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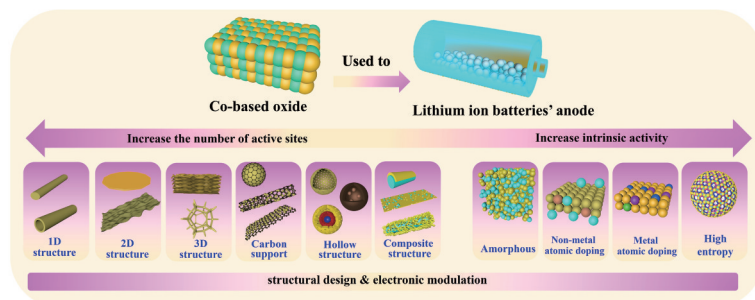
DOI:10.11862/CJIC.2022.178

Chinese J. Inorg. Chem., **2022**,**38**(9):1707-1715

Reviews

Research Progress on Structural Design and Intrinsic Activity Modulation of Co-Based Oxides for Lithium-Ion Batteries

WANG Xiong, WANG Rui, KANG Qiao-Ling, LI Dong-Yun, XU Yang, GE Hong-Liang, GAO Feng, LU Qing-Yi



This review focuses on the improvement of Co-based oxides toward lithium storage process from the perspective of structural design and composition modulation. The structural design is introduced to increase the abundance of active sites, while the composition modulation is encouraged to increase the intrinsic activity toward intrinsically boosted lithium storage.

Research Progress of Electrochromic Materials Based on Fe(II) Coordination Polymers

SHU Min, LIU Hai-Tao, PENG Sheng, WU Zhi-Rong, ZHANG Rui, LI Feng, LIU Jian



The research progress of electrochromic materials of ferric coordination polymers is reviewed, mainly from the aspects of arm shape, type, and spacer group of organic ligands.

DOI:10.11862/CJIC.2022.182

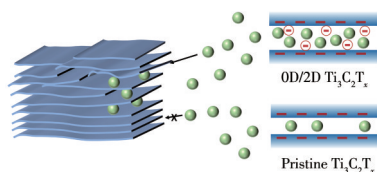
Chinese J. Inorg. Chem., **2022**,**38**(9):1690-1706

Synthesis and Supercapacitor Performances of 0D/2D MXene Composite Membrane

WANG Chen, LIU Qi-Hang, QI Chen-Yang,
WANG Cong-Yu, ZHAO Xiao-Li,
YANG Xiao-Wei

DOI:10.11862/CJIC.2022.178

Chinese J. Inorg. Chem., **2022**, *38*(9):1707-1715



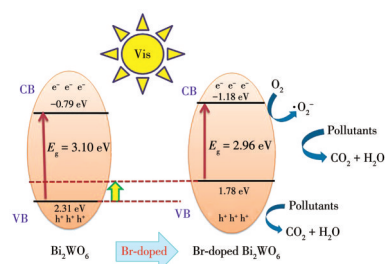
A 0D/2D composite $\text{Ti}_3\text{C}_2\text{T}_x$ MXene was prepared by hydrothermal synthesis to alleviate the restacking problem of MXene nanosheets. Enhanced capacitance and rate performances were achieved, ascribing to the increased ion absorption sites and extensive interlayer spacing from quantum dots and shortened ion pathway resulted from reduced nanosheet sizes.

Preparation and Photocatalytic Degradation Performance of Br-Doped Bi_2WO_6 Microsphere

ZHOU Xin, ZHANG Zhi, CHEN Piao,
YANG Shui-Jin, YANG Yun

DOI:10.11862/CJIC.2022.177

Chinese J. Inorg. Chem., **2022**, *38*(9):1716-1728



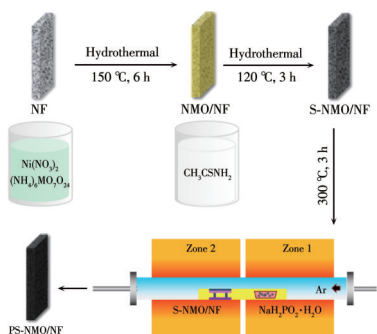
A Br-doped Bi_2WO_6 photocatalyst with good visible-light activity and stability was prepared. The photocatalytic mechanism of Br-doped Bi_2WO_6 was proposed.

Surface Sulfuration and Phosphorization Boosting Hydrogen Evolution Performance of Nickel Molybdate

JIANG Ren-Zheng, CHANG Jun-Hua,
GAO Ying, ZHANG Jin-Feng, LI Meng-Jiang,
XIE Ying-Peng

DOI:10.11862/CJIC.2022.172

Chinese J. Inorg. Chem., **2022**, *38*(9):1729-1738



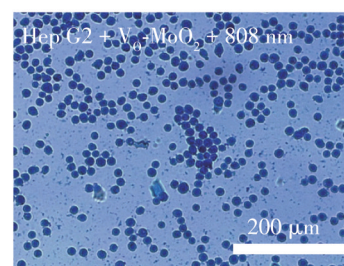
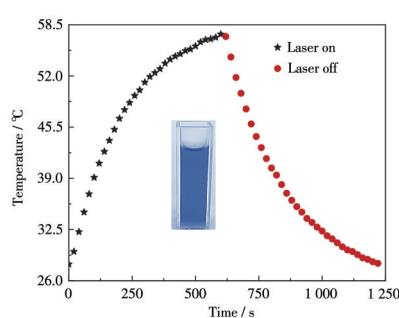
Surface sulfuration and phosphorization endow NiMoO_4 arrays on Ni foam with coral-like spheres structure and rich-in heterogeneous interfaces, resulting in highly efficient hydrogen evolution reaction (HER) performance.

Near-Infrared Photothermal Conversion Agent Oxygen-Deficient Molybdenum Dioxide: Preparation and Application in Photothermal Therapy

WANG Zeng-Xue, LIU Yan, ZHAO Pan,
ZHANG Xun-Di, YANG Yi-Ming, SUN Peng,
ZHANG Xiu-Yun, FENG Yu, ZHENG Ting-Ting,
CHEN Chen, LI Wei

DOI:10.11862/CJIC.2022.195

Chinese J. Inorg. Chem., **2022**, *38*(9):1739-1751

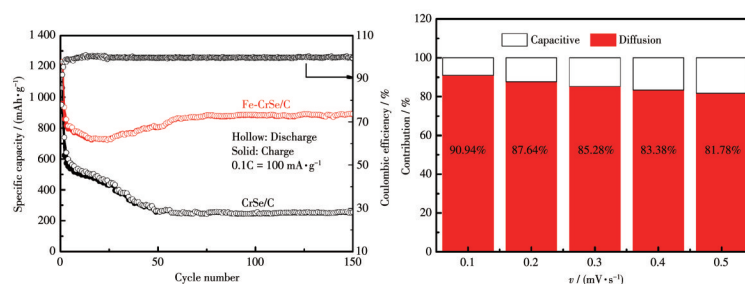


As-prepared oxygen-deficient molybdenum dioxide nanoparticles possessed excellent photothermal property and photothermal stability, with a photothermal conversion rate of 67.9%, which were proved to be observably effective in killing hepatoma cells.

Preparation and Lithium Storage Properties of Fe-CrSe/C Anode Material Derived from Bimetallic Organic Framework

CHEN Xiu-Dong, JIAN Jia-Qin, YAN Ping, LIU Pei-Fang, CAO Xiao-Hua, LIU Jin-Hang

DOI:10.11862/CJIC.2022.198
Chinese J. Inorg. Chem., 2022,38(9):1752-1758

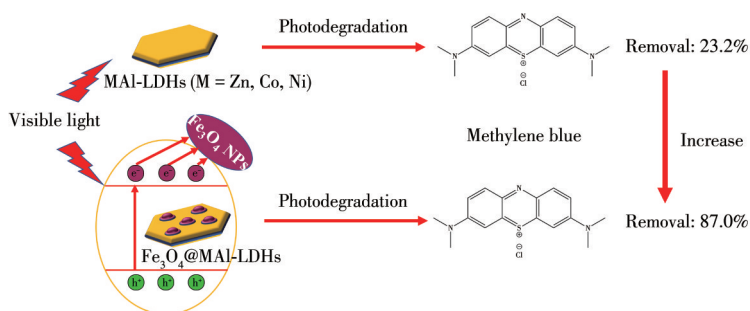


The precursor of a bimetallic organic framework (Fe-Cr-MOF) was synthesized by microwave method, and then the high-temperature selenization was successfully used to prepare nanoparticle-like precursors Fe-CrSe/C which exhibited excellent electrochemical performance as an anode for Li-ion batteries.

Photocatalytic Degradation of Methylene Blue by Fe₃O₄@MAI-Layered Double Hydroxides (M=Zn, Co, Ni) Composite: Performance, Kinetics, and Mechanism

NI Ti-Tong, MENG Yue, KOSO Aoki, YAO Yi-Yang, TANG Hao-Dong, CHEN Ai-Min, XIA Sheng-Jie

DOI:10.11862/CJIC.2022.171
Chinese J. Inorg. Chem., 2022,38(9):1759-1770

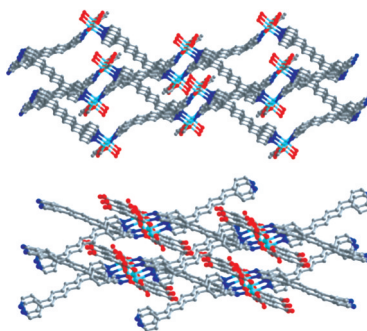


The complexing of Fe₃O₄ and layered double hydroxides (LDHs) promotes the transfer of photogenerated carriers in Fe₃O₄/LDHs and inhibits the recombination of electrons and holes, which makes more electrons and holes used for photocatalytic methylene blue degradation.

Synthesis, Structure, and Luminescence Properties of Coordination Polymers Containing Conjugated Triene Pyridine Ligands

WANG Xin, WANG Meng-Fan, ZHANG Min-Jie, CAO Chen, NIU Zheng, LANG Jian-Ping

DOI:10.11862/CJIC.2022.197
Chinese J. Inorg. Chem., 2022,38(9):1771-1780

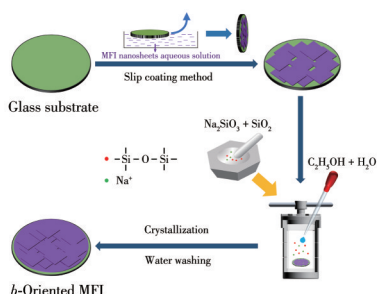


Solvothermal reactions of Cd (II) salts with 1,6-bis(4-pyridyl)-1,3,5-hexatriene (bphte) in the presence of two auxiliary carboxylic acids afforded two coordination polymers. Complex **1** displays a 3D architecture with an *spl* topological structure, while complex **2** also shows a 3D framework constructed by bridging 1D chains via bphte ligands. Complex **2** can work as a luminescence probe to efficiently detect Fe³⁺ ions in an aqueous solution via a luminescence quenching method.

Preparation of MFI Zeolite Nanosheets and *b*-Oriented MFI Zeolite Film

SONG Wen-Sen, Hammad Saulat, YAN Tao, LÜ Jin-Yin, YANG Jian-Hua, LU Jin-Ming, ZHANG Yan

DOI:10.11862/CJIC.2022.159
Chinese J. Inorg. Chem., 2022,38(9):1781-1789



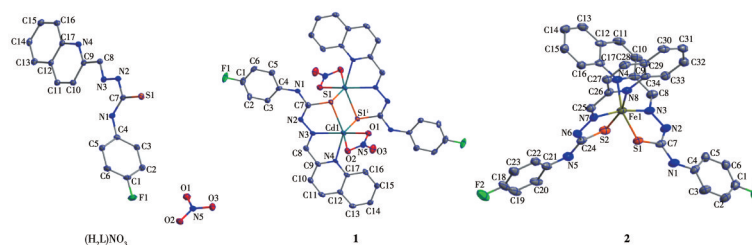
A thin and *b*-oriented MFI film with a thickness of about 200 nm on glass substrate was fabricated with an organic template-free secondary growth of MFI nanosheets layer, demonstrating a facile and environmentally friendly approach for fabricating thin zeolite films.

Synthesis, Crystal Structures, and DNA-Binding Properties of Cd(II)/Fe(III) Complexes with 4-Fluorophenyl-*N*-(quinolin-2-ylmethylene)thiosemicarbazide (English)

LI Xiao-Hong, WU Xian-Wei, WANG Yuan, WU Wei-Na

DOI:10.11862/CJIC.2022.176

Chinese J. Inorg. Chem., **2022**,**38**(9):1790-1798



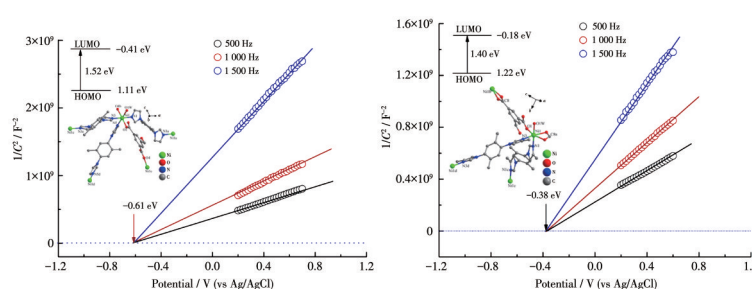
Two complexes, $[\text{Cd}_2(\text{L})_2(\text{NO}_3)_2]$ (**1**) and $[\text{Fe}(\text{L})_2]\text{NO}_3 \cdot 3\text{CH}_3\text{OH}$ (**2**) with a thiosemicarbazone ligand bearing quinoline unit, have been synthesized and characterized. The spectra and viscosity measurements indicate that the interaction of complex **2** with DNA is stronger than those of thiosemicarbazone ligand and complex **1**.

Semiconductive Ni-MOFs Based on 5-(Hydroxymethyl) Isophthalic Acid and Imidazole Derivatives: Synthesis, Crystal Structures, and Photocatalytic Properties (English)

XU Zhong-Xuan, SHI Ming-Feng, BAI Xu-Ling, YUAN Ting-Ting

DOI:10.11862/CJIC.2022.175

Chinese J. Inorg. Chem., **2022**,**38**(9):1799-1807



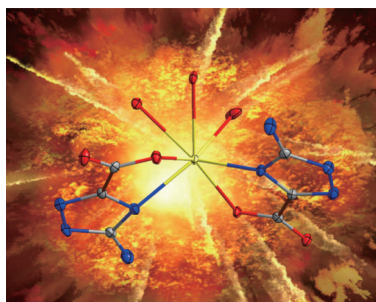
Ni-based metal-organic frameworks (Ni-MOFs) **1** and **2** belong to typical n-type semiconductors with low resistance in charge transportation, indicating good catalytic activity in the degradation of methylene blue.

Synthesis, Crystal Structure, and Catalytic Performance of a Cd(II) Complex Based on 3-Carboxyl-5-amino-1,2,4-triazole (English)

GAO Xue-Zhi, SONG Huan, LI Bing, WANG Rui, ZHU Xiao-Shuang, TIAN Xiao-Yan

DOI:10.11862/CJIC.2022.193

Chinese J. Inorg. Chem., **2022**,**38**(9):1808-1816



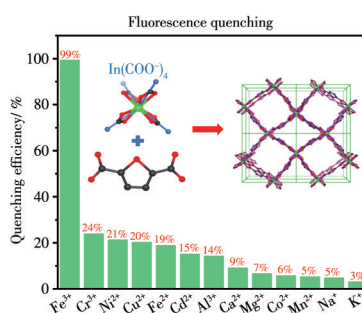
The energetic complex $[\text{Cd}(\text{Hatzc})_2(\text{H}_2\text{O})]$ (**LH1**) (H_2atzc =3-carboxyl-5-amino-1,2,4-triazole) exhibits a 1D chain, which is linked by hydrogen-bonding interactions to give a 3D supramolecular architecture. Differential scanning calorimetry experiment reveals that **LH1** can show good catalytic effect on the thermal decomposition of ammonium perchlorate.

An Interpenetrated Anionic In(III) Metal - Organic Framework for Selective Sensing of Fe^{3+} in Water

Alamgir, ZHAO Yan-Long, Khalid Talha, XIE Ya-Bo, WANG Lu, XIE Lin-Hua, ZHANG Xin, LI Jian-Rong

DOI:10.11862/CJIC.2022.174

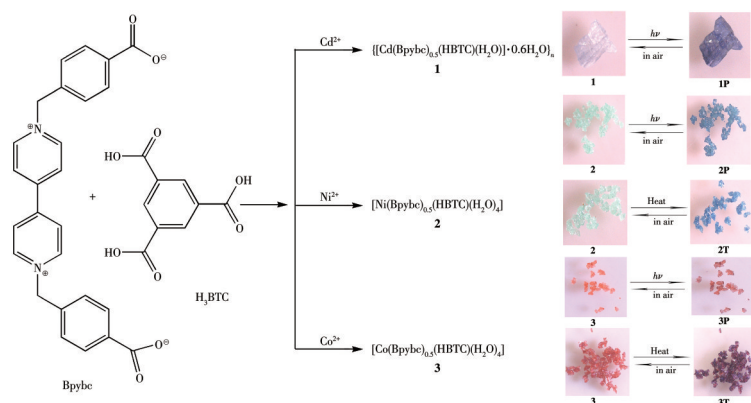
Chinese J. Inorg. Chem., **2022**,**38**(9):1817-1824



Selective detection of toxic Fe^{3+} ion in water has been realized by an indium-based metal-organic framework material exhibiting doubly interpenetrated diamondoid net and strong fluorescence.

Three Multiple-Responsive Complexes Based on a Carboxybenzyl Viologen Ligand (English)

LIU Jin-Jian, LIU Na, LU Yi-Wei



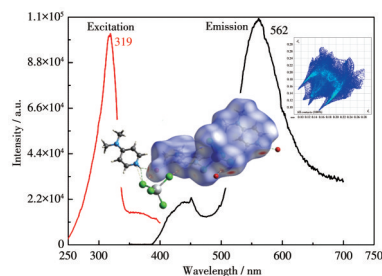
DOI:10.11862/CJIC.2022.184

Chinese J. Inorg. Chem., **2022**,**38**(9):1825-1833

Three complexes based on a carboxybenzyl viologen ligand have been prepared, which exhibit different structures and chromic properties.

Crystal Structure, Spectroscopic Characterization, and Optical Properties of the Hybrid Compound $(\text{C}_7\text{H}_{11}\text{N}_2)_2[\text{CdCl}_4] \cdot 0.5\text{H}_2\text{O}$ (English)

Fatma Garci, Axel Klein, Hammouda Chebbi, Mohamed Faouzi Zid

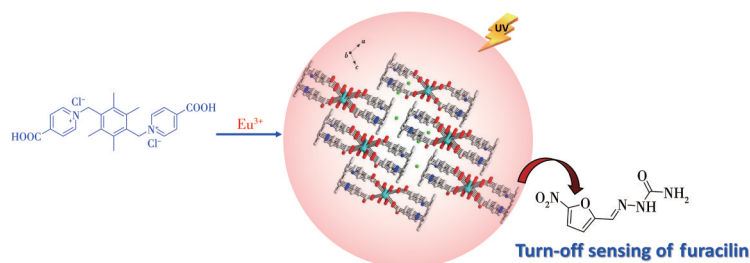


DOI:10.11862/CJIC.2022.183

Chinese J. Inorg. Chem., **2022**,**38**(9):1834-1842

Crystal Structure of Eu (III) Coordination Polymer Based on Zwitterionic Ligand and Detection of Furacilin (English)

WANG Kai-Min, LI Li-Feng, SHI Ming-Feng, YE Yan-Qing, WANG Yu-Na, GUO Jin-Rong, TANG Huai-Jun, MA Yu-Lu



DOI:10.11862/CJIC.2022.196

Chinese J. Inorg. Chem., **2022**,**38**(9):1843-1852

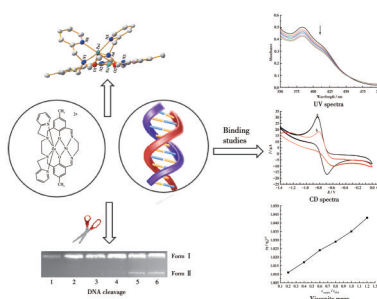
A novel coordination polymer, $\{[\text{Eu}(\text{L})_2(\text{H}_2\text{O})_4]\text{Cl}_3 \cdot 2\text{H}_2\text{O}\}_n$ (**1**) was synthesized and was utilized as a chemosensor to detect various common antibiotics to find that the complex can exhibit high selectivity, sensitivity and recyclability for furacilin molecules in aqueous phases.

Synthesis, Crystal Structure, and DNA Binding/Cleavage Properties of a Macrocyclic Heterobinuclear Zn(II)-Ni(II) Complex with Pyridylmethyl Pendant-Arms (English)

DING Pei-Pei, LI Ming, WU Yu, YAN Jun-Tao, WANG Chun-Lei, WANG Yang, MAO Jia-Wei

DOI:10.11862/CJIC.2022.199

Chinese J. Inorg. Chem., **2022**,**38**(9):1853-1861



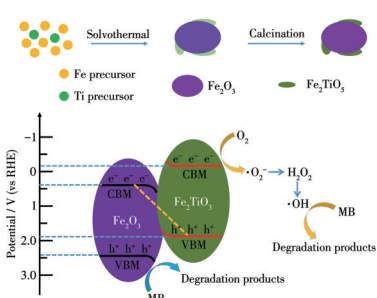
Herein we report the preparation and crystal structure of heterobinuclear Zn(II)-Ni(II) complex with pyridylmethyl pendant arms. The complex has been characterized by various techniques. The macrocyclic complex had a strong binding ability with CT-DNA and an efficient cleavage activity toward pBR322 DNA.

One-Pot Preparation of Fe₂O₃/Fe₂TiO₅ S - Scheme Heterojunction Photocatalyst for Highly Efficient Degradation of Organic Pollution (English)

CHANG Fang, ZHAO Ying-Jie, SHOU You-Ping, ZHANG Lu, WANG Jiang-Nan, SHI Ting-Ting

DOI:10.11862/CJIC.2022.173

Chinese J. Inorg. Chem., **2022**,**38**(9):1862-1870



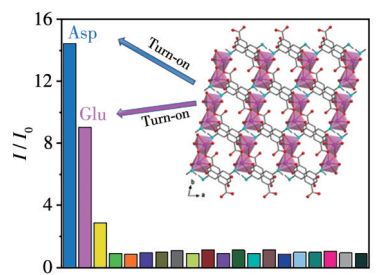
Fe₂O₃/Fe₂TiO₅ composite has been constructed by a one-pot solvothermal method. Benefiting from the formed S-scheme heterojunction, the performance of photocatalytic degradation towards MB is significantly improved.

Synthesis, Crystal Structure, and Detection of Acidic Amino Acids of a Cd(II) Metal-Organic Framework Based on 5-((Naphthalen-1-ylmethyl)amino) isophthalic Acid (English)

ZHANG Ling-Wen, LIU Shu-Qin, ZHANG Pei-Pei, NI Ai-Yun, ZHANG Jian-Jun

DOI:10.11862/CJIC.2022.181

Chinese J. Inorg. Chem., **2022**,**38**(9):1871-1877



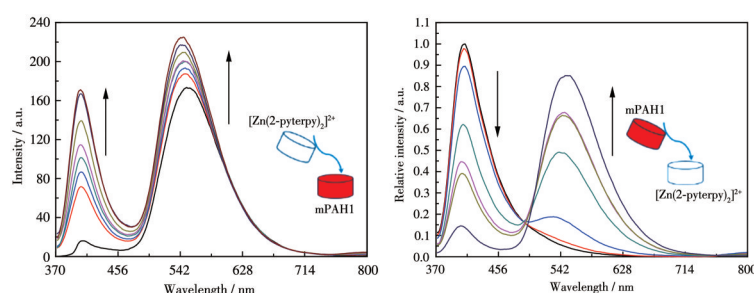
A Cd-MOF that can selectively detect acidic amino acids (aspartic acid and glutamic acid) among 20 common amino acids.

Zinc(II) and Cadmium(II) Complexes Derived from 4'-(2-Pyridyl)-2,2':6',2''-terpyridine: Crystal Structures and Fluorescence Property (English)

YUAN Ya-Nan, WANG Zi-Xuan, WANG Zhao-Yang, SONG Yao-Yao, WANG Qing-Lun, YANG Chun

DOI:10.11862/CJIC.2022.194

Chinese J. Inorg. Chem., **2022**,**38**(9):1878-1886



The fluorescence of the mixed solution at 556 nm enhanced due to the partial protonation of complex **1** by mPAH1. The fluorescence of complex **1** at 408 nm was quenched via inner filter effect of mPAH1.