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ACTA CHIMICA SINICA

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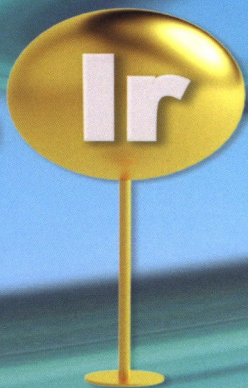
2018



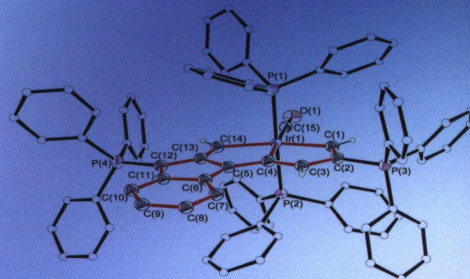
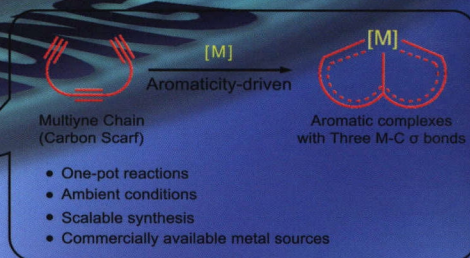
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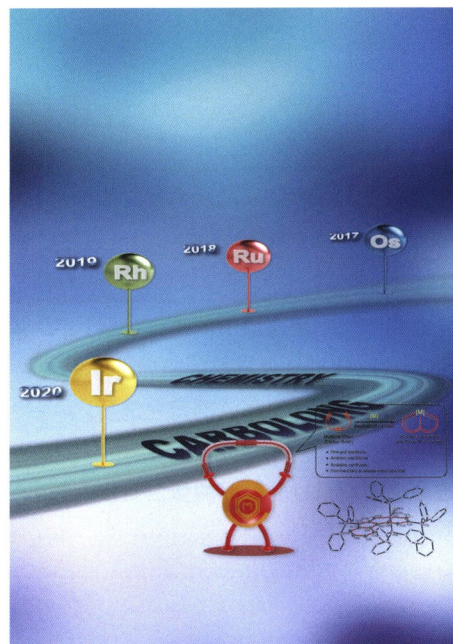
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单分子层受限冰-水共存界面毛细波与固-液相变动力学 梁尊, 张鑫, 吕松泰, 梁洪涛, 杨洋*, 化学学报, 2021, 79(1), 108-118
{(Me₂NH₂)₂[Fe₂(ox)₂Cl₄]·H₂O}_n (ox=oxalate) 中客体水分子诱导的介电弛豫行为 王宾, 唐雯, 赵海霞*, 龙腊生*, 郑兰荪, 化学学报, 2021, 79(1), 119-125
CsPbI₃ 钙钛矿量子点的精细纯化及其高效发光二极管的研究 李严, 李金航, 许蕾梦, 陈嘉伟, 宋继中*, 化学学报, 2021, 79(1), 126-132

* 通信联系人.

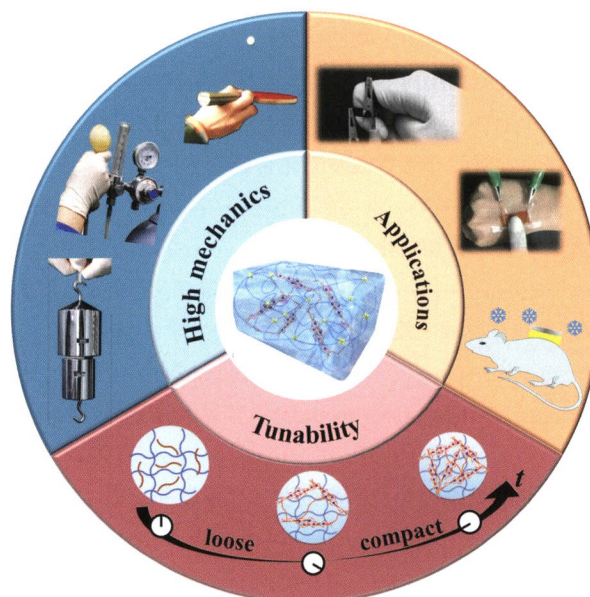
On the cover: Carbolong chemistry represents the chemistry of metal bridgehead polycyclic frameworks featuring a long carbon chain ($n_C \geq 7$) coordinated to a metal atom via at least three metal-carbon bonds. The facile and efficient one-pot reaction between multiyne chains and metal precursors enables the direct synthesis of osmium, ruthenium, and rhodium carbolong complexes. In this work, we develop this strategy to synthesize the iridium carbolong complexes for the first time. [Xia, Haiping *et al.* on page 71-80.]



Account

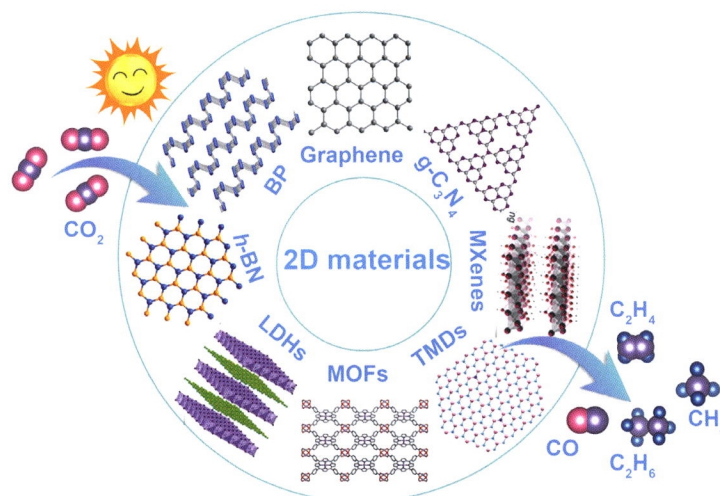
Chitosan-Based High-Mechanical Double-Network Hydrogels: Construction, Modulation and Applications

Yang, Yanyu; Wang, Xing*; Wu, Decheng*
Acta Chim. Sinica **2021**, 79(1), 1-9



Three rigid and brittle chitosan physical networks were developed and further utilized for constructing various chitosan-based double-network hydrogels with high mechanical performance and tunable structure and mechanics. The hydrogels are potential materials for flexible electronics, wearable devices, anti-freezing dresses and biomedical materials.

Review

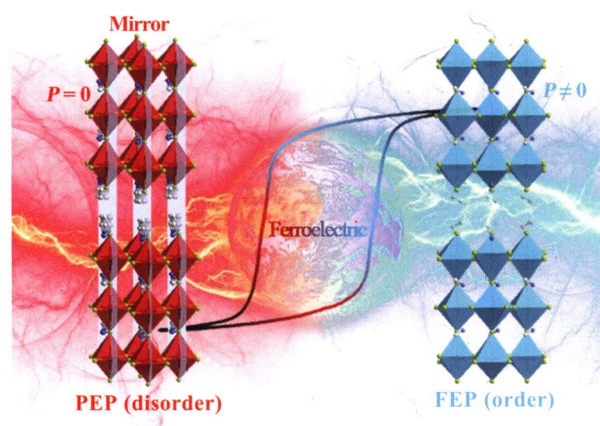
Research Progress of Photocatalytic CO₂ Reduction Based on Two-dimensional Materials

Chen, Qian; Kuang, Qin*; Xie, Zhaoxiong*

Acta Chim. Sinica 2021, 79(1), 10-22

Benefiting from high specific surface area and novel electronic structures, two-dimensional (2D) materials have drawn intense interest in the field of CO₂ photoreduction. In this review, the latest progress of 2D materials in CO₂ photoreduction was fully presented and a perspective for their future development was included.

Recent Advances of Two-dimensional Organic-Inorganic Hybrid Perovskite Ferroelectric Materials

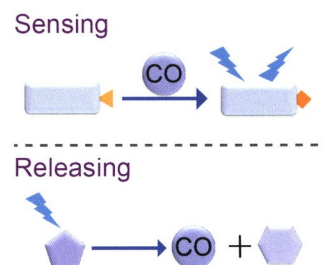


Xu, Haojie; Han, Shiguo; Sun, Zhihua*; Luo, Junhua

Acta Chim. Sinica 2021, 79(1), 23-35

The recent advances of two-dimensional hybrid perovskite ferroelectrics are summarized and the origin of their ferroelectricity based on symmetry breaking principle is highlighted. The future development trend and application prospects are also proposed for this ferroelectric family.

Progress in Organic Fluorescent Probes and Photocontrolled Releasers for Carbon Monoxide

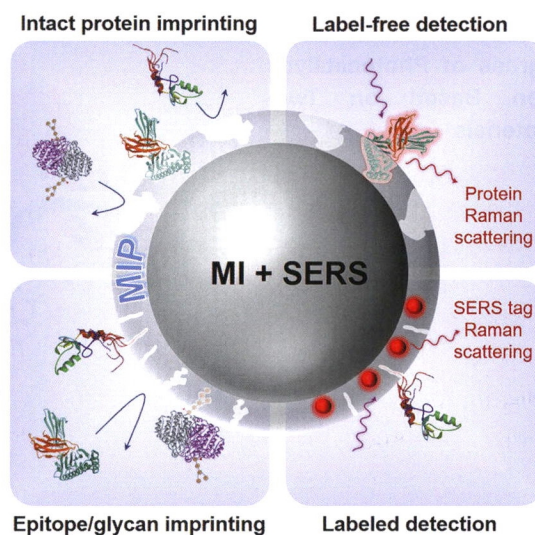


Li, Yong; Wang, Xu*; Xie, Xilei; Zhang, Jian; Tang, Bo*

Acta Chim. Sinica 2021, 79(1), 36-44

The research progress of CO organic fluorescent probes and photocontrolled releasers in recent years is reviewed, and the application prospects and challenges in this area are discussed.

Advances in Protein Biomarker Assay via the Combination of Molecular Imprinting and Surface-enhanced Raman Scattering

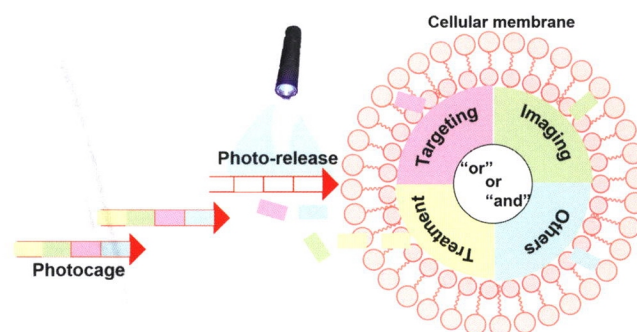


The detection of protein disease markers usually suffers from matrix interference and inadequate sensitivity. Molecular imprinted polymers (MIPs) can offer high specificity and affinity, while surface-enhanced Raman scattering (SERS) can provide ultrahigh sensitivity. The combination of MIP and SERS exhibits unique advantages. This review mainly introduces the advances of the combination of MIP and SERS and briefly sketches the future development of this field.

He, Hui; Zhou, Lingli; Liu, Zhen*

Acta Chim. Sinica **2021**, 79(1), 45-57

Recent Progress of Photocage Molecules and Materials



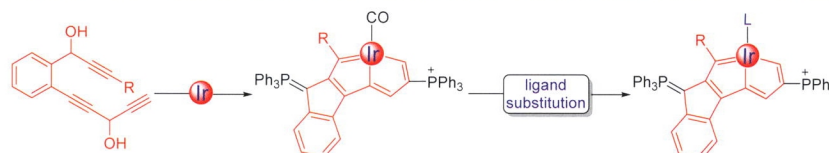
Wei, Tingwen; Jiang, Long; Chen, Yahui; Chen, Xiaoqiang*

Acta Chim. Sinica **2021**, 79(1), 58-70

The photocage, as a means capable of achieving spatiotemporal controlled release, has one or more capabilities in targeting, imaging, tracer, and therapeutic functions, and is able to monitor complex biological processes in intact cells or organisms. It is of great significance for the study on physiological processes, pathology and pharmacology of bioactive substances.

Article

Synthesis and Reactivity Studies of Irida-carbolong Complexes

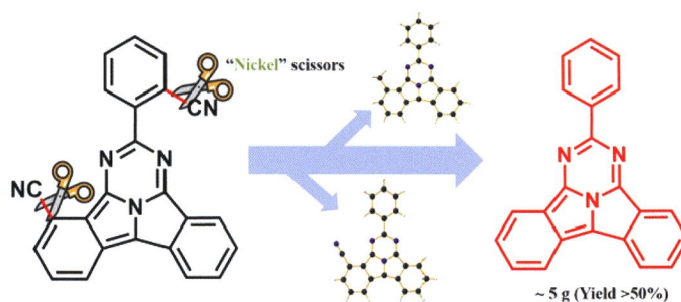


Li, Jinhua; Zhuo, Qingde; Zhuo, Kaiyue; Chen, Dafa*, Xia, Haiping*

Acta Chim. Sinica **2021**, 79(1), 71-80

Two irida-carbolong complexes were successfully synthesized by the reactions of multiyne compounds with an iridium precursor efficiently, and their ligand substitution reactions were studied. The chemistry extended the carbolong chemistry to iridium for the first time.

A Facile Synthetic Method and New Derivatives of Phthalorubines

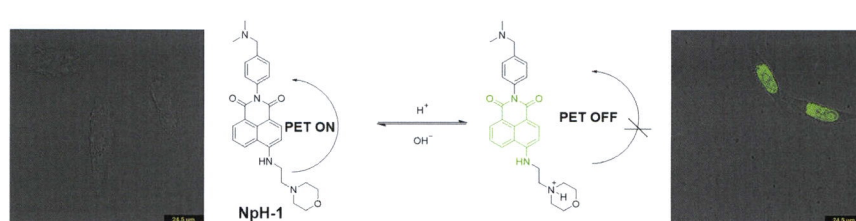


Li, Ling-Yan; Zheng, Wei*; Li, Cheng-Hui*

Acta Chim. Sinica **2021**, 79(1), 81-86

Via a Ni(II) catalyzed decyanation process, a facile method to synthesize **Pr-2** was reported with yield over 50%. Two new kinds of phthalorubines were developed during the process of tuning reaction conditions, with mono-cyano group (**Pr-1.5**) and methyl group (**Pr-1.6**), respectively.

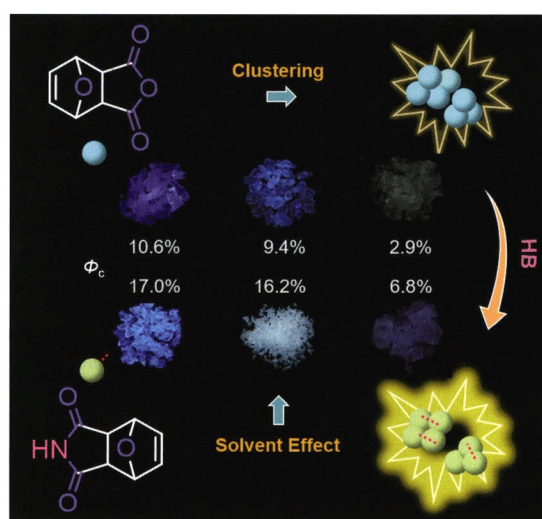
A Naphthalimide-based Fluorescent Probe for Detecting Intracellular pH and Its Biological Imaging Application



Ren, Jiangbo; Wang, Lei; Guo, Rui; Tang, Yonghe; Zhou, Hongmei; Lin, Weiyong*

Acta Chim. Sinica **2021**, 79(1), 87-92

Polymorphism-Dependent Emission of Nonaromatic Luminophores

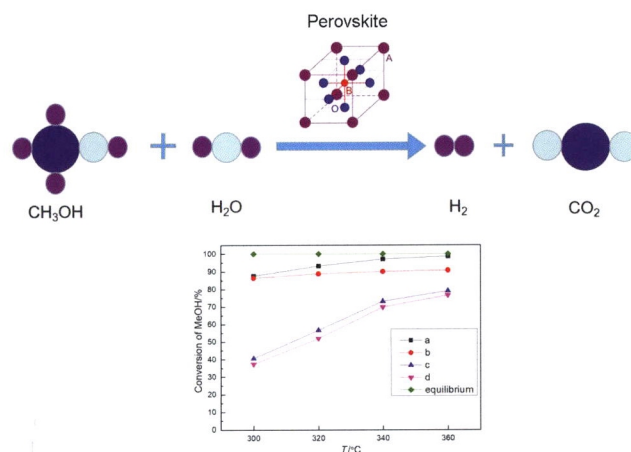


Lai, Yueying; Zhao, Zihao; Zheng, Shuyuan; Yuan, Wang Zhang*

Acta Chim. Sinica **2021**, 79(1), 93-99

Two nonaromatic luminophores, **F-MA** and **F-MI**, demonstrate room-temperature phosphorescence (RTP) and polymorphism-dependent emission, which can well be rationalized by the clustering-triggered emission (CTE) mechanism. Hydrogen bonding is utilized to limit molecular motions, consequently boosting quantum efficiency and RTP lifetime. Besides, trace solvents exert remarkable influence on the microenvironment of various clusters, leading to polymorphic crystals with little structure variation but significantly changed photoluminescence properties.

Study on Hydrogen Production Catalytic Materials for Perovskite Methanol Steam Reforming



The perovskite composite oxide materials were prepared by the sol-gel method, and then the perovskite-supported nano-copper catalytic materials were prepared by the impregnation method. The thesis not only focuses on the high-temperature catalytic activity and catalytic material properties of the perovskite-type catalytic material, but also focuses on the relationship between structure and catalytic activity. The above research provided a theoretical basis for the selection of catalytic materials which are used in methanol steam reforming hydrogen production. The thesis analyzed the effects of different types of B-site elements on the supported perovskite catalysts, and also discussed the scientific issues and future practical applications of this new material.

Xiao, Guopeng; Qiao, Weijun; Zhang, Lei*; Qing, Shaojun; Zhang, Caishun; Gao, Zhixian

Acta Chim. Sinica **2021**, 79(1), 100-107

Crystal-Melt Interface Kinetics and the Capillary Wave Dynamics of the Monolayer Confined Ice-Water Coexistence Lines

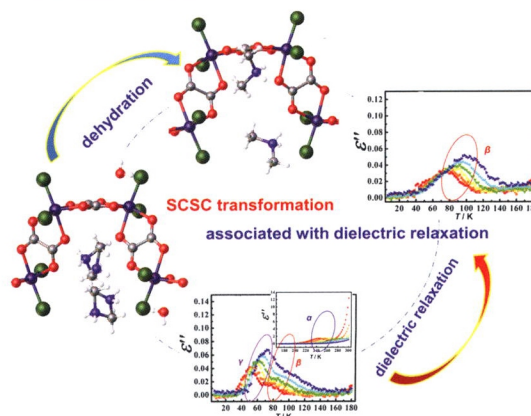


The kinetics of the one-dimensional monolayer ice-water interface, confined in the nanometer size hydrophobic slab under a lateral pressure of 0.5 GPa, is investigated by the (semi) two-dimensional crystal-melt coexistence technique, based on the equilibrium molecular-dynamics simulations. Due to the suppression of the rotational degree of freedom of water molecules and the increase in the liquid phase's diffusion coefficient, the crystal-melt interfacial kinetic coefficient is around two orders of magnitude greater than that of a bulk ice-water interface system.

Liang, Zun; Zhang, Xin; Lv, Songtai; Liang, Hongtao; Yang, Yang*

Acta Chim. Sinica **2021**, 79(1), 108-118

Dielectric Relaxation Triggered by Guest Water Molecule Based on the $\{(Me_2NH_2)_2[Fe_2(ox)_2Cl_4] \cdot H_2O\}_n$ (ox = oxalate)

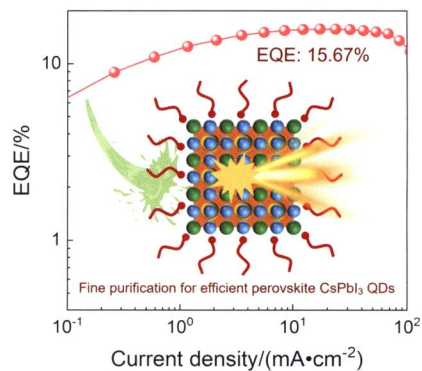


Wang, Bin; Tang, Wen; Zhao, Haixia*; Long, Lasheng*; Zheng, Lansun

Acta Chim. Sinica **2021**, 79(1), 119-125

Single crystal to single crystal (SCSC) transformations from $\{(Me_2NH_2)_2[Fe_2(ox)_2Cl_4] \cdot H_2O\}_n$ (ox = oxalate) ($I \cdot H_2O$) to $\{(Me_2NH_2)_2[Fe_2(ox)_2Cl_4]\}_n$ (**I**) was investigated, revealing that the presence of guest water molecules can influence the dynamic relaxation process of guest amine and hydrogen atoms in the compound.

CsPbI₃ Perovskite Quantum Dots: Fine Purification and Highly Efficient Light-emitting Diodes



Li, Yan; Li, Jinhang; Xu, Leimeng; Chen, Jiawei; Song, Jizhong*

Acta Chim. Sinica **2021**, 79(1), 126-132

A mixed-solvent purification strategy with toluene and ethyl acetate and a ligand compensation process to purify the perovskite CsPbI₃ quantum dots (QDs) is developed. The obtained QDs exhibit high photoluminescence quantum yield (PLQY) of 70% and excellent electrical properties, and the corresponding light-emitting diode (LED) has a maximum peak external quantum efficiency (EQE) of 15.67%.

“《化学学报》2019 年度最有影响力论文奖”揭晓

为推动促进国内外化学期刊发展、加强化学工作者交流,根据《化学学报》编委会决议,设立“《化学学报》XX 年度最有影响力论文奖”。该奖对获奖人的国籍、居住地、单位、年龄等没有任何限制,由《化学学报》编委会根据文章年度 SCI 引用情况评出(参考影响因子计算规则,兼顾当年发表当年引用情况,按第 $n-2$ 年至第 n 年发表的文章在第 n 年引用情况排序),奖励通信作者荣誉证书、文章第一作者荣誉证书和奖金 1000 元。奖励 10 篇左右。已获奖的论文次年不再重复奖励。

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影响

化学学报 2018, 76 (12), 925-939.

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