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# 化 学 学 报

# ACTA CHIMICA SINICA

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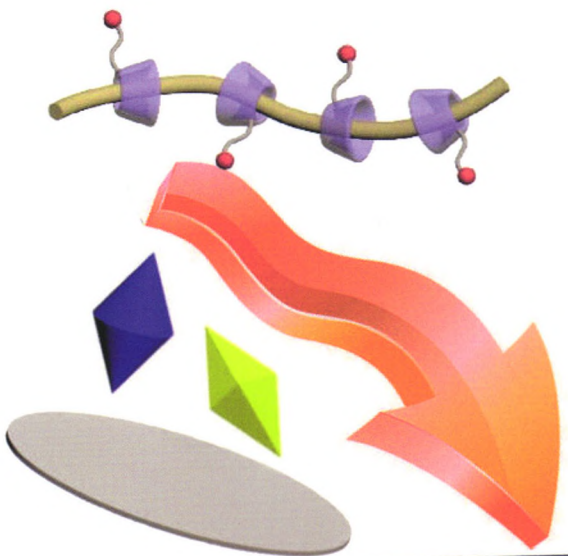
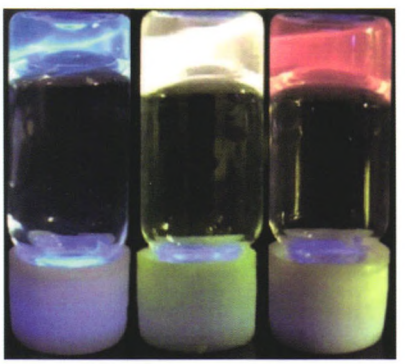
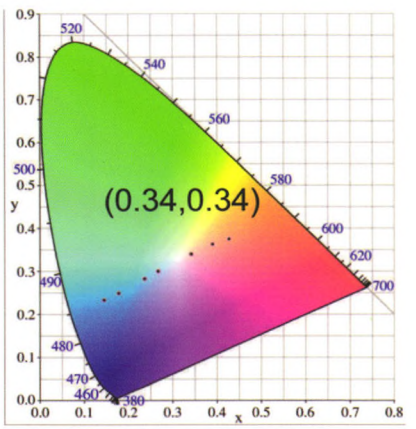
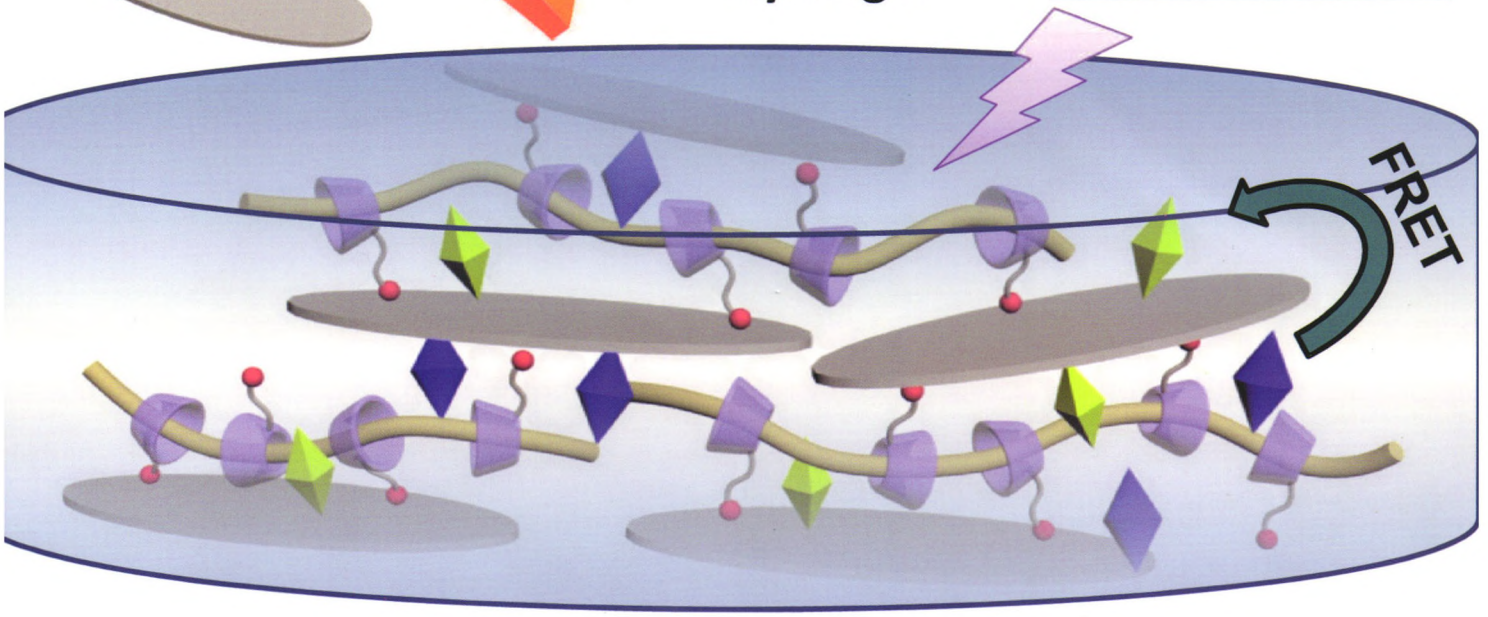




Hydrogel

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中国化学会
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# 化 学 学 报

**Acta Chimica Sinica**

(Huaxue Xuebao)

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### 综述



### 研究通讯



### 研究论文




* 通信联系人.

# ACTA CHIMICA SINICA

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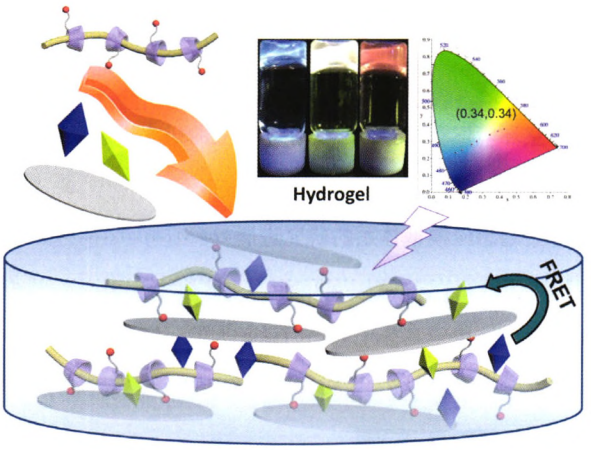
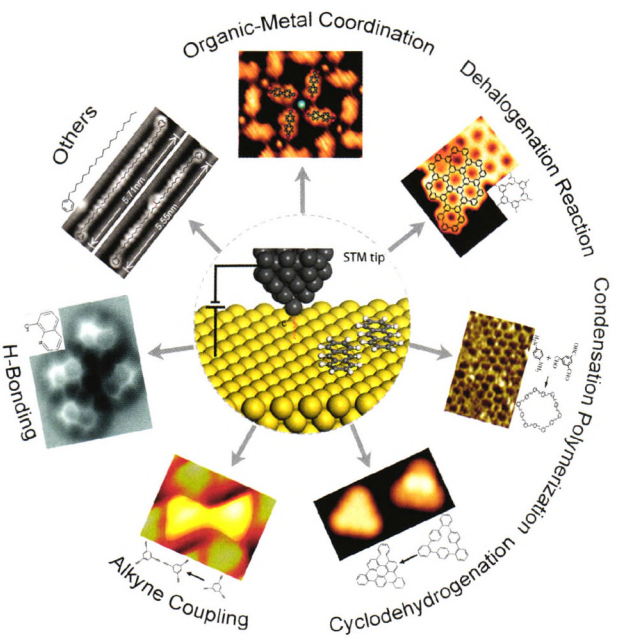
## Contents




**On the cover**: The supramolecular hydrogel from laponite and pseudorotaxane with convenient preparation and tunable luminescent behaviors was prepared. When two twisted intramolecular charge transfer (TICT) organic dye molecules were introduced in the hydrogel, a fluorescence resonance energy transfer (FRET) process would occur, leading to the different emission colors including white light through adjusting the ratios of dyes. [Liu, Yu *et al.* on page 622-626.]

***Review***

**Research Progress of On-surface Chemical Reaction for Organics in Ultra-High Vacuum**





Hao, Zhenliang; Ruan, Zilin; Yang, Xiaotian; Cai, Yiting; Lu, Jianchen*; Cai, Jinming*

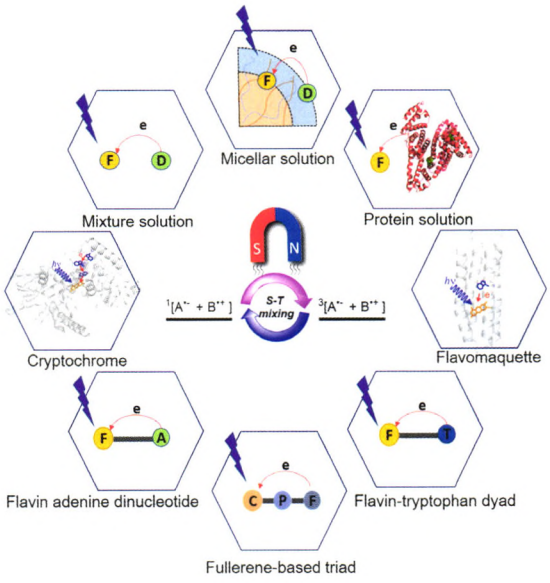


*Acta Chim. Sinica* **2018**, *76*(8), 585-596



On-surface chemical reactions under ultra-high vacuum play an important role in the synthesis of two-dimensional nanomaterials and have attracted more and more attention in recent years. In this review, we introduce several typical organic on-surface chemical reactions, including organic-metal coordinated reaction, dehalogenation reaction, condensation polymerization, alkyne coupling and so on. Reaction process and products are analyzed in detail by scanning tunneling microscope (STM), especially for the connection way of final products after reaction, such as organic metal coordination bonds, C—C bonds and H-bonds.

## Recent Advances in Magnetosensing Cryptochrome Model Systems

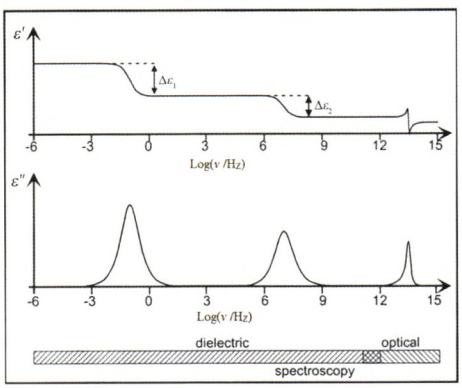



Guo, Jinping; Wan, Haoyu; Jörg Matysik; Wang, Xiaojie*

*Acta Chim. Sinica* **2018**, *76*(8), 597-604

Cryptochrome is thought as biological magnetosensitive molecule undergoing light-triggered radical-pair dynamics. Several artificial systems have been constructed to model cryptochrome, which greatly simplify the complexity of the biological environment and allow for systematic variation of properties. In this review, the recent advances in magnetosensing cryptochrome model systems were summarized.

## Dielectric Spectroscopy for the Study of the Dynamic Behavior of Polymer Chains



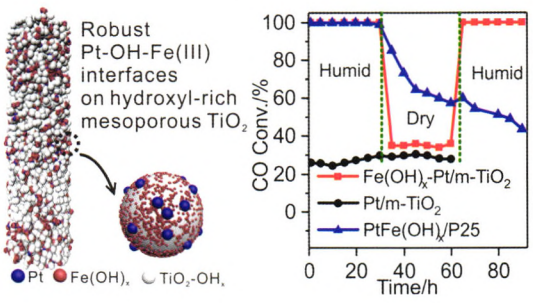

Lei, Dong; Lu, Dan*

*Acta Chim. Sinica* **2018**, *76*(8), 605-616

The vibrational spectrum can be divided into two major categories: one is a resonance type, and another is a relaxation type. The dielectric spectrum belongs to the relaxation-type spectrum, and the frequency of the study ranges from $10^{-6}$～$10^{12}$ Hz. In general, the relaxation signal for polymers is mainly focused on $10^{-1}$～$10^{7}$ Hz. When the time scale of the segmental motion is in the same order of magnitude as the time scale of the frequency change, the permittivity decreases and the energy loss is accompanied.

## Communication

## Stabilizing Catalytic Pt-OH-Fe(III) Interfaces by Mesoporous $TiO_2$ with Rich Surface Hydroxyl Groups



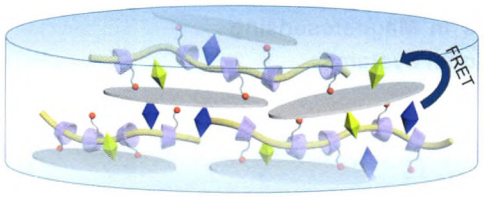

Wu, Qingyuan; Qin, Ruixuan; Zang, Dandan; Zhang, Wuyong; Wu, Binghui*; Zheng, Nanfeng*

*Acta Chim. Sinica* **2018**, *76*(8), 617-621

Rich and humidity-sensitive surface hydroxyls on high-surface-area mesoporous $TiO_2$ stabilize catalytic Pt-OH-Fe(III) interfaces for low temperature CO oxidation.

**Construction and Luminescent Behavior of Supramolecular Hydrogel with White-Light Emission**



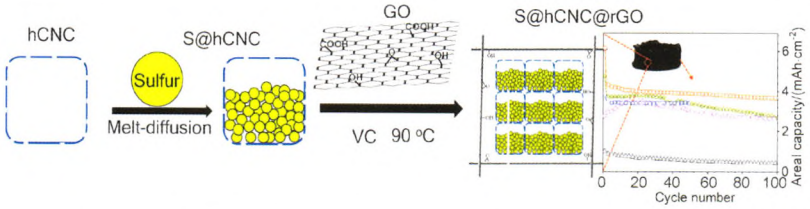

Zhang, Yi; Chen, Yong; Li, Jingjing; Liang, Lu; Liu, Yu*

*Acta Chim. Sinica* **2018**, *76*(8), 622-626

Owing to the fluorescence resonance energy transfer (FRET) of two twisted intramolecular charge transfer (TICT) dyes, a cyclodextrin-based supramolecular hydrogel emits the multicolor fluorescence including white light.

## *Article*

**Free-Standing Monolithic Sulfur Cathode of Reduced Graphene Oxide Wrapped Sulfur-Filled Carbon Nanocages with High Areal Capacity**

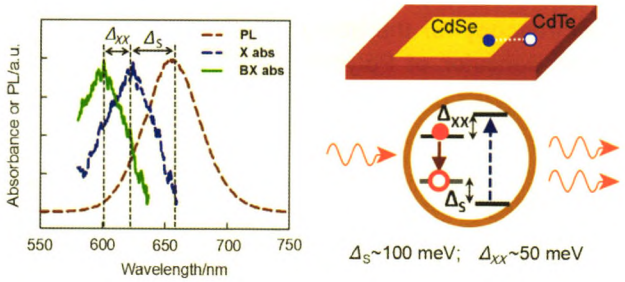



Wang, Xiao; Li, Youbin; Du, Lingyu; Gao, Fujie; Wu, Qiang*; Yang, Lijun; Chen, Qiang; Wang, Xizhang*; Hu, Zheng

*Acta Chim. Sinica* **2018**, *76*(8), 627-632

Free-standing monolithic sulfur cathode of reduced graphene oxide wrapped sulfur-filled carbon nanocages (S@hCNC@rGO) exhibits high areal capacity and excellent stability, owing to the physical confinement of nanocages, the chemical adsorption of oxygen-containing groups on rGO, as well as the accelerated charge transfer kinetics arising from the hierarchical porous structure and the high conductivity.

**Record-Low Continuous Wavelength-pumped Lasing Thresholds Using Quantum Wells via Single-exciton Optical Gain Mechanism**

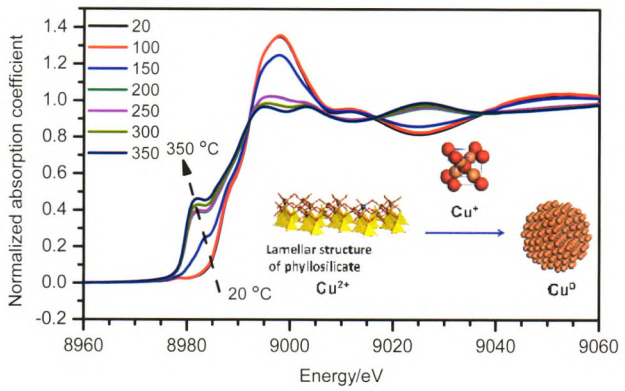



Yang, Guangben; Liu, Xiaxia; Li, Henghui; Li, Wangnan; Wang, Song; Wu, Kaifeng; Liang, Guijie*

*Acta Chim. Sinica* **2018**, *76*(8), 633-638

Atomically-thin CdSe/CdTe Type-II heteronanoplatelets (NPLs) were prepared to achieve the low-threshold lasing. By the integrated effects of the interface engineering and the single-exciton optical gain mechanism of the type-II hetero-structuring, the record-low continuous wavelength-pumped lasing has been realized based on the large Stokes shift ($\Delta_S$) and strong exciton-exciton repulsion ($\Delta_{XX}$).

***In situ* X-ray Absorption Spectroscopy Characterization of Copper Valence State in Cu-Zn/$SiO_2$ Catalyst**

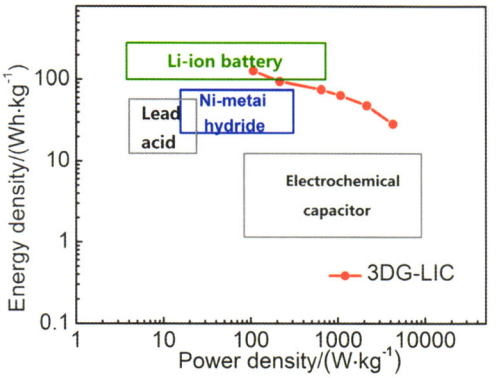



Jia, Zhenlong; Tu, Yunbao; Wang, Jianqiang*; Frenkel, Anatoly I.; Yang, Weimin*; Liu, Zhongneng; Xu, Zhongqiang

*Acta Chim. Sinica* **2018**, *76*(8), 639-643

The valence states of copper for both Cu-Zn/$SiO_2$ and Cu/$SiO_2$ catalyst during hydrogen reduction in the temperature range of 20 ℃ to 350 ℃ have been studied by *in situ* X-ray Absorption Near Edge Spectroscopy (XANES) characterization at the Cu K-edge.

## All Graphene Lithium Ion Capacitor with High-Energy-Power Density Performance




Gu, Xiaoyu; Hong, Ye; Ai, Guo*; Wang, Chaoyang*; Mao, Wenfeng*

*Acta Chim. Sinica* **2018**, *76*(8), 644-648

The three-dimensional graphene (3DG) were successfully employed as both cathode and anode active materials for lithium ion capacitors (3DG-LIC) with high energy density (105 Wh/kg) because the potential window of 3DG-LIC extend from 2.5 to 4.0 V compared to traditional supercapacitor (SC) by prelithiation of anode. The similar chemistry and microstructure maximizes the capacity and rate performance of cathode and anode, which indicates that the 3DG-LIC can be a promising candidate for high-energy-power storage system and would have a wide application in other electrochemical applications.

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如何用低成本而且低温室气体排放的方式生产氢气？

## 挑战二

**氢气来了**

如何使用氢气避免基于化石燃料的工业过程中温室气体的排放？

## 挑战三

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| 6月25日 | 9月20日 | 2018年10月-2019年1月 | 2019年3月 |
|---|---|---|---|
| 挑战开始 | 提案提交截止 | 提案审核 | 公布获奖者 |

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