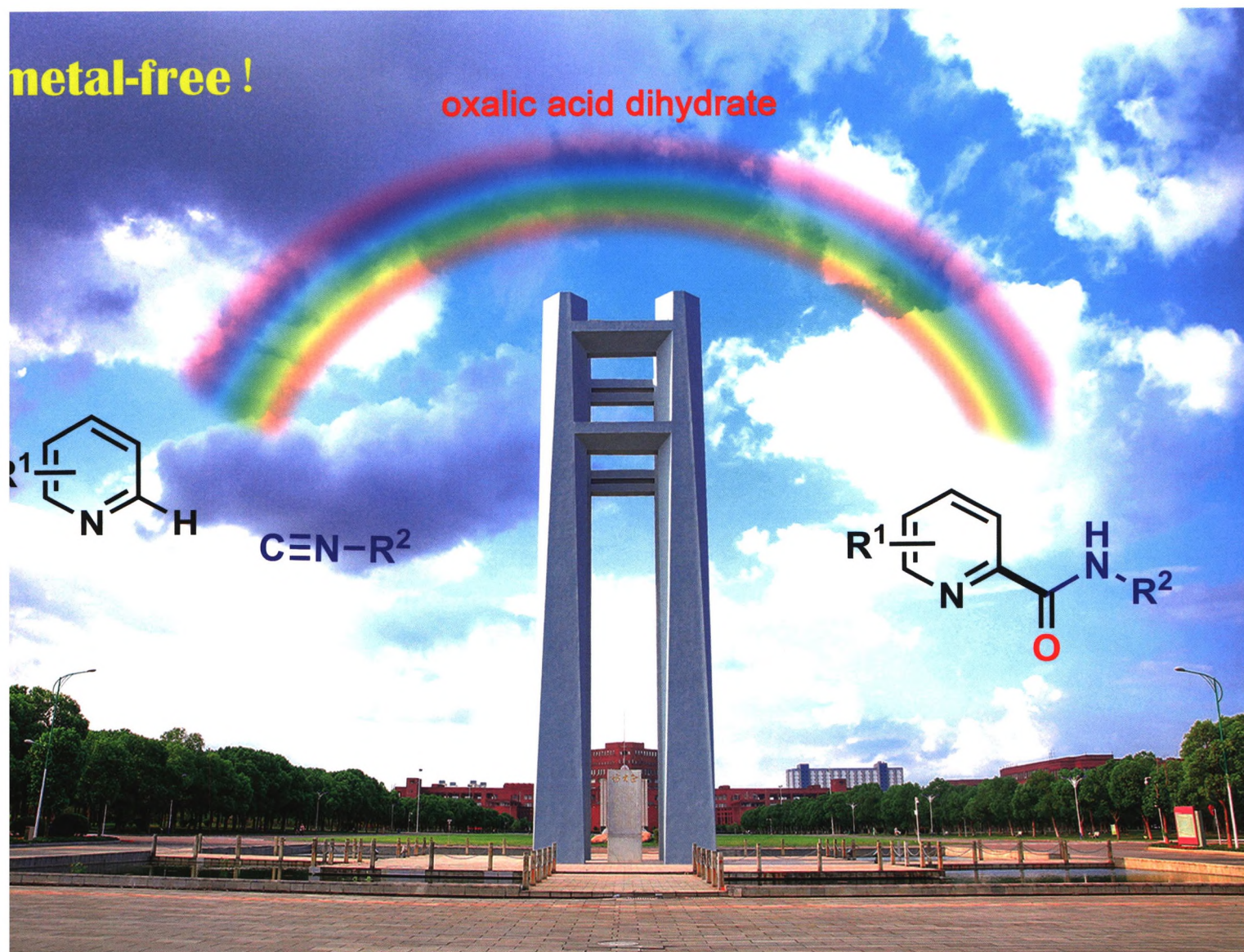


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# 化学学报

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# 化学学报

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(Huaxue Xuebao)

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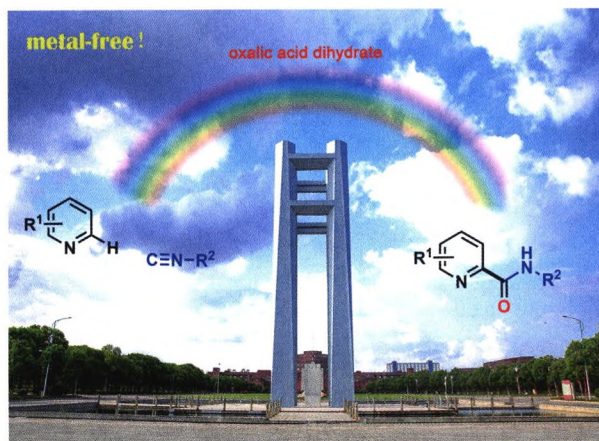
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磷酸基多孔芳香骨架材料用于提取铀离子 ..... 李樟楠, 沙浩岩, 杨南, 元野\*, 朱广山, 化学学报, 2019, 77(5), 469-474

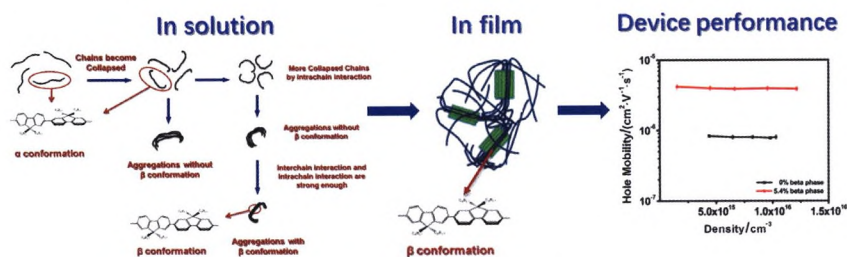
\* 通信联系人.

**On the cover:** Direct C—H bond functionalization on pyridines is the most straightforward approach to access pyridine derivatives. In the area of 2-aminocarbonyl pyridine synthesis, the catalysis employing noble metal reagents such as Ag-catalyst, Pd catalyst via the reactions of pyridines with formamides, CO/amine, or isocyanides are the mainstream. In this work, a metal-free tactic is developed by the oxalic acid dihydrate promoted reactions of pyridines and isocyanides via C2-aminocarbonylation reactions, thus providing atom economical and facile access to useful pyridine derivatives. [Liu, Yunyun *et al.* on page 418-421.]



### Account

#### Quantitative Structure-property Relationship of Polyfluorene Conjugated Polymers Condensed State from Solution to Film



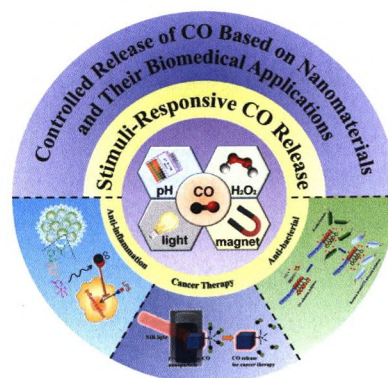
Zhang, Hao; Huang, Long; Li, Tao; Liu, Bin; Bai, Zeming; Li, Xiaona; Lu, Dan\*

*Acta Chim. Sinica* 2019, 77(5), 397-405

The kinetic evolution of PFs in isolated single chain, aggregation condensed-structures, transition state and the mechanism, and regularity of  $\beta$ -conformation are revealed. Quantitative structure-property relationship of single-chain conformation of precursor solution, aggregate structure of thin film and optoelectronic device performance is established.

### Review

#### Controlled Release of Carbon Monoxide Based on Nanomaterials and Their Biomedical Applications



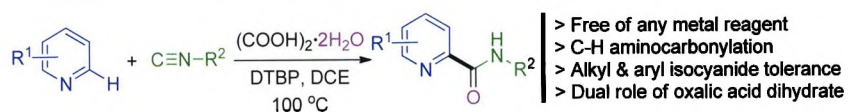
Zhang, Xiaolei; Tian, Gan; Zhang, Xiao\*; Wang, Qing\*; Gu, Zhanjun

*Acta Chim. Sinica* 2019, 77(5), 406-417

Controllable CO releasing nanomaterials reported to date are comprehensively summarized according to their stimuli sources. The applications and outlook of these controlled CO releasing nanomaterials in biomedical fields, such as inhibiting inflammation, anti-bacterial and cancer therapy, are further discussed and prospected.

## Communication

## Metal-Free C2-H Aminocarbonylation of Pyridines for the Synthesis of Picolinamides



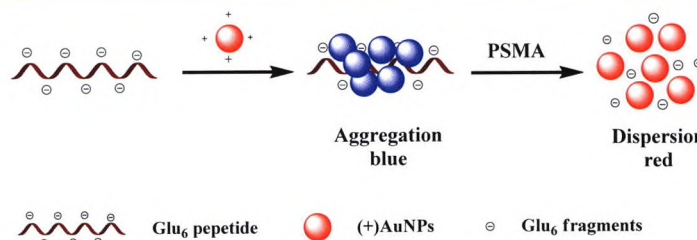
Wang, Yuyun; Liu, Yunyun\*

*Acta Chim. Sinica* 2019, 77(5), 418-421

The direct C—H aminocarbonylation in the C2 position of pyridine is realized by employing isocyanides under totally metal-free conditions. The reactions take place practically in the presence of only oxalic acid dihydrate and DTBP, providing a facile and atom economical method toward picolinamides.

## Article

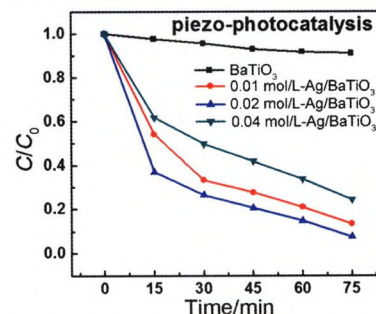
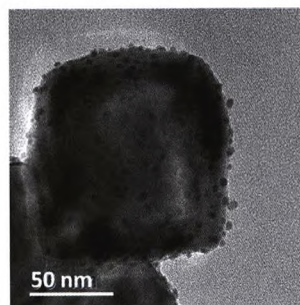
## Colorimetric Sensing of Prostate Specific Membrane Antigen Based on Gold Nanoparticles



Feng, Tingting\*; Gao, Shouqin; Wang, Kun

*Acta Chim. Sinica* 2019, 77(5), 422-426

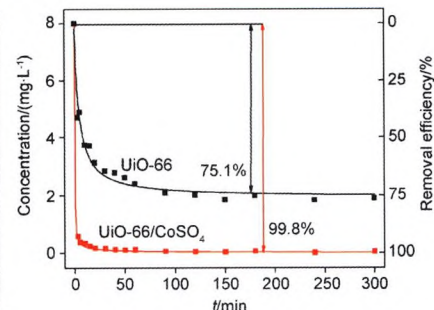
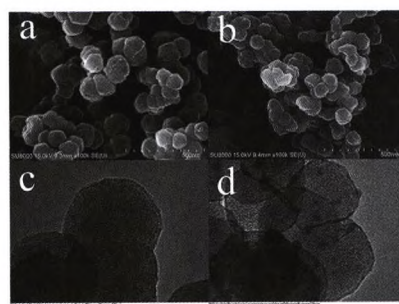
A novel colorimetric approach was presented to detect prostate specific membrane antigen (PSMA) by assembling a purpose-designed peptide with the positively charged gold nanoparticles. The positively charged gold nanoparticles interact electrostatically with polyanionic peptide, resulting in aggregation of gold nanoparticles. Reaction of the system with PSMA cleaves the peptide, leading to the dispersion of the gold nanoparticles and a great change in absorption intensity in a dose- and time-dependent manner, and PSMA can be quantified accordingly.

Preparation and Properties of Piezotronics Enhanced Plasmonic Photocatalytic Material by Ag/BaTiO<sub>3</sub>

Xu, Shuya\*; Liu, Zhihong; Zhang, Huai; Yu, Jinran

*Acta Chim. Sinica* 2019, 77(5), 427-433

A new Ag-BaTiO<sub>3</sub> piezo-plasmonic photocatalysts were fabricated by precipitating Ag nanoparticles on BaTiO<sub>3</sub> nano-piezoelectric. The effects of piezoelectric potential in nano-piezoelectric has been confirmed to express a great influence on surface plasmon resonance photocatalytic activity.

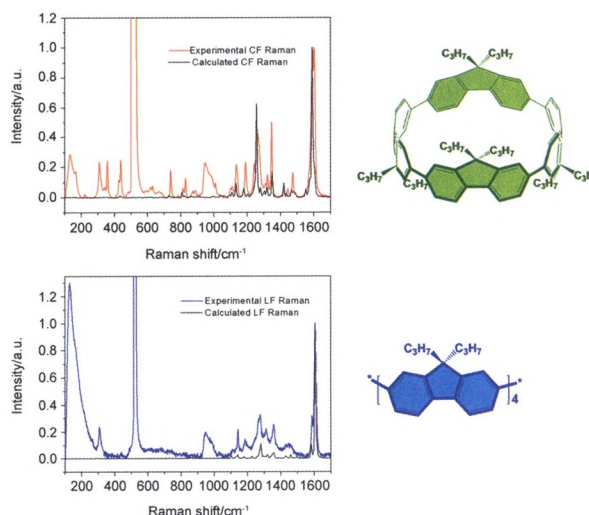
Efficient Removal of Levofloxacin Hydrochloride from Environment by UiO-66/CoSO<sub>4</sub> Composites

Zhu, Guifen\*; Chen, Letian; Cheng, Guohao; Zhao, Juan; Yang, Can; Zhang, Yaozong; Wang, Xing; Fan, Jing\*

*Acta Chim. Sinica* 2019, 77(5), 434-441

A newly UiO-66/CoSO<sub>4</sub> composite was prepared by introducing UiO-66 as the precursor carrier. Under the optimal conditions, the equilibrium adsorption was achieved within 30 min, and the maximum adsorption capacity was 108.4 mg·g<sup>-1</sup>. The UiO-66/CoSO<sub>4</sub> composite was easy to prepare and can be used to remove above 94.7% of levofloxacin hydrochloride from environment water and soil samples, and no significant decrease in adsorption efficiency has been observed after five cycles.

### Theoretical and Experimental Studies on Raman Spectroscopy of Cyclic Fluorene-Based Strained Semiconductors

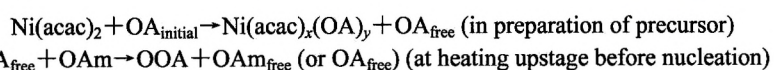
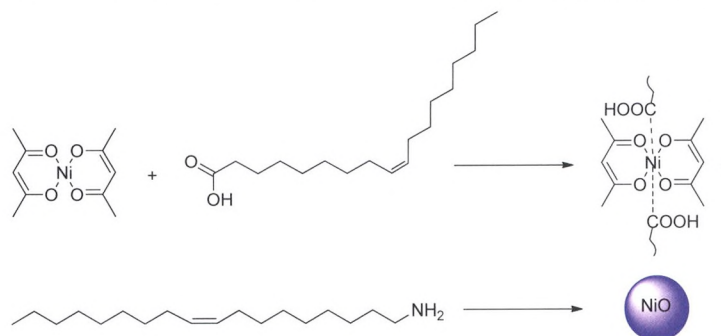


Bo, Yifan; Liu, Yuyu; Chang, Yongzheng\*; Li, Yinxiang; Zhang, Xiaofei; Song, Chunyuan; Xu, Weifeng; Cao, Hongtao\*; Huang, Wei\*

*Acta Chim. Sinica* **2019**, *77*(5), 442-446

Compared with traditional linear fluorene-based semiconductors, cyclic fluorene-based strained semiconductors exhibit unique photoelectrical properties. However, the properties of molecular vibrations of cyclic fluorene-based strained materials have not been reported so far. In this article, [4]Cyclo-9,9-dipropyl-2,7-fluorene (CF) and linear quarterfluorenes (LF) were synthesized as modeling compounds to explore the differences of Raman spectra on structures by theoretical and experimental studies.

### Solvothermal Preparation and Characterization of Nano-nickel Oxide

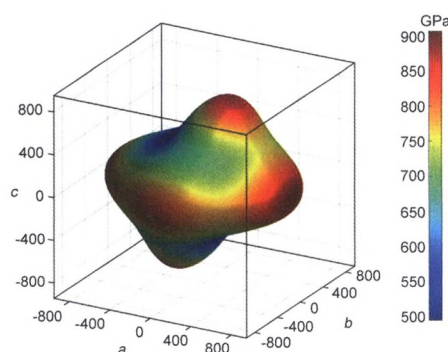


Chen, Tian; Yang, Ying\*; Zhao, Wanyu; Pan, Dequn; Zhu, Congtan; Lin, Feiyu; Guo, Xueyi\*

*Acta Chim. Sinica* **2019**, *77*(5), 447-454

The reaction with 1-octadecene as solvent and nickel acetylacetonate and oleic acid as reactants was driven by the mechanism as the above picture, which showed that the components formed coordination compounds firstly, then following by a small amount of substitution of coordination groups with oleylamine. The molar ratios of  $\text{Ni}(\text{acac})_2$ , oleic acid and oleylamine determine the types and amounts of intermediates, which would finally obtain spherical nickel oxide.

### Pc-carbon: A Possible Superhard Monoclinic Carbon Allotrope

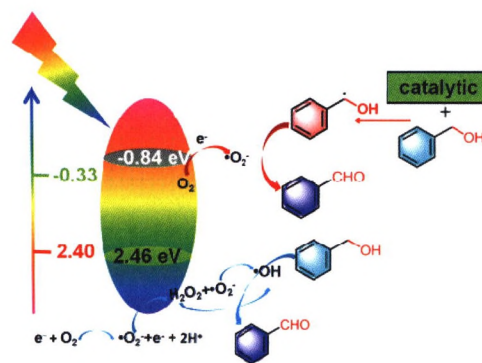


Cao, Ai-Hua; Wu, Bo; Gan, Li-Hua\*

*Acta Chim. Sinica* **2019**, *77*(5), 455-460

A superhard carbon material is predicted and its mechanical, electronic and elastic anisotropy are studied.

### Preparation and Photocatalytic Activity of BiOCl-*ov*/palygorskite Nanocomposites for the Selective Oxidation of Alcohols under Visible Light Irradiation

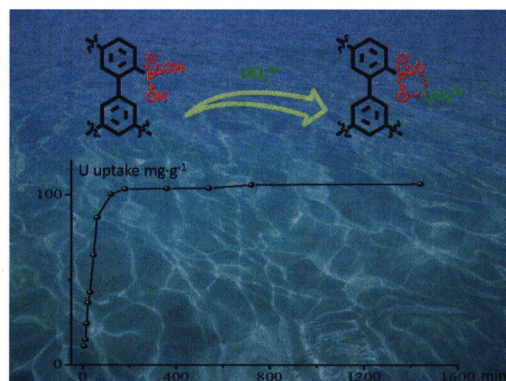


BiOCl-*ov*/palygorskite (PGS) nanocomposites were synthesized by simple one-step hydrothermal method. The photocatalytic activity was detected through the selective oxidation of aromatic alcohols under visible-light conditions. It showed that the conversion of 78% of benzalcohol as well as the selectivity of 86% of benzaldehyde was reached with the catalysis of the nanocomposites in the photocatalytic oxidation of benzalcohol.

Meng, Shuangyan; Yang, Hongju; Zhu, Nan; Yang, Jiao; Yang, Ruirui; Yang, Zhiwang\*

*Acta Chim. Sinica* **2019**, 77(5), 461-468

### Phosphoric Acid Based Porous Aromatic Framework for Uranium Extraction



Using biphenyl as building unit, we synthesize porous aromatic framework material (PAF-45). Then, porous aromatic materials (PAF-45-PG) with phosphate groups were prepared by post-modification. The results of characterization show that the uranium adsorption capacity of PAF-45-PG can reach  $100 \text{ mg}\cdot\text{g}^{-1}$  at  $\text{pH}=6$  condition. Meanwhile, the material is economical and has considerable industrial expectation, which provides a broad prospect for the application of porous materials in energy.

Li, Zhangnan; Sha, Haoyan; Yang, Nan; Yuan, Ye\*; Zhu, Guangshan

*Acta Chim. Sinica* **2019**, 77(5), 469-474

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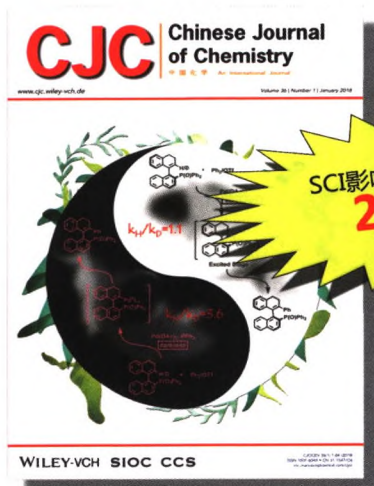
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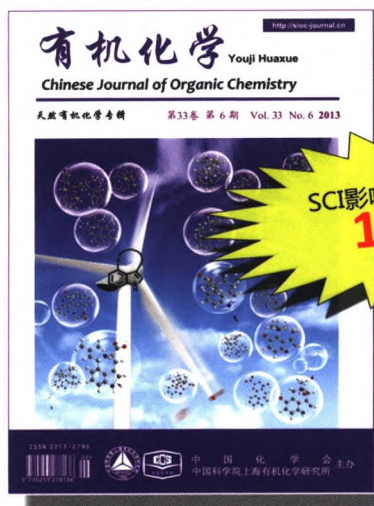
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