无 机 化 学 学 报

2018 年　　第 34 卷　　第 8 期

目　次

综　述

论　文

CHINESE JOURNAL OF INORGANIC CHEMISTRY

Vol.34 No.8 Aug. 2018

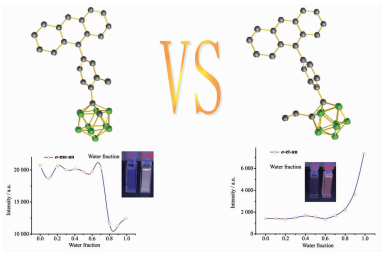
CONTENTS

Cover

Reviews

For the pH-responsive durg nanocarriers, three pH-responsive mechanisms triggered by covalent bond, intermolecular forces and physical structure are introduced. The loading properties, release properties *in vitro*, cytotoxicity *in vitro*, anticancer properties *in vivo* and distribution properties *in vivo* of the pH-responsive drug nanocarriers are expounded.

Articles

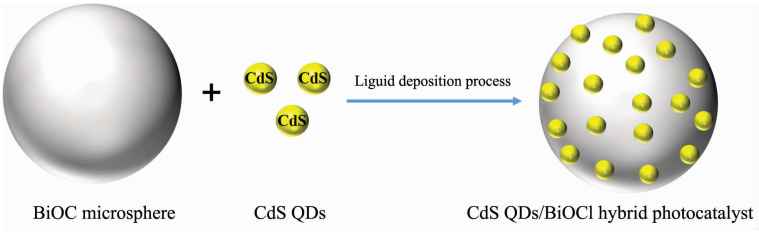


By engineering the C-C bond in *o*-carborane, a transformation from ACQ to AIE was obtained.

Preparation of Hierarchical CdS QDs/BiOCl Microsphere with Enhanced Photocatalytic Activity for Organic Pollutant Elimination

PAN Jin-Bo, LIU Jian-Jun, MA He-Cheng, Usman Ali Khan, ZUO Sheng-Li, YU Ying-Chun, LI Bao-Shan

DOI:10.11862/CJIC.2018.197
Chinese J. Inorg. Chem., **2018**,**34**(8):1421-1429

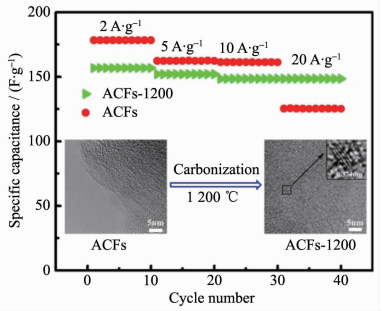


Liquid deposition process was adopted to prepare hierarchical CdS QDs/BiOCl microsphere using BiOCl microsphere and CdS QDs as the supporter and loaded reagent.

Effect of Carbonization on the Structure and Supercapacitive Performance of Pitch-Based Activated Carbon Fibers

ZHANG Ye-Qiong, CONG Ye, ZHANG Jing, LI Xuan-Ke, DONG Zhi-Jun, YUAN Guan-Ming

DOI:10.11862/CJIC.2018.159
Chinese J. Inorg. Chem., **2018**,**34**(8):1430-1436

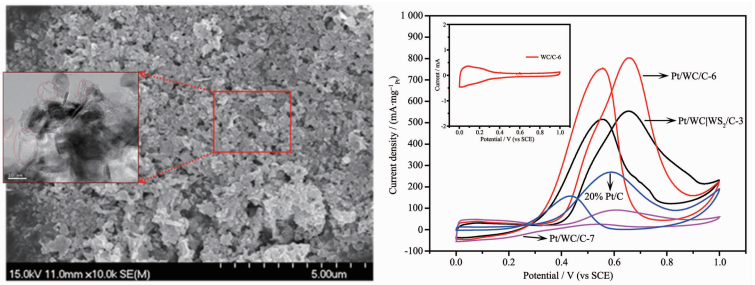


After the activated carbon fibers (ACFs) were modified by carbonization, the degree of crystallinity of ACFs were enhanced and the conductivity was effectively improved. The ACFs carbonized at 1 200 ℃ (ACFs-1200) electrodes show a high capacity retention at high current densities.

In Situ Synthesis and Application in Methanol Oxidation of Lamellar WC/C

LI Ying-Ying, HUANG Li-Zhen, CAI Xiao-Wei, CHEN Zhao-Yang, LIU Wei-Ming, SHI Mei-Qin

DOI:10.11862/CJIC.2018.162
Chinese J. Inorg. Chem., **2018**,**34**(8):1437-1447

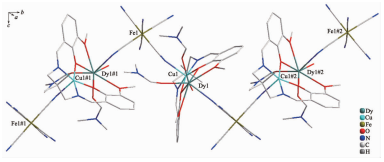


2D structure of WS_2 and anchoring effect of NaCl were used to fabricate the porous WC/C flakes. The Pt/WC/C shows good electrocatalytic activity, stability and excellent resistance to CO poisoning in MOR.

Syntheses, Crystal Structures and Magnetic Properties of Two One-Dimensional Heterotrimetallic Coordination Polymers

LIU Yang, WANG Zhen-Ping, WANG Qing-Lun, TONG Yu-Zhang, YANG Chun

DOI:10.11862/CJIC.2018.179
Chinese J. Inorg. Chem., **2018**,**34**(8):1448-1454

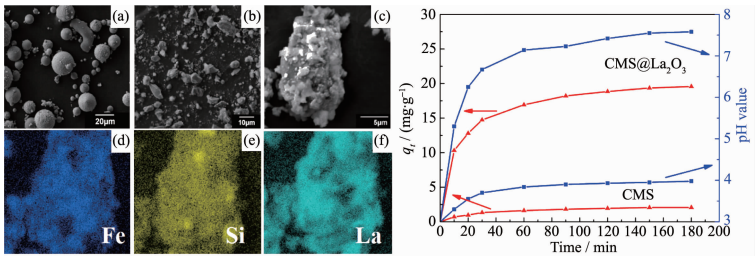


Two polymers show novel chain-like structure formed by $[Fe(CN)_6]^{3-}$ ions bridging between the copper(Ⅱ) and lanthanide(Ⅲ) ions in a cis mode. The magnetic measurements reveal the predominant ferromagnetic interactions via the phenoxo bridges.

Synthesis and Phosphorus Adsorption of Coal-Fly-Ash Magnetic Adsorbents

LI Jian-Jun, DAN Hong-Bing, XIE Wei, Islam Nazrul, YANG Lu-Min, YE Xian-Kang, ZHU Jin-Bo

DOI:10.11862/CJIC.2018.181
Chinese J. Inorg. Chem., **2018**,**34**(8):1455-1462

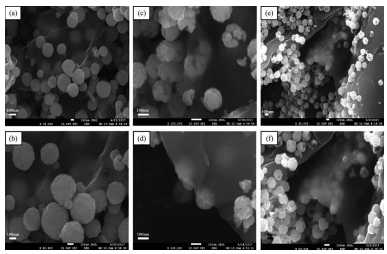


The obtained CMS@La_2O_3 exhibit a high P adsorption capacity of 19.50 mg·g^{-1} and could be easily magnetically separated from aqueous solution.

GO/Fe_3O_4/Organic Amine Composites: Preparation and Adsorption on Crystal Violet Dyes

KANG Xi-Yang, YANG Qing-Xiang, WANG Li-Jie, SONG Hai-Mei, ZHANG Yan, DONG Meng-Guo, CHEN Zhi-Jun

DOI:10.11862/CJIC.2018.172
Chinese J. Inorg. Chem., **2018**,**34**(8):1463-1469

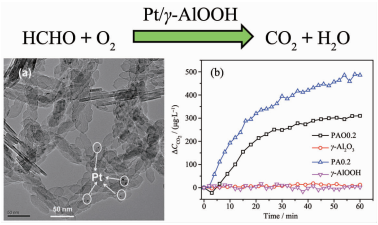


GO/Fe_3O_4/organic amines with different proportions composites were used as adsorbent for crystal violet dye. The best adsorption capacity of GO/Fe_3O_4 composites with 5∶1 miscibility of ethylenediamine and hexamethylenediamine is: mass concentration of the crystal violet =400 mg·L^{-1}, maximum adsorption=164.3 mg·L^{-1}.

Preparation and Catalytic Performance of Pt/γ-AlOOH Nanorods Catalytic Materials

XIAO Long-Ya, CHEN Nuo, DAI Zhi-Yin, WEN Shuai, WANG Jie, DENG Jun-Yang, NIE Long-Hui

DOI:10.11862/CJIC.2018.180
Chinese J. Inorg. Chem., **2018**,**34**(8):1470-1476

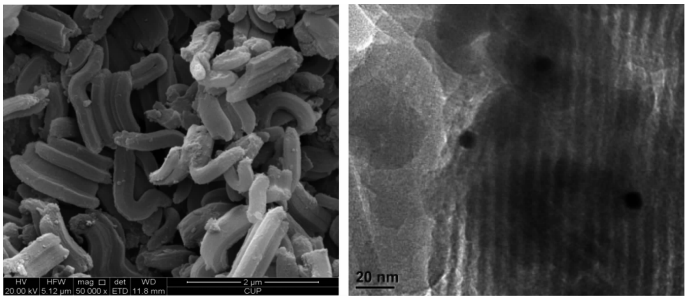


Formaldehyde (HCHO) can be effectively decomposited into CO_2 and H_2O over the Pt/γ-AlOOH catalyst.

Synthesis, Characterization and Catalytic Performance of MOR/SBA-15 Composite Zeolite

HAN Hai-Bo, WANG You-He, LI Kang, LEI Jie, LIU Dan-He, YAN Zi-Feng

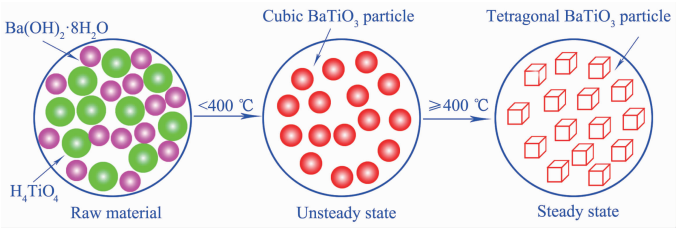
DOI:10.11862/CJIC.2018.173
Chinese J. Inorg. Chem., **2018**,**34**(8):1477-1482



Submicron Tetragonal Barium Titanate: Preparation by Solid State Reaction at Low Temperature and Crystal Phase Control

DING Hou-Yuan, SHANG Shao-Ming, QIN Gao-Min, ZHAO Bei-Bei, LIU Hao, GU Dan

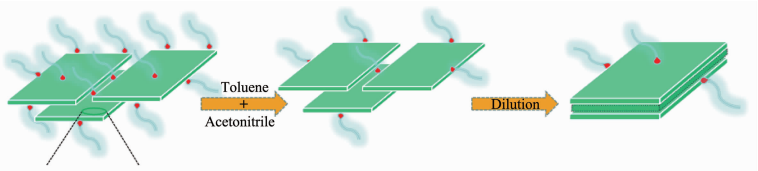
DOI:10.11862/CJIC.2018.171
Chinese J. Inorg. Chem., **2018**,**34**(8):1483-1488



Submicron tetragonal $BaTiO_3$ with well homogeneity and dispersion has been prepared by solid state reaction at low temperature of 400 ℃, which can effectively reduce energy consumption and waste liquid production.

Ligand-Assisted Aggregation Self-Assembly of $CH_3NH_3PbBr_3$ Nanoplatelets

HUANG Xiang, JING Qiang, LU Zhen-Da, REN Xiao-Ming

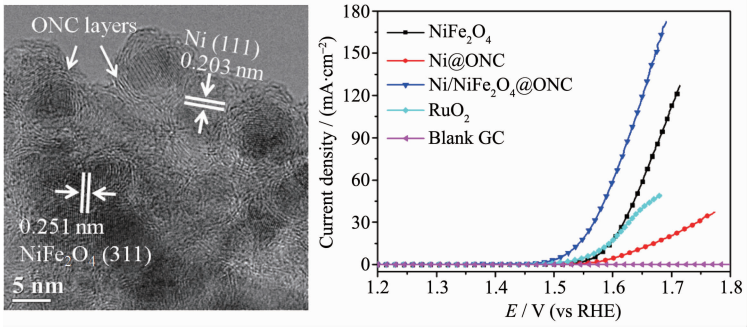


We have studied the aggregation self-assembly mechanism of $CH_3NH_3PbBr_3$ nanoplatelets induced by dilution, and elaborated the important role of oleylamine in the process of the aggregation self-assembly.

DOI:10.11862/CJIC.2018.184
Chinese J. Inorg. Chem., **2018**,**34**(8):1489-1493

$Ni/NiFe_2O_4$ Nanorods Encapsulated in Onion-like N-Doped Carbon Nanolayers as Efficient Oxygen Evolution Electrocatalyst

LIU Guang, YAO Rui, ZHAO Yong, WANG Mu-Heng, LI Na, Li Jin-Ping

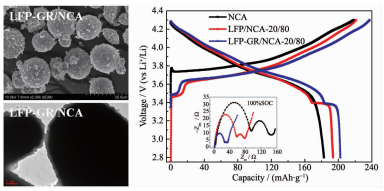


One strategy to synergistic effects: $Ni/NiFe_2O_4$@ONC hybrid electrocatalyst is synthesized and realized comprehensive promotions on water oxidation performance.

DOI:10.11862/CJIC.2018.186
Chinese J. Inorg. Chem., **2018**,**34**(8):1494-1500

Synthesis and Properties of $LiFePO_4$/$LiNi_{0.8}Co_{0.15}Al_{0.05}O_2$ Composite Cathode Material Modificated by Graphene for Lithium Ion Battery

ZHU Lei, JIA Di, CHEN Jun-Chao, JIANG Xiao-Biao, WU Yong-Ming, PENG Lu-Ming, TANG Wei-Ping

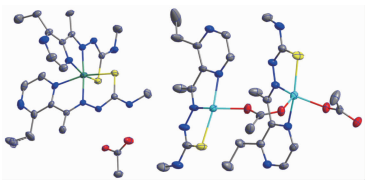


The good electrochemical performance can be attributed to the dense coating of $LiFePO_4$ nanoparticles on $LiNi_{0.8}Co_{0.15}Al_{0.05}O_2$ with the existence of graphene, which can inhibit side reactions, reduce polarization and facilitate electron transport.

DOI:10.11862/CJIC.2018.190
Chinese J. Inorg. Chem., **2018**,**34**(8):1501-1510

Ni(Ⅱ)/Zn(Ⅱ) Complexes with 1-(3-Ethylpyrazin-2-yl)ethylidene)-4-methylthiosemicarbazide: Crystal Structures and DNA-Binding Properties (English)

WANG Wan-Wan, WANG Yuan, YU Ya-Ping, SONG Yu-Fei, WU Wei-Na

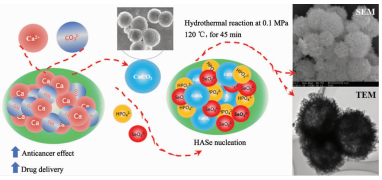


Two complexes [NiL(HL)](OAc) and [ZnL(OAc)]$_n$ with a thiosemicarbazone ligand bearing pyrazine unit have been synthesized and characterized. The fluorescence spectra indicate that the interactions of the complexes with DNA are stronger than that of free thiosemicarbazone ligand.

DOI:10.11862/CJIC.2018.196
Chinese J. Inorg. Chem., **2018**,**34**(8):1511-1516

Enhanced Antitumor Effect and Drug Delivery from Se Doped Hydroxyapatite Microspheres (English)

WANG Yan-Hua, HAO Hang, WU Jian-Xiong, YAO Yuan, QIN Na, HE Wen-Cong

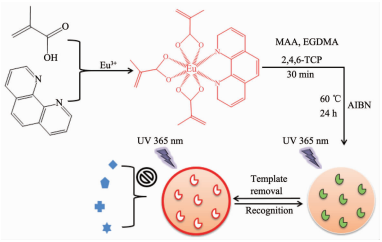


$CaCO_3$ template can be used to prepare HASe microspheres. They exhibited spherical shape with rough surfaces, presenting good drug delivery for curcumin and high antitumor effect on osteosarcoma.

DOI:10.11862/CJIC.2018.199
Chinese J. Inorg. Chem., **2018**,**34**(8):1517-1530

Synthesis of Fluorescent Molecularly Imprinted Polymers Based on Europium (Ⅲ) Complex for Selective Determination of Trace 2,4,6-Trichlorophenol (English)

HU Bo, GAO Lin, QIAO Yu, CHE Guang-Bo

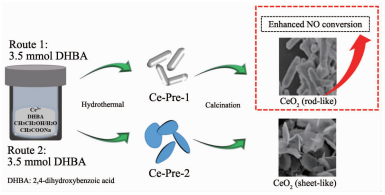


Lanthanides complex need to improve their thermal and chemical stability for adapting complex sample environment. Molecular imprinted technology can overcome these problems and improve the selectivity for target of polymers.

DOI:10.11862/CJIC.2018.169
Chinese J. Inorg. Chem., **2018**,**34**(8):1531-1537

CeO_2 in Different Morphologies with 2,4-Dihydroxybenzonic Acid as Auxiliary: Synthesis and Application in NH_3-SCR (English)

SU Hang, XU Man, ZHOU Shi-Jian, YANG Fu, KONG Yan

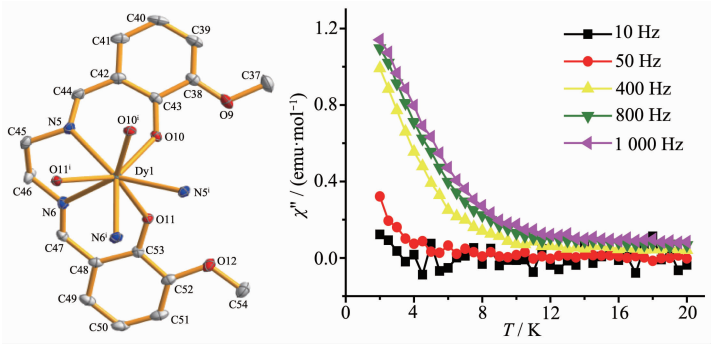


The rod-like and sheet-like CeO_2 were successfully synthesized with different amount of 2,4-dihydroxybenzonic acid (DHBA) as auxiliary. The rod-like CeO_2 manifested the better catalytic activity in NH_3-SCR.

DOI:10.11862/CJIC.2018.168
Chinese J. Inorg. Chem., **2018**,**34**(8):1538-1546

Mononuclear Dy(Ⅲ) and Ho(Ⅲ) Complexes with Slow Magnetic Relaxation Behavior (English)

LI Dong-Ping, WANG Qian, XIE Yi-Bu, ZHANG Jun, LIAN Qing-Yun, LI Yong-Xiu

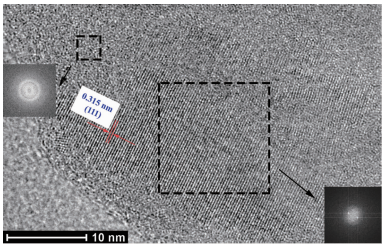


Mononuclear Dy(Ⅲ) and Ho(Ⅲ) complexes based on the H_2salen Schiff base ligand show SMMs behaviors with/without an applied field.

DOI:10.11862/CJIC.2018.170
Chinese J. Inorg. Chem., **2018**,**34**(8):1547-1554

Effect on Hydrogen Generation of Microstructures of Refined Si Powders in KOH Aqueous Solution (English)

LIAO Jian, WU Chao-Ling, CHEN Yun-Gui, ZHONG Shuang, LIAO Qian-Cheng, CUI Li-Yao

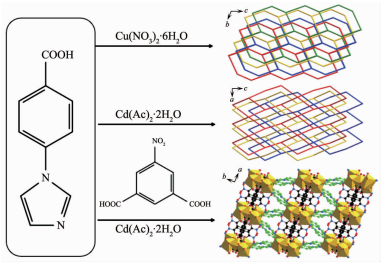


Both crystalline regions and amorphous regions are exhibited as labeled in the TEM image of the Si powders milled for 1 h, which demonstrates that the elongated ball milling time makes crystalline silicon to transform into partial amorphous phase.

DOI:10.11862/CJIC.2018.175
Chinese J. Inorg. Chem., **2018**,**34**(8):1555-1565

Structures and Properties of One Mixed-Ligand and Two Homoligand Coordination Polymers Based on 4-(Imidazol-1-yl)-benzoic Acid (English)

LI Tian-Tian, ZHENG Sheng-Run

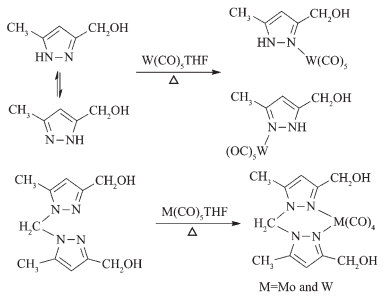


Three new coordination polymers based on 4-(imidazol-1-yl)-benzoic acid (HIBA) with or without 5-nitroisophthalic acid (H_2NPA) were constructed. They exhibit 3D 4- and 3-fold interpenetrating diamondoid frameworks, and 3D framework based on 1D Cd-carboxylate secondary building blocks, respectively.

DOI:10.11862/CJIC.2018.191
Chinese J. Inorg. Chem., **2018**,**34**(8):1566-1572

Syntheses and Catalytic Properties of Metal Carbonyl Derivatives with Hydroxymethyl Functionalized Pyrazoles (English)

LI Song, GAN Xian-Xue, TANG Liang-Fu

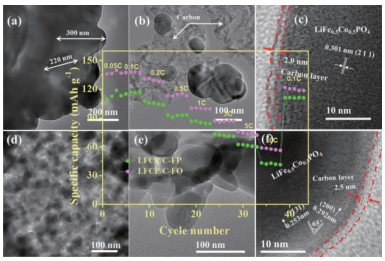


A series of group 6 metal carbonyl complexes with hydroxymethyl functionalized pyrazoles have been synthesized, which form 1D or 2D organometallic supramolecular architectures through O–H ··· O, N–H ··· O and O–H ··· OC–M hydrogen bonding interactions.

DOI:10.11862/CJIC.2018.183
Chinese J. Inorg. Chem., **2018**,**34**(8):1573-1580

Synthesis and Electrochemical Performances of Carbon Coated $LiFe_{0.5}Co_{0.5}PO_4$ Solid Solution as Cathode Materials (English)

ZHONG Yan-Jun, WU Zhen-Guo, TIAN Hai, GUO Xiao-Dong, ZHONG Ben-He, WANG Xin-Long



Carbon coated $LiFe_{0.5}Co_{0.5}PO_4$ solid solution synthesized via a facile rheological phase method using $FeC_2O_4 \cdot 2H_2O$ as iron source exhibits excellent electrochemical performance due to its small average particle size, high BET specific surface area and appealing carbon coating effect.

DOI:10.11862/CJIC.2018.192
Chinese J. Inorg. Chem., **2018**,**34**(8):1581-1589