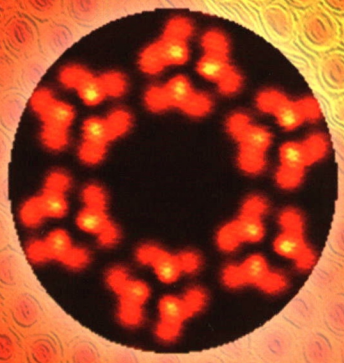
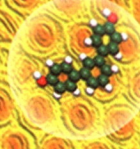
ISSN 1000-6818 CN 11-1892/O6

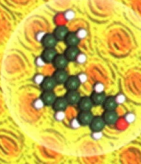
物理化学学报

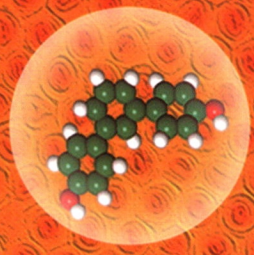
ACTA PHYSICO-CHIMICA SINICA

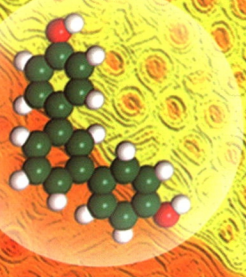
第38卷 第8期 Vol. 38 No. 8 2022

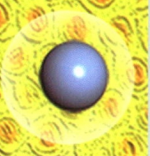


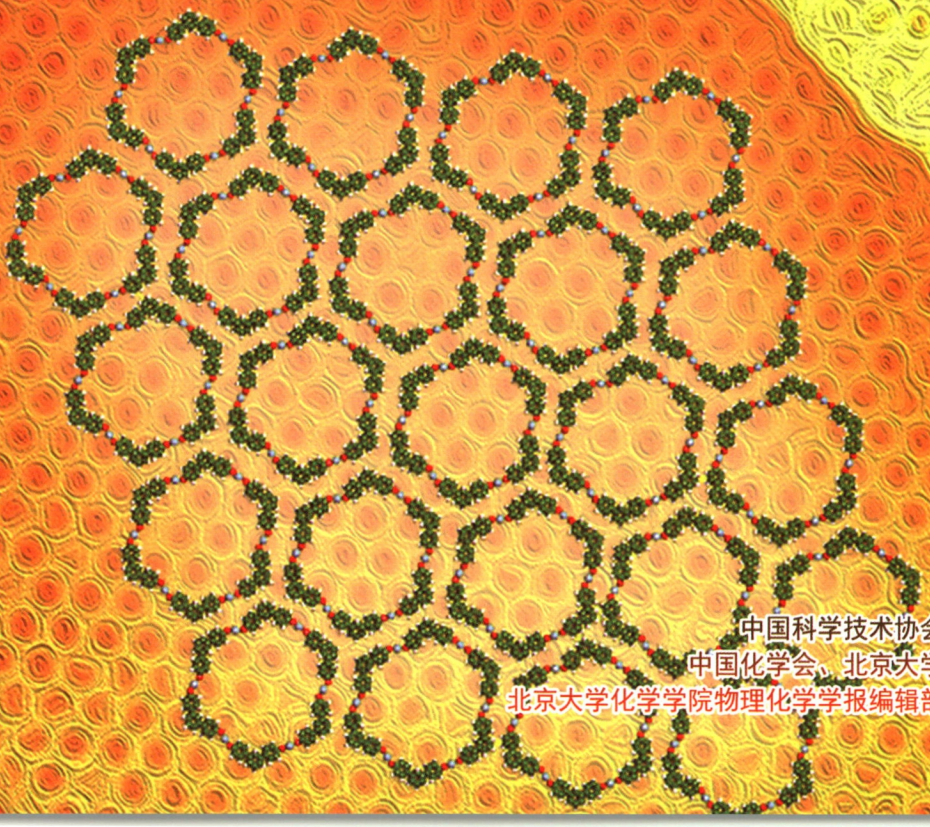


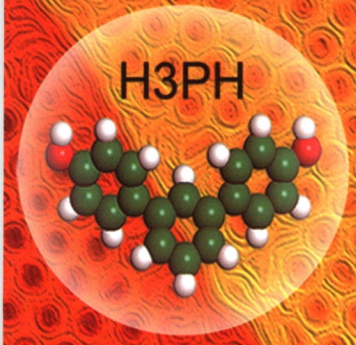












中国科学技术协会主管
中国化学会、北京大学主办
北京大学化学学院物理化学学报编辑部出版

物 理 化 学 学 报 第 38 卷 第 8 期
ACTA PHYSICO-CHIMICA SINICA, Vol. 38, No. 8

COVER

The cover image presents the construction of honeycomb structure with O－Ag－O coordination bonds. In article No. 2011060, Li *et al.* demonstrated a series of ordered two-dimensional hierarchical metal-organic nanostructures of 4,4'-dihydroxy-1,1':3',1''-terphenyl (H3PH) on Ag(111) through stepwise thermal annealing.

CONTENTS

亮点　HIGHLIGHT

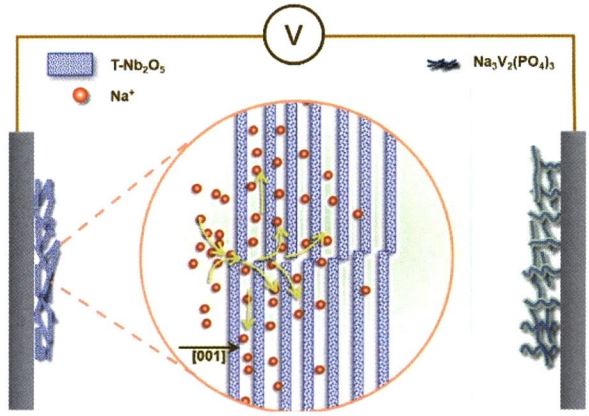
通讯　COMMUNICATION

原位透射电镜研究正交相五氧化二铌纳米片的电化学储钠机制

许国光，王琪，苏毅，刘美男，李清文，张跃钢

Revealing Electrochemical Sodiation Mechanism of Orthogonal-Nb_2O_5 Nanosheets by *In Situ* Transmission Electron Microscopy

Guoguang Xu, Qi Wang, Yi Su, Meinan Liu, Qingwen Li, Yuegang Zhang



Acta Phys. -Chim. Sin. **2022,** *38* (8), 2009073
doi: 10.3866/PKU.WHXB202009073

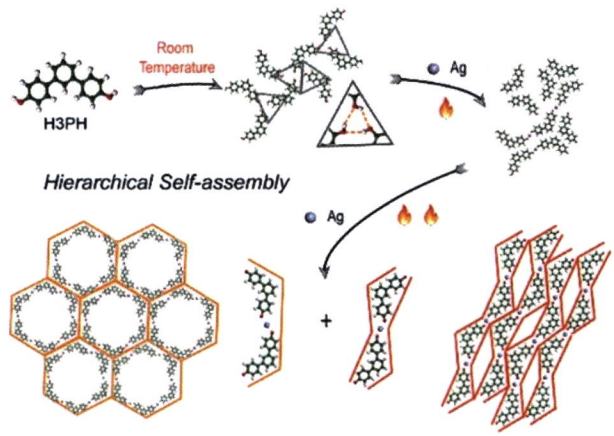
Crystal defects promote the diffusion of sodium ions across the (001) lattice planes.

Ag(111)表面 Ag 配位结构的分等级组装

李若宁，张雪，薛娜，李杰，吴天昊，徐榛，王一帆，李娜，唐浩，侯士敏，王永锋

Hierarchical Self-Assembly of Ag-Coordinated Motifs on Ag(111)

Ruoning Li, Xue Zhang, Na Xue, Jie Li, Tianhao Wu, Zhen Xu, Yifan Wang, Na Li, Hao Tang, Shimin Hou, Yongfeng Wang



Acta Phys. -Chim. Sin. **2022,** *38* (8), 2011060
doi: 10.3866/PKU.WHXB202011060

Hierarchical nanoarchitectures are formed depending on the annealing temperature by Ag adatoms and organic molecules on Ag(111).

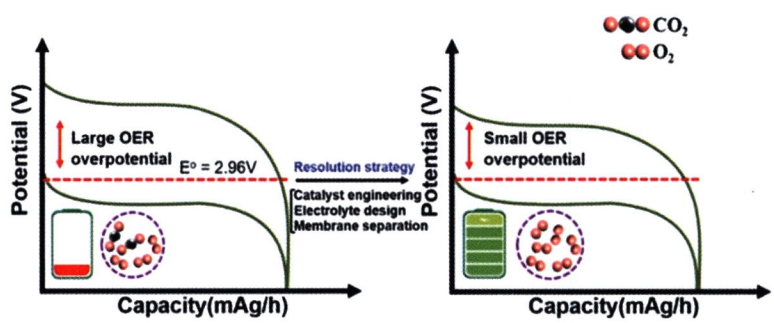
综述　REVIEW

锂-空气电池的实用化之路：规避二氧化碳负面效应

王天杰，王耀伟，陈宇辉，刘建鹏，史会兵，郭丽敏，赵志伟，刘春太，彭章泉

Toward Practical Lithium-Air Batteries by Avoiding Negative Effects of CO_2

Tianjie Wang, Yaowei Wang, Yuhui Chen, Jianpeng Liu, Huibing Shi, Limin Guo, Zhiwei Zhao, Chuntai Liu, Zhangquan Peng

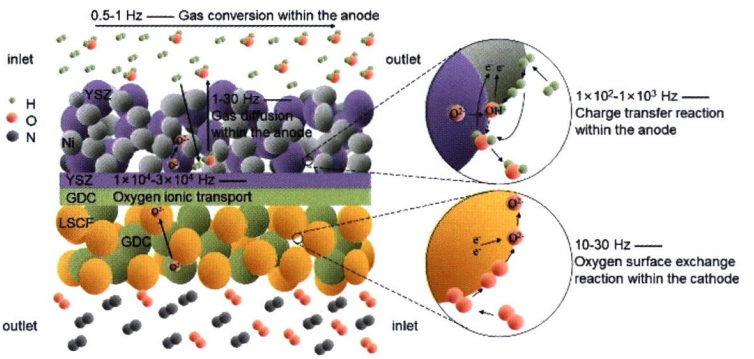


Acta Phys. -Chim. Sin. **2022,** *38* (8), 2009071
doi: 10.3866/PKU.WHXB202009071

The CO_2-related parasitic reaction mechanisms and advanced strategies were summarized in Li-air batteries, which will help mitigate and even avoid their negative effects and further design better Li-air batteries.

大尺寸固体氧化物燃料电池的电极过程解析方法

崔同慧，李航越，吕泽伟，王怡戈，韩敏芳，
孙再洪，孙凯华



Identification of Electrode Process in Large-Size Solid Oxide Fuel Cell

Tonghui Cui, Hangyue Li, Zewei Lyu, Yige Wang,
Minfang Han, Zaihong Sun, Kaihua Sun

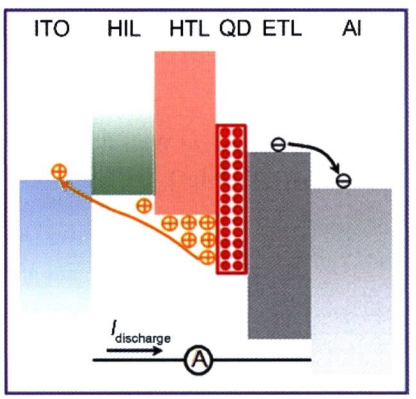
Acta Phys. -Chim. Sin. **2022,** *38* (8), 2011009

doi: 10.3866/PKU.WHXB202011009

The characteristic frequency of each electrode process in industrial large-size SOFC is revealed by the distribution of relaxation times (DRT) method.

量子点发光二极管中电荷累积行为

王成，张弛，黎瑞锋，陈琪，钱磊，陈立桅



Charge Accumulation Behavior in Quantum Dot Light-Emitting Diodes

Cheng Wang, Chi Zhang, Ruifeng Li, Qi Chen,
Lei Qian, Liwei Chen

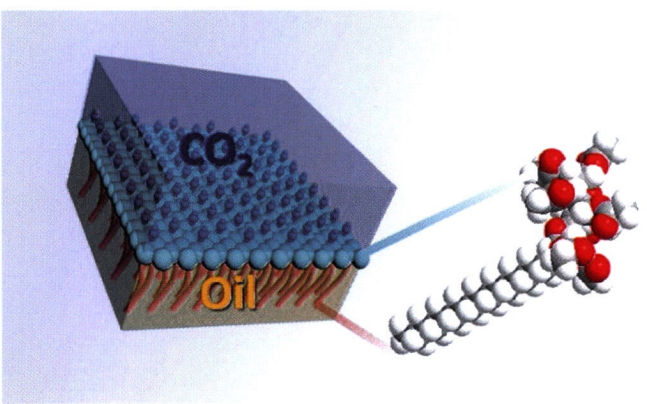
Acta Phys. -Chim. Sin. **2022,** *38* (8), 2104030

doi: 10.3866/PKU.WHXB202104030

The accumulated charges in a QLED are collected by a homemade circuit, which can be used to investigate the charge accumulation behavior.

一种新型 CO_2/原油助混剂 CAA8-X 的应用与助混机理

马骋，窦翔宇，刘泽宇，廖培龙，朱志扬，
刘卡尔顿，黄建滨



Application and Mechanism of a Novel CO_2-Oil Miscible Flooding Agent, CAA8-X

Cheng Ma, Xiangyu Dou, Zeyu Liu, Peilong Liao,
Zhiyang Zhu, Kaerdun Liu, Jianbin Huang

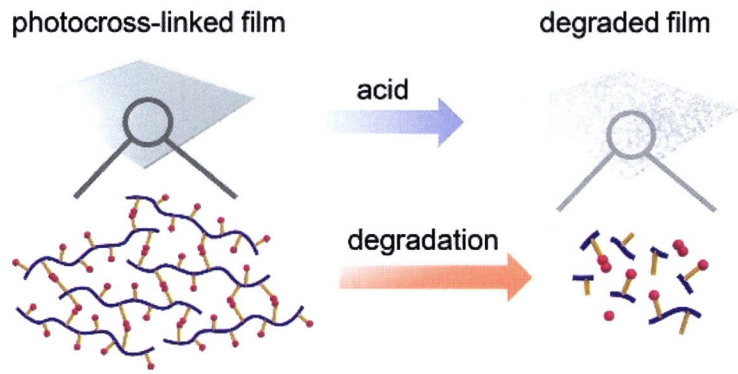
Acta Phys. -Chim. Sin. **2022,** *38* (8), 2012019

doi: 10.3866/PKU.WHXB202012019

A CO_2-oil miscible flooding agent, CAA8-X, was designed and synthesized and its application and mechanism for CO_2-enhanced oil recovery were investigated.

可交联且可生物降解的高分子膜

陈帅，秦江雷，杜建忠



Cross-Linkable Yet Biodegradable Polymer Films

Shuai Chen, Jianglei Qin, Jianzhong Du

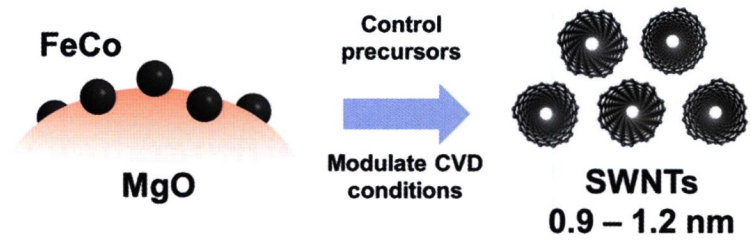
Acta Phys. -Chim. Sin. **2022,** *38* (8), 2006029

doi: 10.3866/PKU.WHXB202006029

Properties of the photocross-linkable, yet biodegradable, PCTCL-based films are tunable by adjusting the cross-linking density and by copolymerizing with caprolactone.

FeCo/MgO 催化生长体相单壁碳纳米管的直径调控

张则尧，姚艺希，李彦



Modulating the Diameter of Bulk Single-Walled Carbon Nanotubes Grown by FeCo/MgO Catalyst

Zeyao Zhang, Yixi Yao, Yan Li

Acta Phys. -Chim. Sin. **2022,** *38* (8), 2101055

doi: 10.3866/PKU.WHXB202101055

We used an FeCo/MgO catalyst to grow bulk SWNTs with diameters of 0.9–1.2 nm and investigated the influence of catalysts and chemical vapor deposition growth conditions on the diameter of SWNTs. For the preparation of catalyst precursors, suppressing the hydrolysis of the metal salt during the solution drying process facilitates the preparation of catalysts with controlled sizes, which are preferred for the diameter-controlled growth of SWNTs. It is also important to modulate the conditions of chemical vapor deposition process so that the growth of SWNTs with desired diameters are preferred.

物理化学学报(WULI HUAXUE XUEBAO)第 38 卷第 8 期(2022. 08. 15)
ACTA PHYSICO-CHIMICA SINICA, Vol. 38, No. 8 (August 15, 2022)

月刊(1985 年创刊)
Monthly (First volume appeared in 1985)

编辑出版者	北京大学化学与分子工程学院《物理化学学报》编辑部	Editor and Publisher:	Editorial Office of Acta Physico-Chimica Sinica (Wuli Huaxue Xuebao)
地　　址	北京大学化学楼(邮政编码 100871)	Address:	Chemistry Building Peking University Beijing 100871, China
电　　话	+86-10-62751724, +86-10-62756388	Tel.:	+86-10-62751724, +86-10-62756388
主　　任	张小娟	Editorial Director:	Xiaojuan Zhang
主管单位	中国科学技术协会	Printer:	Beijing Kexin Printing CO., LTD
印 刷 者	北京科信印刷有限公司	Distributor:	China International Book Trading Corporation (Code No 1443-MO)
国内总发行	北京报刊发行局		
国内订购	全国各邮局		
国外发行	中国国际图书贸易总公司(Code No 1443-MO)		
Email:	**whxb@pku.edu.cn**	**Website:**	**http://www.whxb.pku.edu.cn**

ISSN 1000-6818
9 771000 681209 08

定价：**50.00** 元　　**2022** 年 **8** 月 **15** 日出版　　广告经营许可证：**京海市监广登字 20170232 号**　　国内邮发代号：**82-163**