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目 次

研究评论

- 超分子自由基：构筑、调控与功能 焦阳, 张希*, 化学学报, 2018, 76(9), 659-665

综述

- 静电纺丝在钠离子电池中的应用研究进展 王玲, 杨国锐, 王嘉楠, 王思岚, 彭生杰, 延卫*, 化学学报, 2018, 76(9), 666-680
- 双面进光太阳能电池透明对电极研究进展 杨英, 陈甜, 潘德群, 张政, 郭学益*, 化学学报, 2018, 76(9), 681-690

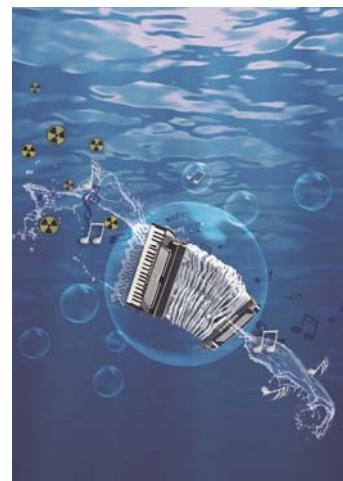
研究论文

- 一种基于聚噻吩-聚硒吩全共轭嵌段共聚物的合成及性质研究 崔惠娜, 邱枫, 彭娟*, 化学学报, 2018, 76(9), 691-700
- 聚苯胺改性 Mxene 复合材料对 U(VI)的高效富集及机理研究 顾鹏程, 宋爽, 张塞, 韦犇犇, 文涛, 王祥科*, 化学学报, 2018, 76(9), 701-708
- 超小金纳米簇用于荧光及 CT 双模态成像的研究 张燕燕, 武明豪, 武明杰, 国林沛, 曹琳, 吴虹仪, 张雪宁*, 化学学报, 2018, 76(9), 709-714
- 柔性树枝形大分子溶液的自洽场理论计算 石梦, 杨颖梓*, 邱枫, 化学学报, 2018, 76(9), 715-722
- 酞菁钴催化剂载体表面含氮官能团对其在燃料电池中氧还原性能的影响 黄文姣, 张浩宇, 胡硕真, 钮东方*, 张新胜*, 化学学报, 2018, 76(9), 723-728

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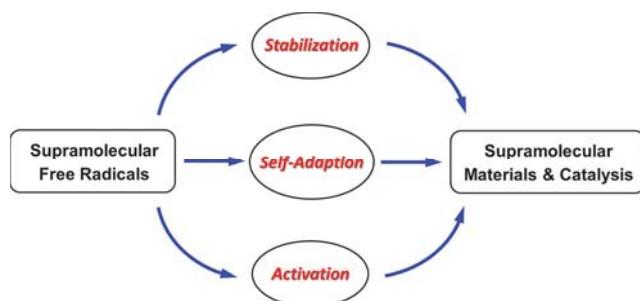
Contents

On the cover: In order to enrich surface functional groups of pristine $Ti_3C_2T_x$ nanomaterial, accordion-like PANI/ $Ti_3C_2T_x$ composites were successfully synthesized via *in situ* polymerization method and applied in removal of U(VI) from aqueous solution effectively. [Wang, Xiangke *et al.* on page 701-708.]



Account

Supramolecular Free Radicals: Fabrication, Modulation and Functions



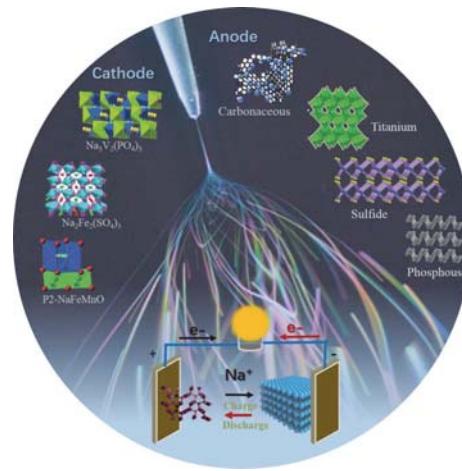
Jiao, Yang; Zhang, Xi*

Acta Chim. Sinica 2018, 76(9), 659-665

This account summarizes our recent research on the construction and functions of supramolecular free radicals. Through the host-guest chemistry of cucurbiturils, free radicals can be stabilized, activated or endowed with adaptive reactivity. These supramolecular free radicals exhibit diverse applications on supramolecular materials and supramolecular catalysis.

Review

Research Progress on Electrospun Materials for Sodium-Ion Batteries

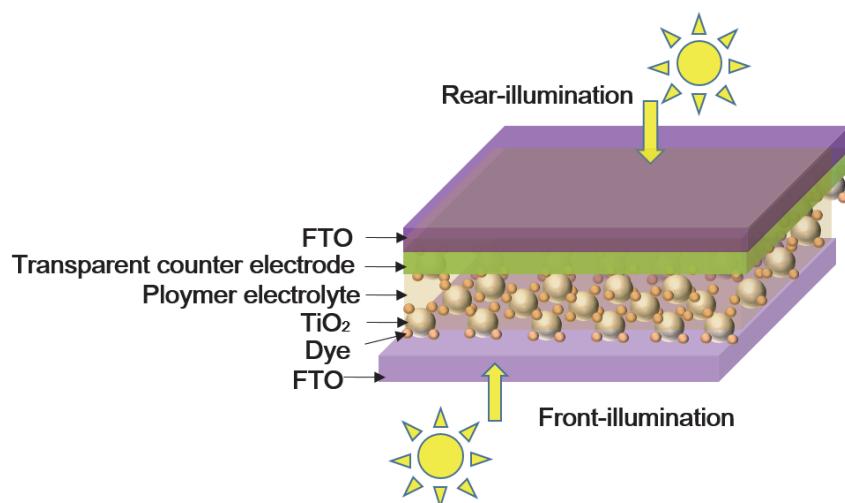


Wang, Ling; Yang, Guorui; Wang, Jianan; Wang, Silan; Peng, Shengjie; Yan, Wei*

Acta Chim. Sinica 2018, 76(9), 666-680

The abundance reserves and low cost of sodium make sodium-ion batteries one of the ideal options for the next large-scale energy storage system. Materials prepared by electrospinning has been widely applied in secondary batteries. The research progress on electrospinning materials for sodium-ion batteries, including cathode materials and anode materials were summarized. The future development of electrospinning materials for sodium ion batteries is also prospected.

Research Progress of Bifacial Solar Cells with Transparent Counter Electrode

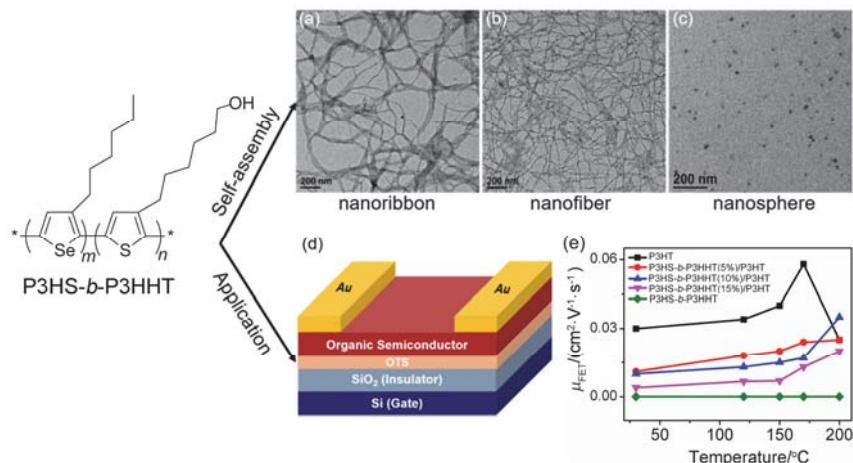


Yang, Ying; Chen, Tian; Pan, Dequn;
Zhang, Zheng; Guo, Xueyi*

Acta Chim. Sinica 2018, 76(9), 681-690

Article

Synthesis and Properties of an All-Conjugated Polythiophene-Polyselenophene Diblock Copolymer



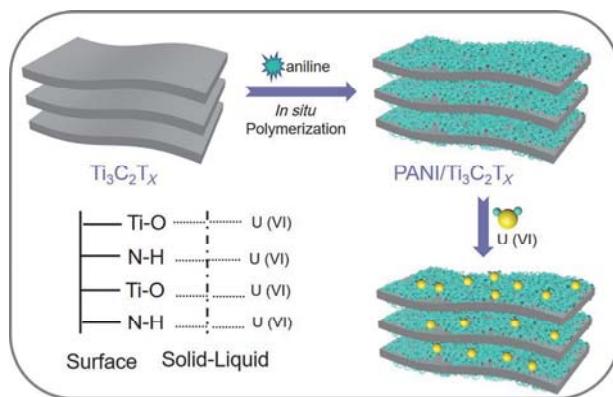
Cui, Huina; Qiu, Feng; Peng, Juan*
Acta Chim. Sinica 2018, 76(9), 691-700

All-conjugated poly(3-hexylselenophene)-*b*-poly[3-(6-hydroxyhexyl)thiophene] (P3HS-*b*-P3HHT) with hydroxyl groups as side substitution groups was synthesized via the Grignard metathesis (GRIM) method. On one hand, P3HS-*b*-P3HHT self-assembled into diverse nanostructures, such as nanoribbons, nanofibers and nanospheres in mixed solvents. On the other hand, based on the thermal cross-linkable properties of hydroxyl groups, P3HS-*b*-P3HHT was mixed with P3HT homopolymer to fabricate the P3HS-*b*-P3HHT/P3HT OFETs with improved thermal stability.

Enrichment of U(VI) on Polyaniline Modified Mxene Composites Studied by Batch Experiment and Mechanism Investigation

Gu, Pengcheng; Song, Shuang; Zhang, Sai;
Wei, Benben; Wen, Tao; Wang, Xiangke*

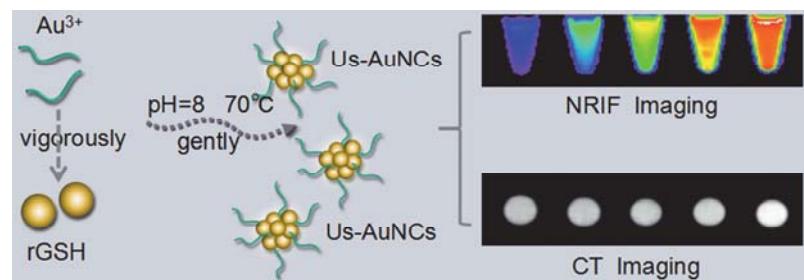
Acta Chim. Sinica 2018, 76(9), 701-708



Study of Fluorescence and CT Bimodal Imaging of Ultrasmall Gold Nanoclusters

Zhang, Yanyan; Wu, Minghao; Wu, Mingjie;
Guo, Linpei; Cao, Lin; Wu, Hongyi; Zhang,
Xuening*

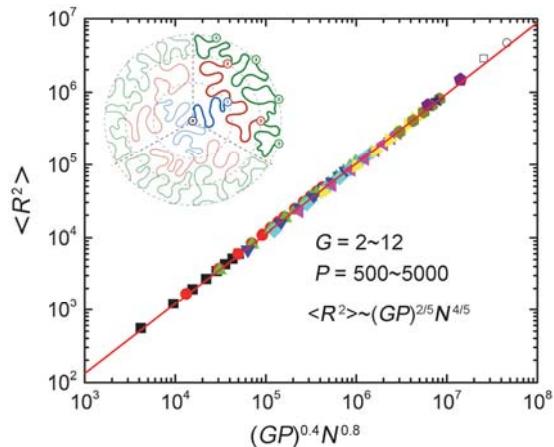
Acta Chim. Sinica 2018, 76(9), 709-714



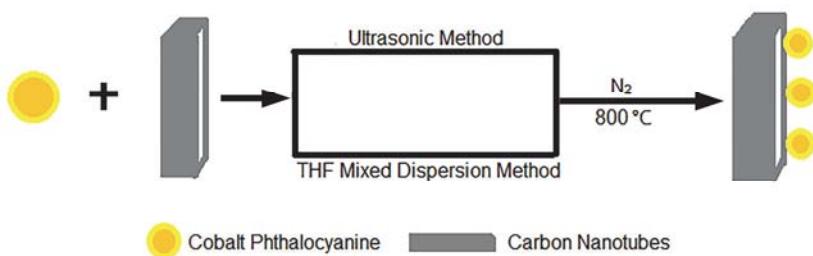
Relying on rGSH as reductant and stabilizer, a simultaneous enhancement of fluorescence and CT imaging of subnanometer ultrasmall AuNCs (Us-Au₁₅NCs) is realized by simply adjusting the pH and tuning the mole ratio of Au and GSH in the synthetic precursors, which prompts Au³⁺ with the specific reductive and alkaline environment to form more accurate atomic number, superior to the traditional method which only emphasized fluorescence imaging of AuNCs.

Self-Consistent Field Theory Studies of Flexible Dendrimer in Good Solvent

Shi, Meng; Yang, Yingzi*; Qiu, Feng
Acta Chim. Sinica 2018, 76(9), 715-722



The self-consistent field theory combined with a pre-averaged excluded volume potential is employed to study the conformation and scaling behavior of a dendrimer in athermal solvent. The scaling law is found to be $R \sim (GP)^{1/5} N^{2/5}$. The result agrees with the prediction by the Flory mean field theory based on the full molecule.

Effect of Nitrogen-Containing Functional Groups of Cobalt Phthalocyanine Catalyst on the Oxygen Reduction Performance in Fuel Cells

Huang, Wenjiao; Zhang, Haoyu; Hu, Shuzhen; Niu, Dongfang*; Zhang, Xinsheng*

Acta Chim. Sinica **2018**, 76(9), 723-728

Two heat-treated cobalt phthalocyanine catalysts supported on carbon nanotubes respectively named CoPc-CNT-S and CoPc-CNT-R are synthesized with ultrasonic method and tetrahydrofuran-mixed dispersion method. In comparsion with CoPc-CNT-R, CoPc-CNT-S has more pyrrole nitrogen on the surface. The fuel cell tests in a PEM/AEM hybrid fuel cell showed that the activity and stability of CoPc-CNT-S performed better than CoPc-CNT-R. These observations may result from the cooperative effect from the similar ratio of pyridinic and pyrrolic nitrogen which may accelerate the catalytic activity of CoPc-CNT-S toward oxygen reduction reaction.

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