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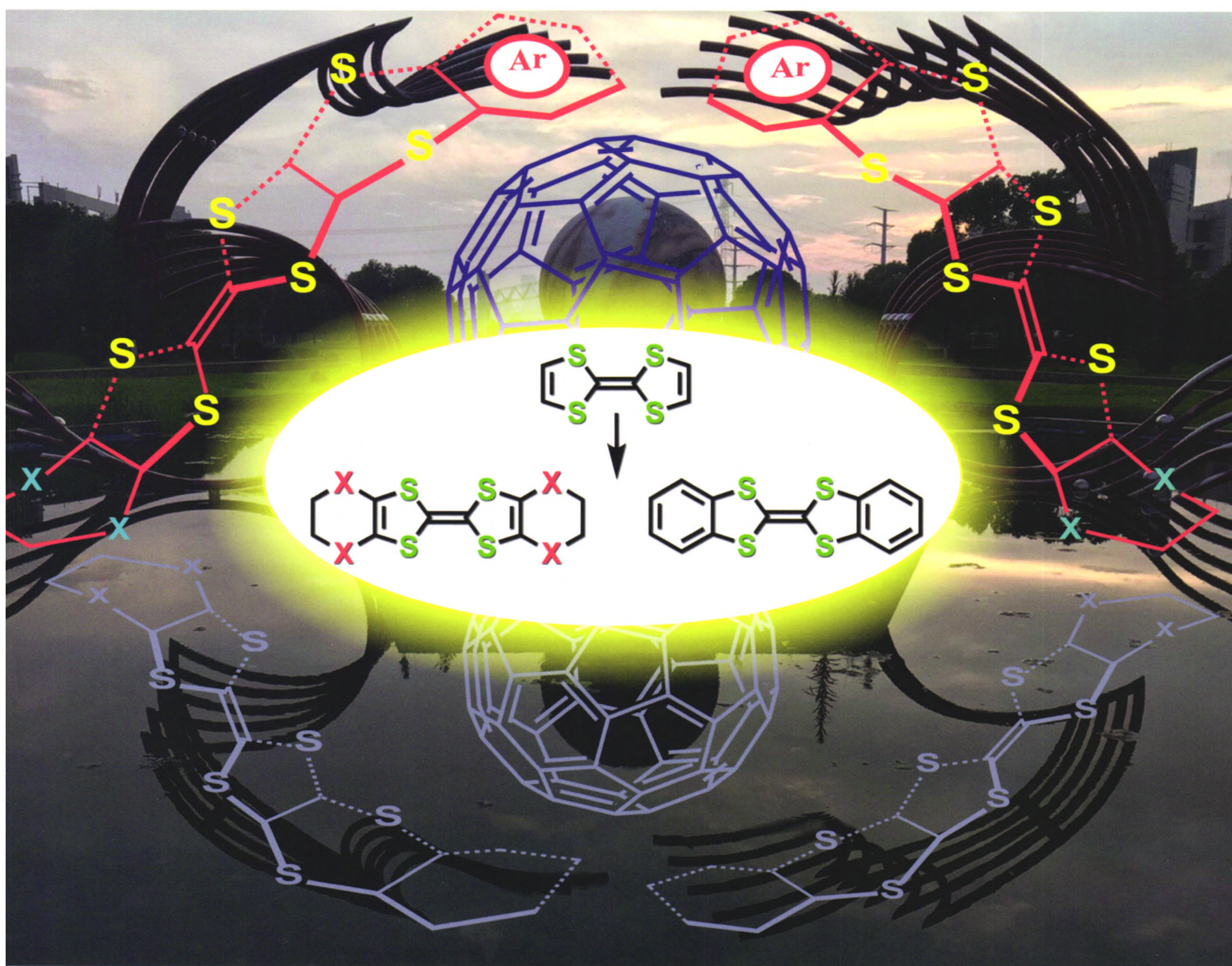


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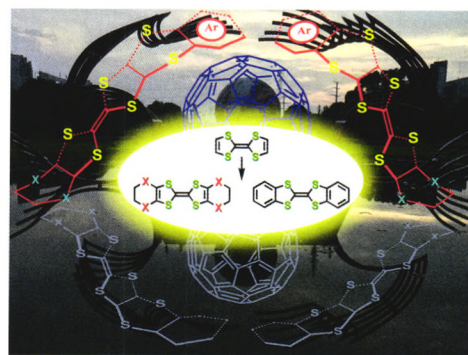
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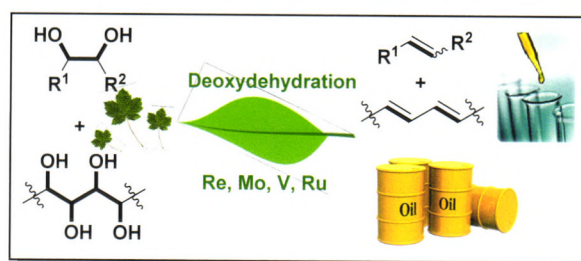
* 通信联系人.

On the cover: Tetrathiafulvalene (TTF) and its derivatives play important roles in self-assembly chemistry. Zhang Shangxi and co-workers have synthesized a series of flexible TTF derivatives. The C—S bonds bridged TTF skeleton and terminal aryls of the molecules make the structures tunable via vibration upon and down the TTF central plane. The phenomenon could be observed by means of the X-ray diffraction of the molecule before and after assembling. [Zhang, Shangxi *et al.* on page 531-536.]



Review

Transition Metal Catalyzed Deoxydehydration of Alcohols

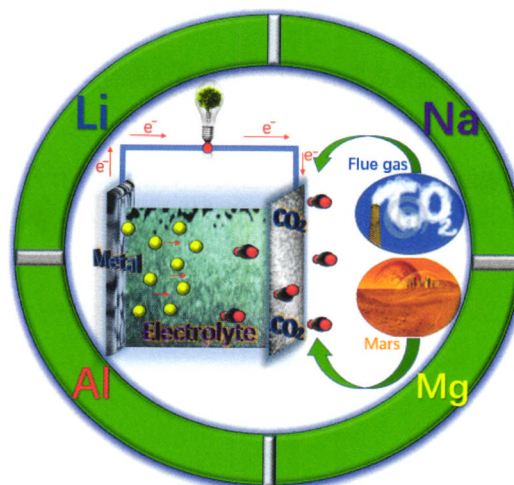


Li, Cui; Zhang, Qi; Fu, Yao*

Acta Chim. Sinica **2018**, 76(7), 501-514

In this review, we detail the recent-evolutionary and efficient strategies of transition metal-catalyzed deoxydehydration of vicinal diols and polyols from renewable biomass sources into alkenes which could use as platform chemicals and fuels.

Research Progress of Metallic Carbon Dioxide Batteries



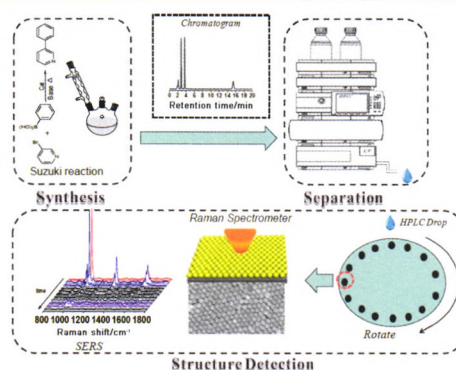
Chang, Shilei; Liang, Feng*; Yao, Yaochun; Ma, Wenhui; Yang, Bin; Dai, Yongnian

Acta Chim. Sinica **2018**, 76(7), 515-525

With the global climate becoming warm and the rapid development of the electric vehicle industry, the development of high-energy density metal carbon dioxide batteries are getting more and more attention. As a clean energy storage device, metal carbon dioxide batteries utilize carbon dioxide as resources, and provide technical support for human to explore Mars. This paper describes the research progress of metal carbon dioxide batteries in detail, and provides strategies for problems of this new battery system.

Article

Surface Enhanced Raman Spectroscopy Coupled with High Performance Liquid Chromatography for Real-time Monitoring of Suzuki Coupling Reaction

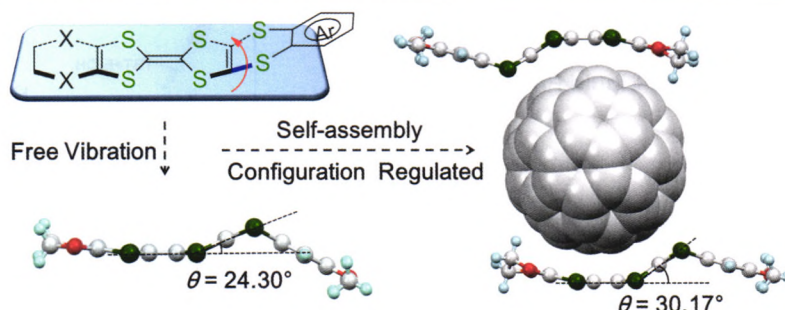


The surface enhanced Raman spectroscopy (SERS) has been hyphenated with high performance liquid chromatography (HPLC), in which the individual advantages of high sensitivity of SERS and high efficiency in separation of HPLC were combined together, and it was extended successfully to real-time monitor of a Suzuki coupling reaction between 3-bromopyridine and phenylboronic acid. The SERS results were well associated with the chromatographic peaks in a certain duration. It indicated that the HPLC-SERS technique would be a promising tool as a complementary approach to traditional techniques (such as LC-MS) for on line monitoring the organic reaction processes.

Jiao, Cenlei; Wang, Wei; Liu, Jiao; Yuan, Yaxian*; Xu, Minmin; Yao, Jianlin*

Acta Chim. Sinica **2018**, 76(7), 526-530

Flexible TTF Derivatives: Synthesis, Structure and Self-assembly

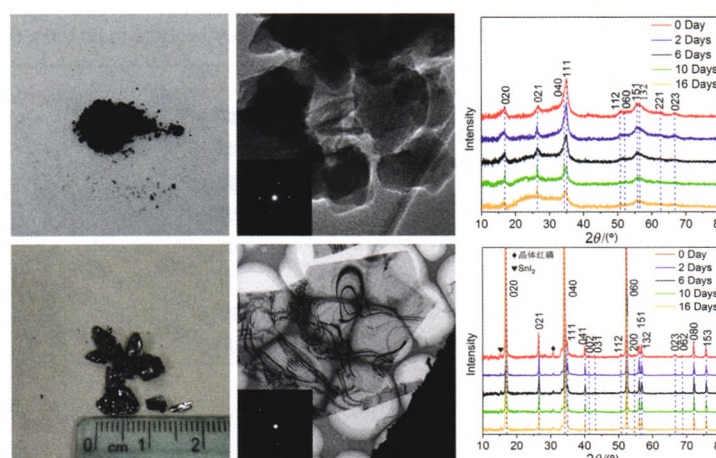


Zhang, Shangxi*; Shao, Xiangfeng

Acta Chim. Sinica **2018**, 76(7), 531-536

Sulfur attached and aryls fused TTFs display unique properties in self-assembly chemistry due to the flexibility from C—S bonds. In complex (TTF4)(C₆₀), the dihedral angle between the central C₂S₄ plane and the terminal C₂S₂ plane of the TTF framework change from 24.30° to 30.17° before and after assembly with C₆₀.

Preparation and Characterization of Black Phosphorus



Zhang, Dandan; Yuan, Zhenzhou; Zhang, Guoqing; Tian, Nan; Liu, Danmin*; Zhang, Yongzhe

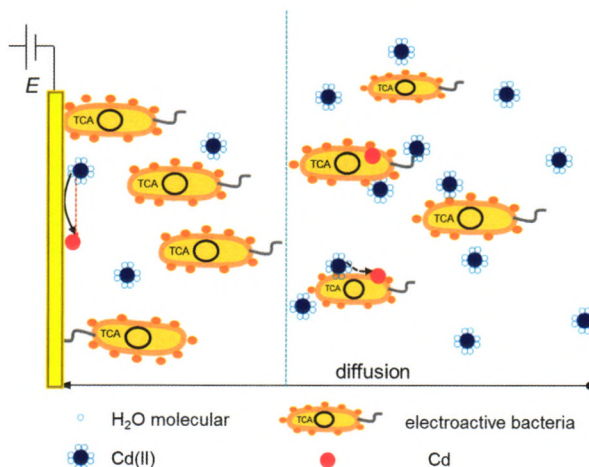
Acta Chim. Sinica **2018**, 76(7), 537-542

Black phosphorus was prepared and characterized. The results show that black phosphorus with large size, good crystallinity, high purity, and high stability can be obtained by chemical vapor transport method.

***Shewanella oneidensis* MR-1 Affects the Mechanism of Cd Electrodeposition on Glassy Carbon Electrode**

Lin, Weifen; Chen, Nianjia; You, Lexing*; Zhou, Shungui

Acta Chim. Sinica **2018**, 76(7), 543-548

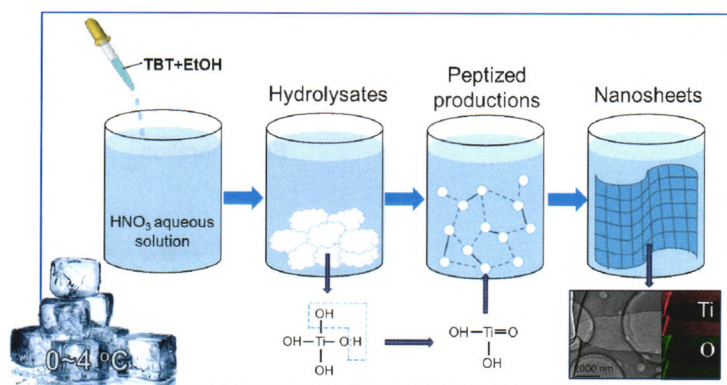


In nature, microbes always affect the geochemical cycle of metal ion. In this work, the nucleation mechanism of Cd electrodeposition on glassy carbon electrode in the present of *Shewanella oneidensis* MR-1 was studied. MR-1 could influence the diffusion rate of Cd(II) from bulk solution to electrode surface and further change the nucleation mechanism of Cd(II)-Cd. This work would be beneficial to the environmental remedy of heavy metal ion.

Influence Factors on the Microstructure of Ultrathin TiO₂ Nanosheets Synthesized by Liquid Phase Method

Chu, Wanyi; Tang, Xiao; Li, Zhen; Lin, Jingcheng; Qian, Jueshi*

Acta Chim. Sinica **2018**, 76(7), 549-555

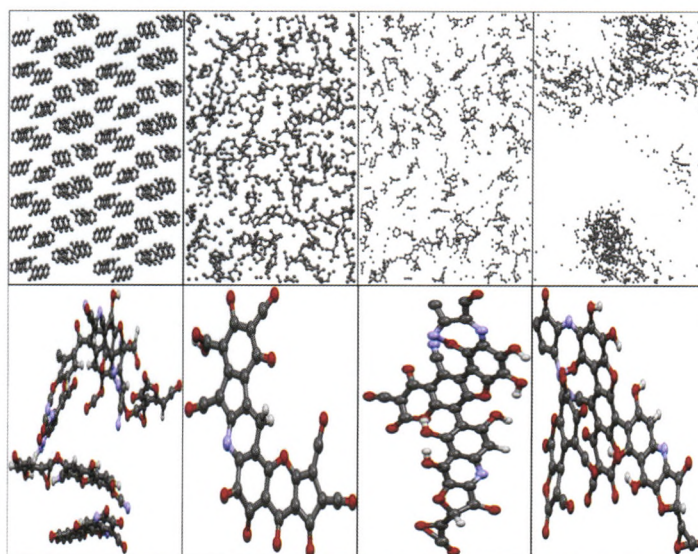


At 0~4 °C, the hydrolysates of tetrabutyl titanate in the dilute nitric acid solution with an appropriate concentration can peptize into ultra-small nanoclusters and form a two-dimensional network structure under the effect of hydrogen bonds. After further aging, they become to be ultra-thin TiO₂ nanosheets with a thickness smaller than 1 nm.

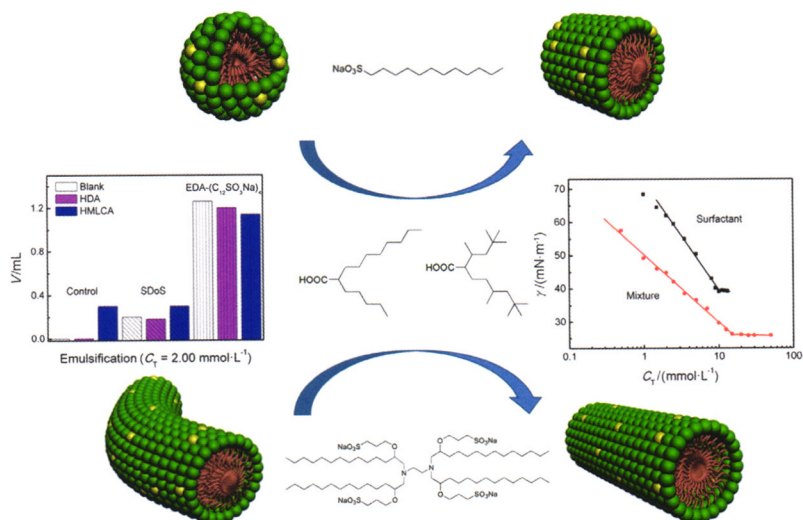
Carbon-rich Clusters and Graphite-like Structure Formation during Early Detonation of 2,4,6-Trinitrotoluene (TNT) via Molecular Dynamics Simulation

Zhang, Yaping; Yang, Zhen; Li, Qikai; He, Yuanhang*

Acta Chim. Sinica **2018**, 76(7), 556-563



Aggregation in the Mixture of Branched Carboxylate Salts and Sulfonate Surfactants with Different Oligomeric Degrees



The effects of branched carboxylate molecules on surface activities, micellization and emulsification ability of star-shaped oligomeric surfactants have been investigated. The results show that the addition of branched carboxylates can significantly reduce the surface tension at CMC, and the CMC values increase slightly with the increase of the carboxylate molar fraction. Moreover the addition of carboxylates into these two sulfonate surfactants leads to different aggregate transitions in the solution. These mixtures also show excellent performance in emulsification.

Li, Haoifei; Qiao, Fulin; Fan, Yaxun; Wang, Yilin*

Acta Chim. Sinica **2018**, 76(7), 564-574



通过液化空气集团 2018 年度科学挑战赛，液化空气集团集结科学社群，用创新方式应用不可或缺的小分子，围绕三个挑战开发新的应用，为改善空气质量、抵御全球气候变化做贡献。液化空气集团的创新体现了创造力、好奇心、集体智慧和充沛活力。我们诚邀您参加！



挑战一

低二氧化碳的氢气

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？



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提交提案，请登陆网址：<https://www.airliquide.com/magazine/2018-air-liquide-scientific-challenge>

科学挑战赛计划时间表

6月25日
挑战开始

9月20日
提案提交截止

2018年10月-2019年1月
提案审核

2019年3月
公布获奖者

