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# 化学学报

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Nano Ag

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nZVI

Enrichment of Silver from Wastewater  
Using Nanoscale Zero-Valent Iron

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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

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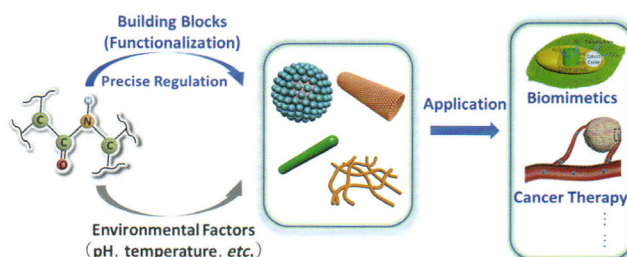
\* 通信联系人.

**On the cover:** A nano-iron reactor is applied to recover silver from aqueous solution. Experimental results demonstrate that nanoscale zero-valent iron could sequester  $\text{Ag}^+$  (ca. 1 mg/L) and be transformed into high-grade (32.0 mg/g) silver “ore”, with valuable silver nanoparticles produced. The performance of the “reaction-separation-reuse” system can be easily regulated with the oxidation reduction potential in reaction zone. [Zhang, Wei-xian *et al.* on page 991-997.]



### Review

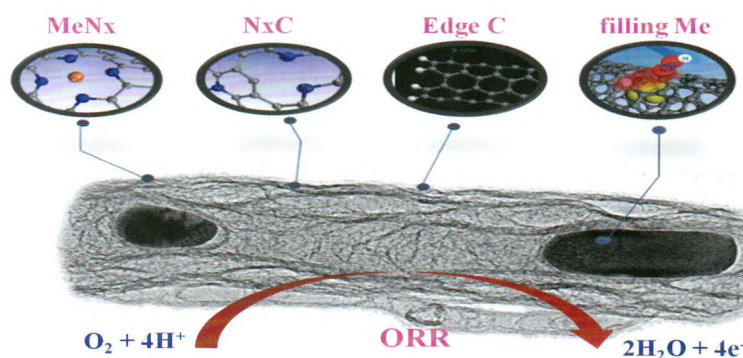
#### Peptide Supramolecular Self-Assembly: Structural Precise Regulation and Functionalization



Wang, Juan; Zou, Qianli; Yan, Xuehai\*  
*Acta Chim. Sinica* **2017**, 75(10), 933-942

The reasonable regulation of various non-covalent interactions by specific and precise molecular design is favorable to achieve the structural precise regulation and functionalization.

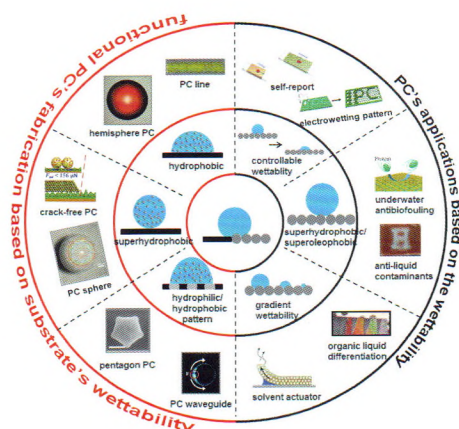
#### A Review of Carbon-based Non-noble Catalysts for Oxygen Reduction Reaction



Zhong, Guoyu; Wang, Hongjuan; Yu, Hao; Peng, Feng\*  
*Acta Chim. Sinica* **2017**, 75(10), 943-966

A series of carbon-based non-noble catalysts for oxygen reduction reaction (ORR) are introduced, the ORR catalytic active sites including transition metal-nitrogen-carbon ( $\text{MeN}_x$ ), nitrogen-doped carbon ( $\text{N}_x\text{C}$ ), edge carbon and filling transition metal are summarized and discussed.

## Research Progress on the Super-wettability of Colloidal Photonic Crystals

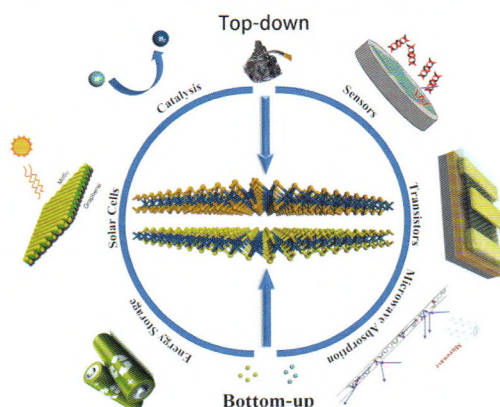


Cui, Liying; Fan, Shasha; Yu, Cunlong; Kuang, Minxuan; Wang, Jingxia\*

*Acta Chim. Sinica* **2017**, 75(10), 967-978

The fabrication of functional colloidal photonic crystal (PC) was presented from the modification of its wettability (superhydrophilic, superhydrophobic, amphiphilic, gradient wettability, controllable wettability and patterned wettability), and the self-assembly of functional colloidal PC by using the substrate with special wettability (hydrophobic, superhydrophobic or hydrophilic-hydrophobic pattern).

## Research Progress on Preparation and Application of Two-Dimensional Transition Metal Dichalcogenides Nanomaterials



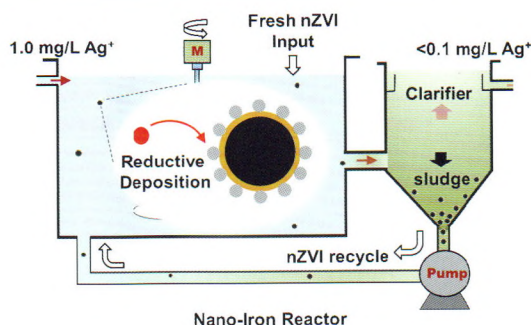
Lin, Xiaoyu; Wang, Jing\*

*Acta Chim. Sinica* **2017**, 75(10), 979-990

Two-dimensional transition metal dichalcogenides (TMDCs) are new types of graphene-like materials. TMDCs can be prepared by top-down or bottom-up methods, and have a wide range of applications in transistors, sensors, microwave absorption, catalysis, solar cells and energy storage.

## Article

### Enrichment of Silver from Water Using Nanoscale Zero-Valent Iron (nZVI)

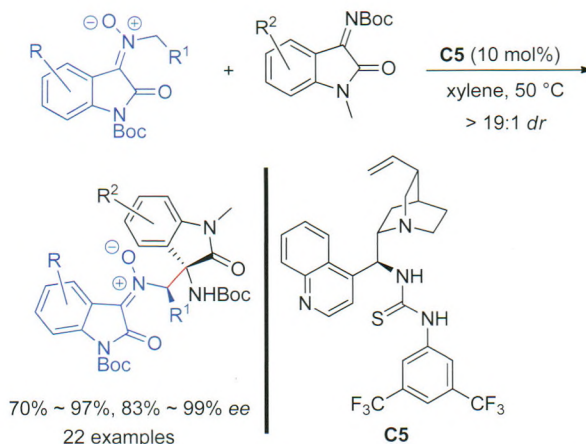


Gu, Tianhang; Shi, Junming; Hua, Yilong; Liu, Jing; Wang, Wei\*; Zhang, Wei-xian\*

*Acta Chim. Sinica* **2017**, 75(10), 991-997

Enrichment of silver using nanoscale zero-valent iron (nZVI) is feasible and controllable. Results of continuous flow experiments show that the silver content in products is up to 32.0 mg/g, higher than that of natural silver ore. Results of solid phase characterization demonstrate that  $\text{Ag}^+$  is reduced to metallic silver ( $\text{Ag}^0$ ), and deposits on iron surface in the form of spherical nanoparticle (*ca.* 10 nm).

### Direct Asymmetric Aza-Vinylogous Mannich Reaction of Nitrones from Isatins and Ketimines



Shi, Minglin; Zhan, Gu; Du, Wei\*; Chen, Yingchun\*

*Acta Chim. Sinica* **2017**, 75(10), 998-1002

A direct asymmetric aza-vinylogous-type Mannich reaction of isatins-derived nitrones and isatins-based ketimines is developed under the catalysis of a bifunctional thiourearetiary amine substance.

### Electrocatalytic Activity of MnO<sub>2</sub> Supported on Reduced Graphene Oxide Modified Ni Foam for H<sub>2</sub>O<sub>2</sub> Reduction

Song, Congying; Sun, Xun; Ye, Ke; Zhu, Kai; Cheng, Kui; Yan, Jun; Cao, Dianxue; Wang, Guiling\*

*Acta Chim. Sinica* **2017**, 75(10), 1003-1009

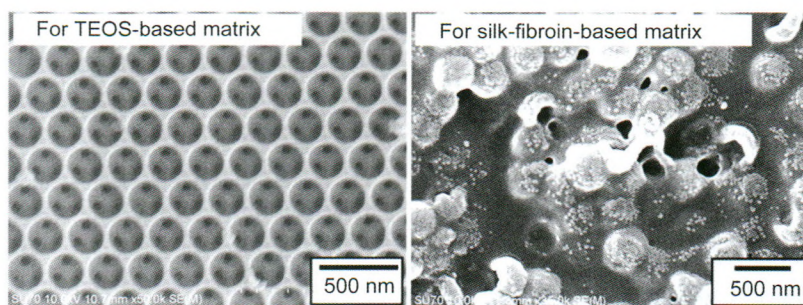


The MnO<sub>2</sub>/rGO@Ni foam electrode is prepared by two-step hydrothermal methods with large surface area and outstanding electrocatalytic activity toward H<sub>2</sub>O<sub>2</sub> reduction.

### Preparation of Crack-free Inverse-opal Films by Template/Matrix Co-assembly

Luo, Wenhao; Zhu, Shuihong; Lin, Youhui\*; Liu, Xiang Yang\*

*Acta Chim. Sinica* **2017**, 75(10), 1010-1016



The feasibility of using template/matrix co-assembly strategies to fabricate crack-free inverse opal thin films was examined. The SEM results show that such a co-assembly strategy can fabricate large-scale crack-free inverse opal films for TEOS matrix precursor but not suitable for regenerated silk fibroin matrix.



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