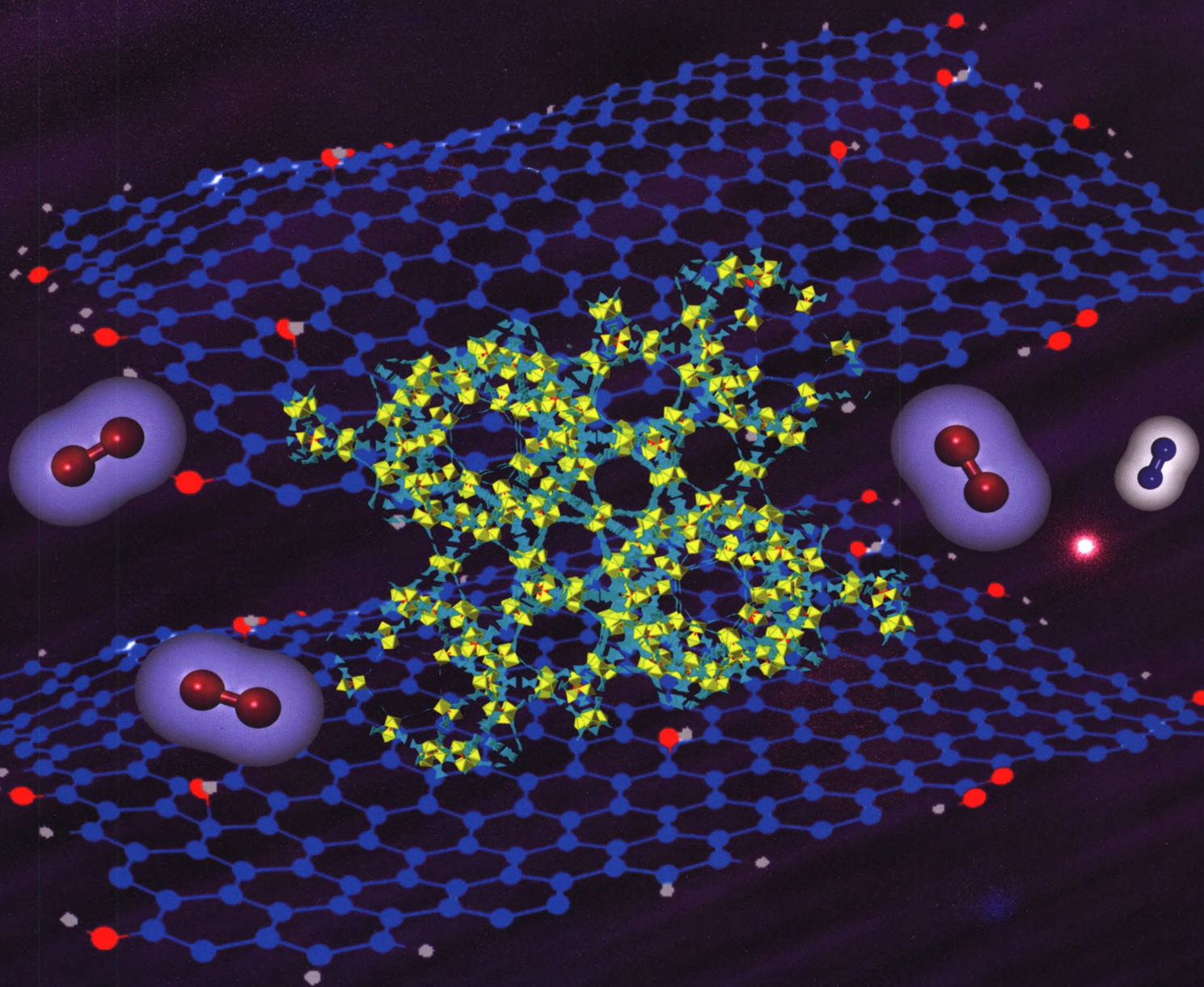




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(Huaxue Xuebao)

第 78 卷 第 3 期 2020 年 3 月 15 日

目 次

综述

- P-手性膦氧化物的不对称催化合成研究进展** 朱仁义, 廖奎, 余金生*, 周剑*, 化学学报, 2020, 78(3), 193-216
- 无机钙钛矿太阳能电池稳定性研究进展** 杨英, 林飞宇, 朱从潭, 陈甜, 马书鹏, 罗媛, 朱刘, 郭学益*, 化学学报, 2020, 78(3), 217-231
- 环糊精聚合物及其生物医学应用的研究进展** 郝淑燕, 郝莹, 刘宗建, 王锦*, 席家宁*, 化学学报, 2020, 78(3), 232-244

研究通讯

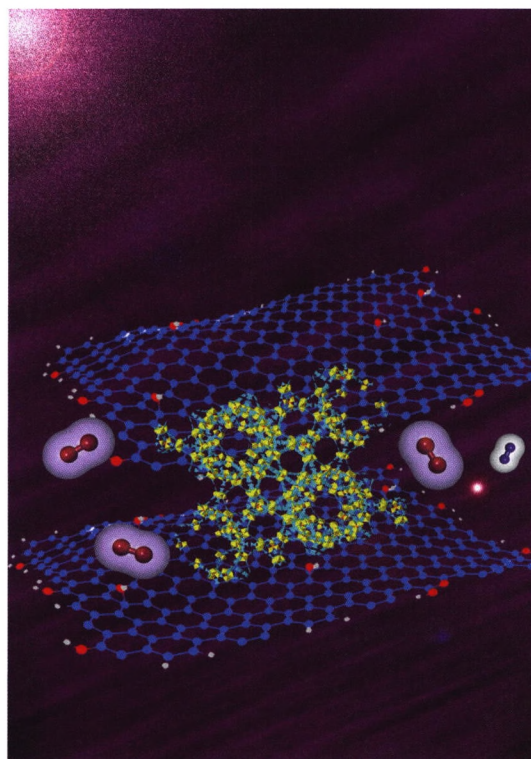
- Ming-Phos/铜催化的亚甲胺叶立德与硝基烯烃的不对称[3+2]环加成反应** 张荣华, 许冰, 张展鸣*, 张俊良*, 化学学报, 2020, 78(3), 245-249

研究论文

- MIL-101(Cr)/GO 复合吸附剂的 O₂/N₂ 分离性能研究** 刘洋, 夏潇潇, 谭媛元, 李松*, 化学学报, 2020, 78(3), 250-255
- 基于偶氮苯衍生物的三阶非线性光开关性能的调控** 翟亚丽, 许文娟, 孟祥茹*, 侯红卫*, 化学学报, 2020, 78(3), 256-262
- 司帕沙星及均三嗪衍生物铜(II)配合物与 DNA 作用及其抗肿瘤活性** 刘启雁, 蔡戴宏, 戚永育, 乐学义*, 化学学报, 2020, 78(3), 263-270
- 理论研究 8-氮杂鸟嘌呤自由基阳离子脱质子反应** 王英辉, 魏思敏*, 王康, 徐蓉蓉, 赵红梅*, 化学学报, 2020, 78(3), 271-278

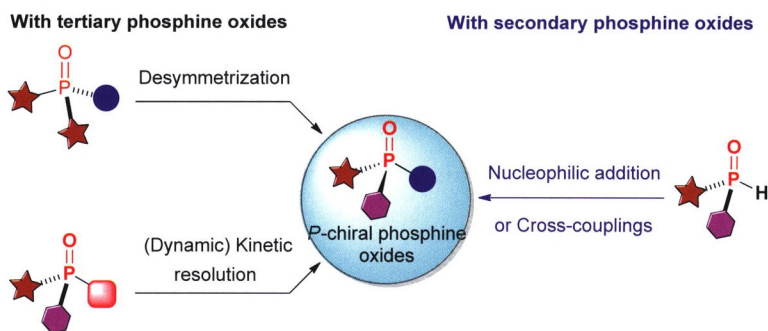
* 通信联系人.

On the cover: Integrating 15% (w) graphene oxide (GO) into MIL-101(Cr) improves the O₂ adsorption capacity of MIL-101(Cr) from air, which was further ascribed to the additional mesopores created in the interfacial region between GO and MIL-101(Cr). [Li, Song *et al.* on page 250-255.]



Review

Recent Advances in Catalytic Asymmetric Synthesis of *P*-Chiral Phosphine Oxides

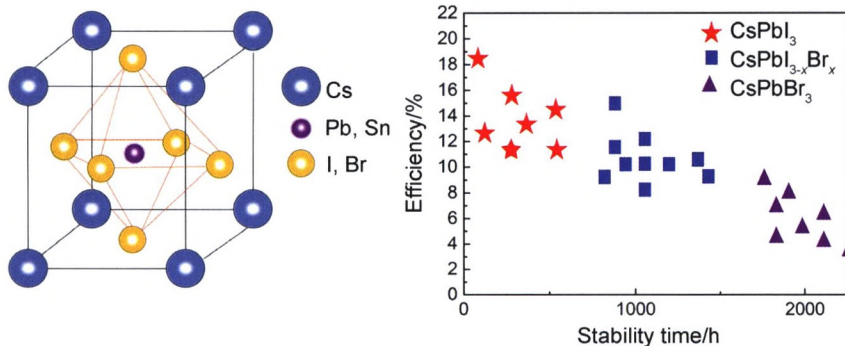


Zhu, Ren-Yi; Liao, Kui; Yu, Jin-Sheng*; Zhou, Jian*

Acta Chim. Sinica **2020**, 78(3), 193-216

The past few years have witnessed significant progress in the catalytic asymmetric construction of *P*-chiral phosphine oxides, a type of privileged scaffolds in the field of medicinal chemistry, organic synthesis, life and material science. To provide reference and inspiration for the researchers engaged in organic synthesis and organic phosphorus chemistry, these advances are summarized in this review according to three major strategies.

Research Progress in the Stability of Inorganic Perovskite Solar Cells

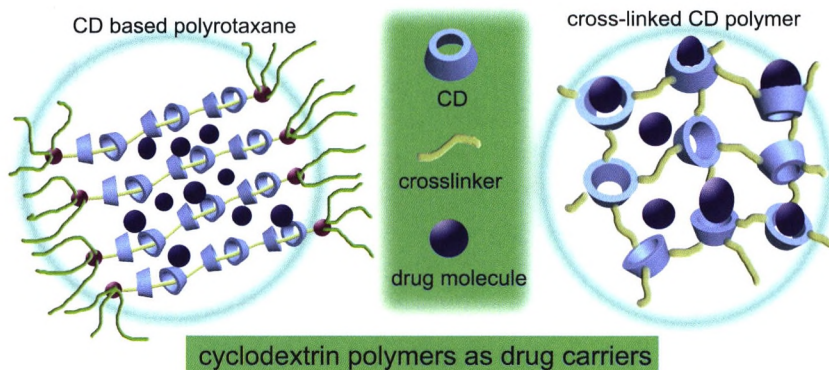


All-inorganic perovskite (e.g. CsPbI₃, CsPbI_{3-x}Br_x, CsPbBr₃) have excellent thermal and optical stability. CsPbI₃ has a suitable bandgap, which leads to the highest efficiency of all inorganic perovskite solar cells. However, the phase stability of CsPbI₃ is not good. CsPbBr₃ perovskite has good phase stability, but its photoelectric efficiency is not as high as CsPbI₃ based device due to its unsuitable band gap. In this review, starting from the preparation method, film doping and interface modification of inorganic perovskite solar cells, the development of inorganic perovskite solar cells is systematically introduced, analyzed and summarized, and the reasons for the instability of inorganic perovskite and its improvement methods are emphatically analyzed. Finally, the future of inorganic perovskite solar cells is prospected.

Yang, Ying; Lin, Feiyu; Zhu, Congtan; Chen, Tian; Ma, Shupeng; Luo, Yuan; Zhu, Liu; Guo, Xueyi*

Acta Chim. Sinica 2020, 78(3), 217-231

Advances in Cyclodextrin Polymers and Their Applications in Biomedicine



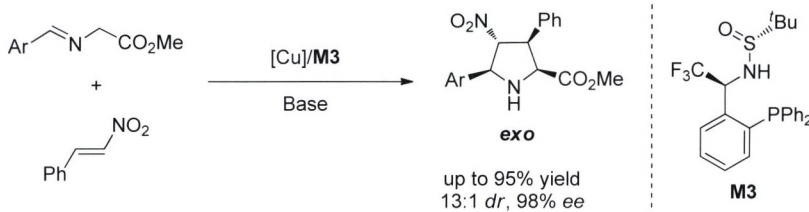
Qie, Shuyan; Hao, Ying; Liu, Zongjian; Wang, Jin*; Xi, Jianing*

Acta Chim. Sinica 2020, 78(3), 232-244

Recent progress of cyclodextrin polymers are reviewed and their applications in biomedicine are highlighted.

Communication

Ming-Phos/Copper(I)-Catalyzed Asymmetric [3+2] Cycloaddition of Azomethine Ylides with Nitroalkenes

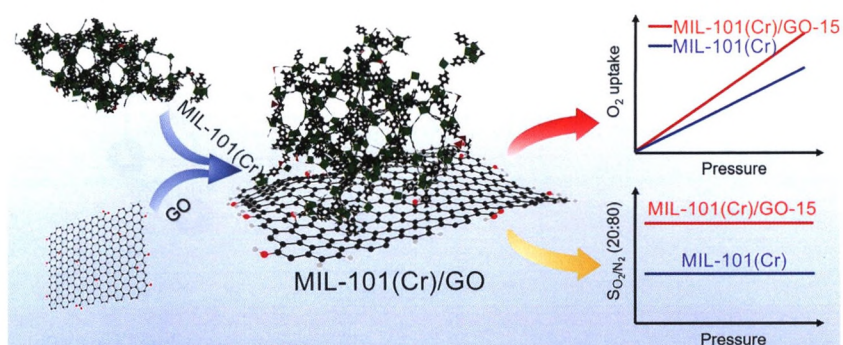


Zhang, Ronghua; Xu, Bing; Zhang, Zhanming*; Zhang, Junliang*

Acta Chim. Sinica 2020, 78(3), 245-249

A highly efficient copper catalyzed asymmetric intermolecular [3+2] cycloaddition of azomethine ylides with nitroalkenes was realized by using a new Ming-Phos **M3** as ligand. *Exo* products could be obtained with good to high yield, diastereo- and enantioselectivities.

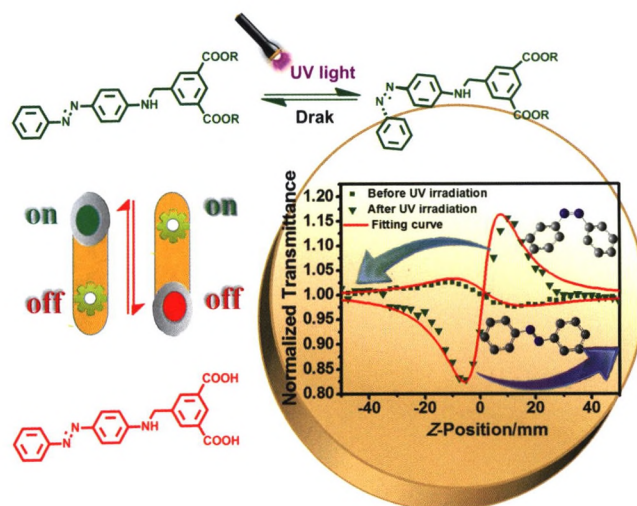
Article

O₂/N₂ Separation Performance of MIL-101(Cr)/Graphene Oxide

Liu, Yang; Xia, Xiaoxiao; Tan, Yuanyuan; Li, Song*

Acta Chim. Sinica **2020**, 78(3), 250-255

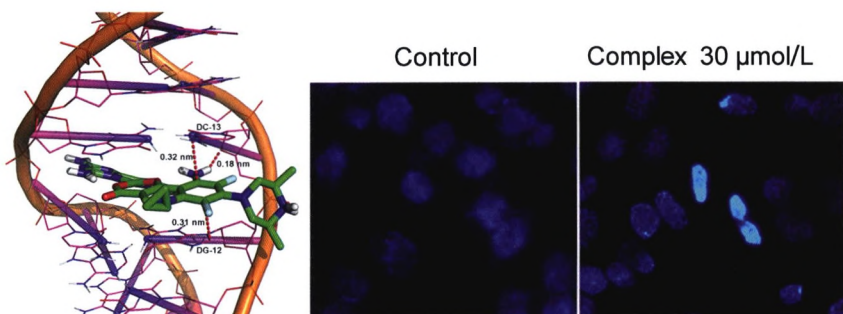
The O₂/N₂ separation performance of MIL-101(Cr)/graphene oxide (GO) composites was explored, and the effect of the doping amount of GO on the pore size and defects of MIL-101(Cr), and the combination of MIL-101(Cr) and GO were analyzed. Finally the O₂/N₂ selectivity and recycling performance were discussed.

Adjusting the Third-Order Nonlinear Optical Switch Performance Based on Azobenzene Derivatives

Zhai, Yali; Xu, Wenjuan; Meng, Xiangru*; Hou, Hongwei*

Acta Chim. Sinica **2020**, 78(3), 256-262

Special material can be regulated from the "off" state to the "on" state, in which the adjusted materials exhibit an excellent transformation of the third-order nonlinear optical (NLO) properties under light condition.

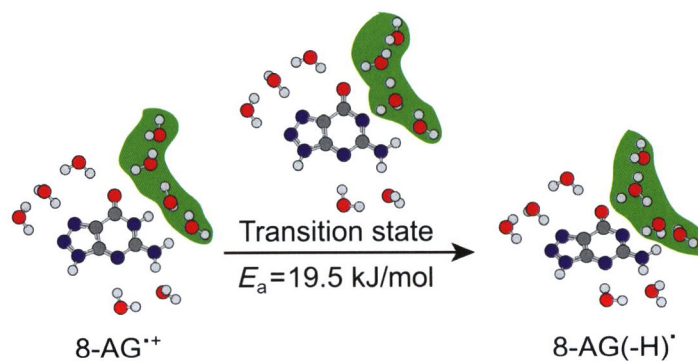
DNA Interaction and Antitumor Activity of A Copper(II) Complex Containing Sparfloxacin and Triazine Derivatives

Liu, Qiyang; Cai, Daihong; Qi, Yongyu; Le, Xueyi*

Acta Chim. Sinica **2020**, 78(3), 263-270

The new complex could induce apoptosis in the tumor cells through DNA-binding mitochondrial dysfunctional pathways, which was accompanied by the cell growth arrest at S and G2/M phases and damage of DNA.

A Theoretical Study of 8-Azaguanine Radical Cation Deprotonation



Wang, Yinghui; Wei, Simin*; Wang, Kang;
Xu, Rongrong; Zhao, Hongmei*

Acta Chim. Sinica **2020**, *78*(3), 271-278

The deprotonation of $8\text{-AG}^{\bullet+}$ was investigated theoretically at M06-2X/6-31+G(d) level with explicit water molecules and polarizable continuum model (PCM) to simulate the solvent effect. These four water molecules locating around N(1)—H, O(6), N(2)—H of $8\text{-AG}^{\bullet+}$ as well as the one locating in the second water shell which was hydrogen-bonding with the water around O(6) were necessary. The deprotonation energy barrier of $8\text{-AG}^{\bullet+}$ was confirmed to be 19.5 kJ/mol by adding more water molecules.

“《化学学报》2018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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19次:

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化学学报 2017 Vol. 75 (5): 419-438

16次:

贾涛,郑楠楠,蔡万清,应磊,黄飞

DOI: 10.6023/A17030114

基于萘并二酰亚胺的胺基功能化聚合物的三组分一锅法合成及其在聚合物太阳能电池中的应用

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15次:

张盼盼,吕龙,沈其龙

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直接三氟甲磺基化试剂及方法的研究进展

化学学报 2017 Vol. 75 (8): 744-769

12次:

余晓叶,周帆,陈加荣,肖文精

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可见光促进的酰胺氮自由基参与的分子内氢胺化反应

化学学报 2017 Vol. 75 (1): 86-91

于月娜,徐明华

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手性磷-烯配体在不对称催化领域的研究进展

化学学报 2017 Vol. 75 (7): 655-670

汤溟溟,霍小红,孟庆华,张万斌

DOI: 10.6023/A16020078

钌催化的烯丙位 C—H 键官能团化: 新催化体系的发展

化学学报 2016 Vol. 74 (3): 219-233

10次:

钟建基,孟庆元,陈彬,佟振合,吴骊珠

DOI: 10.6023/A16090491

可见光催化的交叉偶联放氢反应

化学学报 2017 Vol. 75 (1): 34-40

竹芯,朱凯,孙邦锦,樊健,周祎,宋波

DOI: 10.6023/A17020074

综合研究 DPE 添加剂对含 5,6-二氟-萘并[1,2,5]噻二唑给-受体共聚物的光伏性能影响

化学学报 2017 Vol. 75 (5): 464-472

9次:

王少静,李长伟,李锦,陈邦,郭媛

DOI: 10.6023/A17010029

新型香豆素类氟离子荧光探针的合成及细胞成像研究

化学学报 2017 Vol. 75 (4): 383-390

黄佳琦,孙滢智,王云飞,张强

DOI: 10.6023/A16080454

锂硫电池先进功能隔膜的研究进展

化学学报 2017 Vol. 75 (2): 173-188

王其,程明,曹逸涵,强璐莉,王乐勇

DOI: 10.6023/A15090585

基于双间苯-32-冠-10 穴醚超分子组装体的设计与构筑

化学学报 2016 Vol. 74 (1): 9-16