

无机化学学报

2023 年

第 39 卷

第 4 期

目次

论 文

- 2,7-萘二磺酸阴离子导向五元瓜环基超分子自组装体的制备及其荧光检测性能
..... 肖 帅 陈开雯 张明慧 陈 凯 葛伟伟(585)
- 一个基于 3-(3',5'-二羧基苯基)-6-羧基吡啶的 Co-MOF 的合成、结构及质子传导性能
..... 刘厚亭 丁 利 周传聪 邹会琪 卢 静 王素娜 李允伍(596)
- Co 金属有机骨架模板制备 NiCo 水滑石/泡沫镍复合材料及电容性能
..... 王晓亮 张 多 石雪梅 乔心页
程 焱 赵浩男 常雷明 于振秋 黄传辉 杨绍斌(607)
- 二氧化锰纳米颗粒调控的紫外可见吸收-荧光双通道传感器的构建及 *D*-青霉胺的检测
..... 程 莹 柳夷冰 赵卉垚 南鑫达
范小青 李生玲 丁莉峰 王 琦 牛宇岚(617)
- 硼、磷共掺杂铁钴双金属材料的制备及其电催化析氧性能
..... 翟好英 邹自力 李明宇 张理元 周文俊(627)
- 助剂 P 对 Ni-Al-O 催化剂乙烷氧化脱氢性能的影响
..... 李 东 宋佳欣 孔 莲 赵 震(637)
- 两个具有 Sn_4O_8 簇结构的二丁基锡芳氧乙酸酯配合物的合成、晶体结构及除草活性
..... 谭宇星 冯泳兰 张复兴 庾江喜 蒋伍玖 邝代治(649)
- EU-1 分子筛的合成及其在正己烷异构化反应中的催化性能
..... 张 通 史 静 薛招腾 毛东森 滕加伟(659)
- Fe 掺杂 CuS 纳米颗粒的合成及其在光热/化学动力学联合治疗中的应用
..... 孙 博 赵 宁 徐 欣 姜 来 陆 峰 范曲立 黄 维(671)
- 基于席夫碱配体的锰羧基配合物可见光诱导释放一氧化碳性能
..... 王雪梅 张俊蝶 金 晶 李卓芹 马明慧 汪慧云 姜秀娟 刘小明(680)
- II 型 $\text{TiO}_2/\text{g-C}_3\text{N}_4$ 异质结的构筑促进高效光催化 U(VI) 还原
..... 栗阳藩 吴林珍 李依林 李 蕊
何 攀 张 玲 张友魁 雷洁红 段 涛(689)
- $\text{Bi}_2\text{Ti}_2\text{O}_7/\text{TiO}_2/\text{Bi}_4\text{Ti}_3\text{O}_{12}$ 多异质结的构筑及其增强的可见光催化性能
..... 曹铁平 李跃军 孙大伟(699)
- 丙二酰二脒衍生的二氧化二钼(VI)配合物的合成、表征和晶体结构(英文)
..... Sunshine Dominic Kurbah(709)
- 用于电卡制冷的聚(偏氟乙烯-三氟乙烯)(55/45)/0.75BiFeO₃-0.25BaTiO₃ 复合材料的制备及热导率增强(英文)
..... 朱余红 初宝进(716)
- 磁性壳聚糖/ Fe_3O_4 /氧化石墨烯吸附剂的制备及其多染料吸附性能(英文)
..... 高 明 张同庆 李建军 胡嘉琪 金明滢 赵 岩 王洪阳 薛长国(723)

高稳定性黑米碳点的绿色合成及其细胞成像应用(英文)	张清梅 张路鹏 郑开文 杨国庆 何松杰 杜秀娟 陈峰华 李 冰(735)
异金属磷酸铀的合成、晶体结构和荧光性质(英文)	侯晓敏 唐斯甫(746)
有序 Au/Ag 纳米碗阵列的简易制备及其表面增强拉曼散射性能(英文)	饶艳英 汪炳贵 李章良 陈学文 丘丽蓉 徐 宏 黄建辉(753)
利用小角度 X 射线散射测定八水氧氯化锆中锆结构(英文)	张智钰 宋 静 孙宏骞 李云鹏 兰 昊 齐 涛 田亮亮(765)
四种同构镧系金属有机框架的合成、结构和荧光传感 Fe ³⁺ 和盐酸环丙沙星(英文)	柴红梅 闫佳伶 孙雪花 张钢强 任宜霞 高楼军(775)

CHINESE JOURNAL OF INORGANIC CHEMISTRY

Vol.39

No.4

Apr. 2023

CONTENTS

Cover



Synthesis and fluorescence sensing properties of cucurbit[5]uril-based supramolecular self-assemblies incorporating naphthalene-2,7-disulphonate as the structure-directing agent

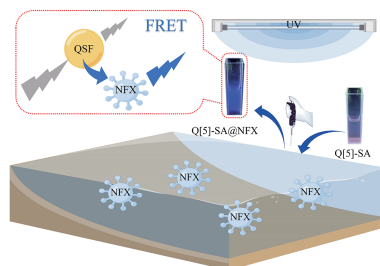
XIAO Shuai, CHEN Kai-Wen, ZHANG Ming-Hui, CHEN Kai, GE Wei-Wei

DOI:10.11862/CJIC.2023.037

Chinese J. Inorg. Chem., **2023**,39(4):585-595

Articles

Synthesis and fluorescence sensing properties of cucurbit[5]uril-based supramolecular self-assemblies incorporating naphthalene-2,7-disulphonate as the structure-directing agent



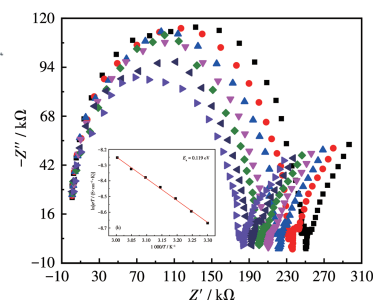
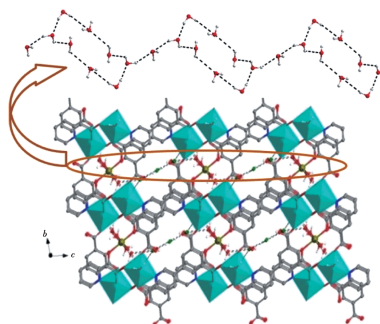
Four cucurbit[5]uril-based supramolecular self-assemblies (Q[5]-SA) have been synthesized and characterized. The fluorescence sensing investigation indicates that self-assemblies **1** and **4** could both function as ratiometric fluorescence sensors for norfloxacin (NFX).

XIAO Shuai, CHEN Kai-Wen,
ZHANG Ming-Hui, CHEN Kai, GE Wei-Wei

DOI:10.11862/CJIC.2023.037

Chinese J. Inorg. Chem., **2023**,39(4):585-595

Synthesis, structure, and proton conductivity of a Co-MOF based on 3-(3',5'-dicarboxyphenyl)-6-carboxylic pyridine



LIU Hou-Ting, DING Li, ZHOU Chuan-Cong,
ZOU Hui-Qi, LU Jing, WANG Su-Na, LI Yun-Wu

DOI:10.11862/CJIC.2023.027

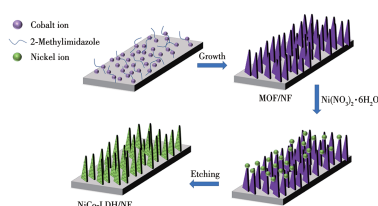
Chinese J. Inorg. Chem., **2023**,39(4):596-606

Preparation by Co metal-organic framework template and capacitive properties of NiCo-layered double hydroxide/nickel foam composites

WANG Xiao-Liang, ZHANG Duo, SHI Xue-Mei, QIAO Xin-Ye, CHENG Yan, ZHAO Hao-Nan, CHANG Lei-Ming, YU Zhen-Qiu, HUANG Chuan-Hui, YANG Shao-Bin

DOI:10.11862/CJIC.2023.036

Chinese J. Inorg. Chem., **2023**,**39**(4):607-616



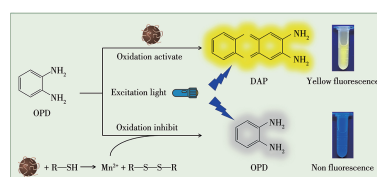
Co - MOF nanosheets grown on nickel foam (NF) as sacrificial templates were etched with Ni ion solution to obtain NiCo layered double hydroxide (LDH) with a structure of a primary nano-sheet array and a secondary nano-sheet fold on the surface of the primary nano-sheet (NiCo-LDH/NF). NiCo-LDH/NF exhibited high supercapacitor performance.

Construction of MnO₂ nanoparticles mediated UV-visible absorption-fluorescence dual channel sensor and detection of *D*-penicillamine

CHENG Ying, LIU Yi-Bing, ZHAO Hui-Yao, NAN Xin-Da, FAN Xiao-Qing, LI Sheng-Ling, DING Li-Feng, WANG Qi, NIU Yu-Lan

DOI:10.11862/CJIC.2023.032

Chinese J. Inorg. Chem., **2023**,**39**(4):617-626



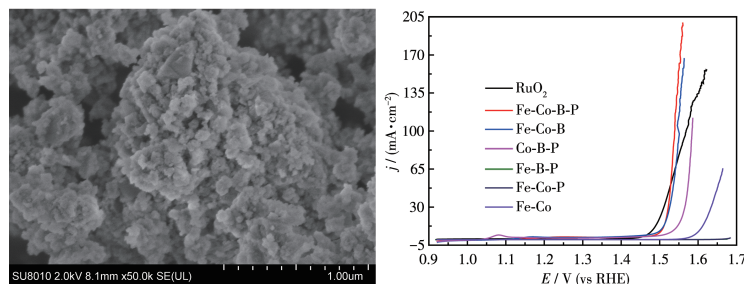
Through MnO₂ nanoparticles mediated catalytic oxidation, *o*-phenylenediamine (OPD) was converted into 2,3-diaminophenazine (DAP) with UV-visible absorption and fluorescence emission. DPA decomposed MnO₂ nanoparticles that inhibited the above process, making UV-visible absorption and fluorescence signal decreased.

Synthesis of boron and phosphorus co-doped Fe-Co bimetallic materials for electrocatalytic oxygen evolution

ZHAI Hao-Ying, ZOU Zi-Li, LI Ming-Yu, ZHANG Li-Yuan, ZHOU Wen-Jun

DOI:10.11862/CJIC.2023.044

Chinese J. Inorg. Chem., **2023**,**39**(4):627-636

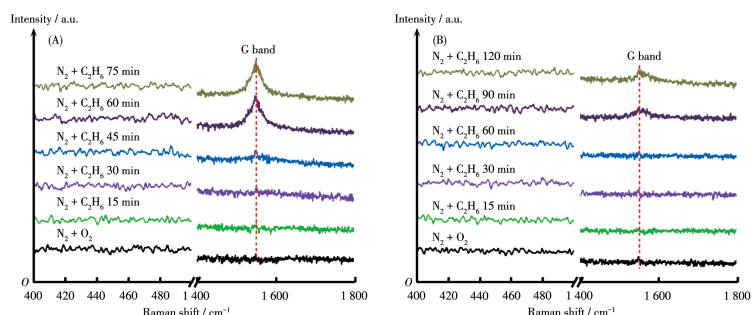


Boron and phosphorus co-doped Fe-Co (Fe-Co-B-P) electrocatalyst was synthesized by one-step hydrothermal method. As-prepared Fe-Co-B-P showed good oxygen evolution activity due to the synergistic effect between Fe-Co bimetal and B-P-nonmetal, which promotes electron transfer and improves its electrical conductivity.

Effect of P promoter on the oxidative dehydrogenation of ethane over Ni-Al-O catalysts

LI Dong, SONG Jia-Xin, KONG Lian, ZHAO Zhen

DOI:10.11862/CJIC.2023.023
Chinese J. Inorg. Chem., **2023**,**39**(4):637-648

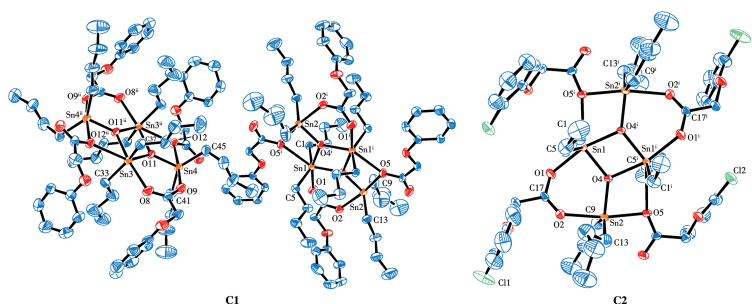


The addition of additive P can effectively regulate the particle size and carbon resistance.

Synthesis, crystal structure, and herbicidal activity of two tetranuclear di(*n*-butyl)tin aryloxyacetates complexes with Sn₄O₈ cluster

TAN Yu-Xing, FENG Yong-Lan, ZHANG Fu-Xing, YU Jiang-Xi, JIANG Wu-Jiu, KUANG Dai-Zhi

DOI:10.11862/CJIC.2023.031
Chinese J. Inorg. Chem., **2023**,**39**(4):649-658

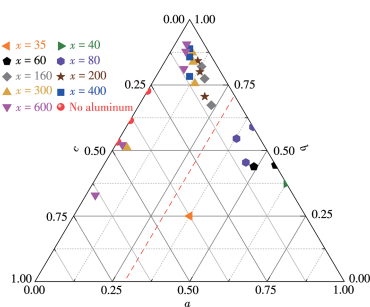


Two Sn₄O₈ cluster di(*n*-butyl)tin aryloxyacetates complexes with plant growth regulation activity were studied.

Synthesis and catalytic activity in *n*-hexane isomerization of EU-1 zeolite

ZHANG Tong, SHI Jing, XUE Zhao-Teng, MAO Dong-Sen, TENG Jia-Wei

DOI:10.11862/CJIC.2023.038
Chinese J. Inorg. Chem., **2023**,**39**(4):659-670

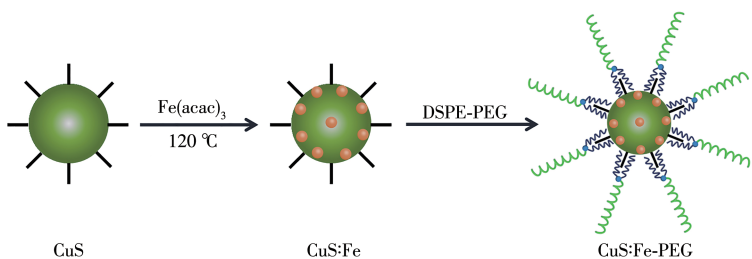


The synthesis area of pure phase EU-1 molecular sieve was successfully expanded by seed crystal, and the effect of aluminum source, the amount of template and seed on the crystallinity, morphology and size of EU-1 zeolite were investigated.

Synthesis of Fe-doped CuS nanoparticles for the combination of photothermal and chemodynamic therapy

SUN Bo, ZHAO Ning, XU Xin, JIANG Lai, LU Feng, FAN Qu-Li, HUANG Wei

DOI:10.11862/CJIC.2023.026
Chinese J. Inorg. Chem., **2023**,**39**(4):671-679



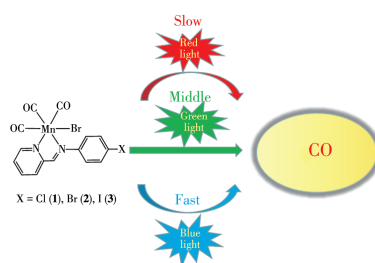
A cation exchange approach was developed for the synthesis of Fe-doped CuS nanoparticles. After PEGylation (PEG=poly(ethylene glycol)), these nanoparticles with significantly improved •OH generation efficiency and high photothermal performance, can be used for the combination of photothermal and chemodynamic therapy.

Visible light-induced CO-release from manganese carbonyl complexes based on Schiff base ligand

WANG Xue-Mei, ZHANG Jun-Die, JIN Jing,
LI Zhuo-Qin, MA Ming-Hui, WANG Hui-Yun,
JIANG Xiu-Juan, LIU Xiao-Ming

DOI:10.11862/CJIC.2023.033

Chinese J. Inorg. Chem., **2023**,**39**(4):680-688



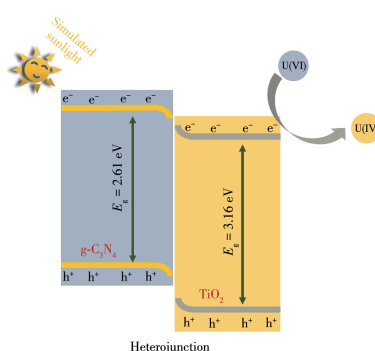
The manganese carbonyl complexes based on Schiff base ligand can decompose and release CO under different visible light, and the CO release rate of the complexes depends on the selected light source and the structure of the ligand.

Construction of type- II TiO₂/g-C₃N₄ heterojunction promoting efficient photocatalytic reduction of U(VI)

SU Yang-Fan, WU Lin-Zhen, LI Yi-Lin, LI Rui,
HE Pan, ZHANG Ling, ZHANG You-Kui,
LEI Jie-Hong, DUAN Tao

DOI:10.11862/CJIC.2023.029

Chinese J. Inorg. Chem., **2023**,**39**(4):689-698



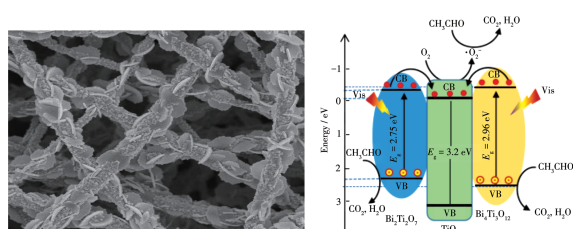
A type- II heterojunction photocatalytic material TiO₂/g - C₃N₄ was constructed based on g - C₃N₄ and TiO₂, which promotes the transfer and separation of electrons produced by photoexcitation, and realizes the photocatalytic reduction of uranium under visible light.

Fabrication of Bi₂Ti₂O₇/TiO₂/Bi₄Ti₃O₁₂ multi-heterojunction and the enhanced visible photocatalytic performance

CAO Tie-Ping, LI Yue-Jun, SUN Da-Wei

DOI:10.11862/CJIC.2023.030

Chinese J. Inorg. Chem., **2023**,**39**(4):699-708



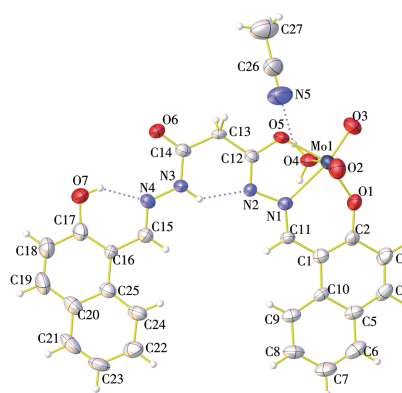
The Bi₂Ti₂O₇/TiO₂/Bi₄Ti₃O₁₂ multi-heterojunction were synthesized via hydrothermal method, suggesting that the photocatalysts can efficiently degrade CH₃CHO under visible light conditions.

Dioxidomolybdenum (VI) complex derived from malonoyldihydrazones: Synthesis, characterization, and crystal structure (English)

Sunshine Dominic Kurbah

DOI:10.11862/CJIC.2023.028

Chinese J. Inorg. Chem., **2023**,**39**(4):709-715

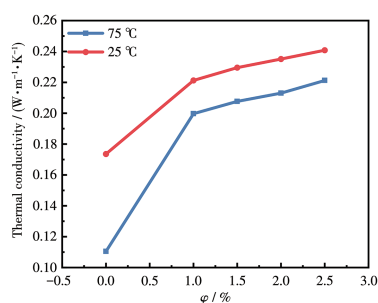


Preparation and enhanced thermal conductivity of poly(vinylidene fluoride - trifluoroethylene) (55/45)/0.75BiFeO₃-0.25BaTiO₃ composite for electrocaloric application (English)

ZHU Yu-Hong, CHU Bao-Jin

DOI:10.11862/CJIC.2023.035

Chinese J. Inorg. Chem., **2023**,**39**(4):716-722



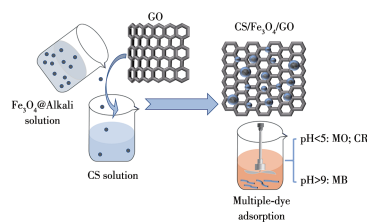
The results suggested that the addition of 0.75BiFeO₃-0.25BaTiO₃ nanofibers is effective to improve the thermal conductivity of poly(vinylidene fluoride - trifluoroethylene) (55/45) copolymer while maintaining high electrocaloric effect.

Preparation and multiple-dye adsorption of magnetic chitosan/Fe₃O₄/graphene oxide adsorbent (English)

GAO Ming, ZHANG Tong-Qing, LI Jian-Jun, HU Jia-Qi, JIN Ming-Yan, ZHAO Yan, WANG Hong-Yang, XUE Chang-Guo

DOI:10.11862/CJIC.2023.042

Chinese J. Inorg. Chem., **2023**,**39**(4):723-734



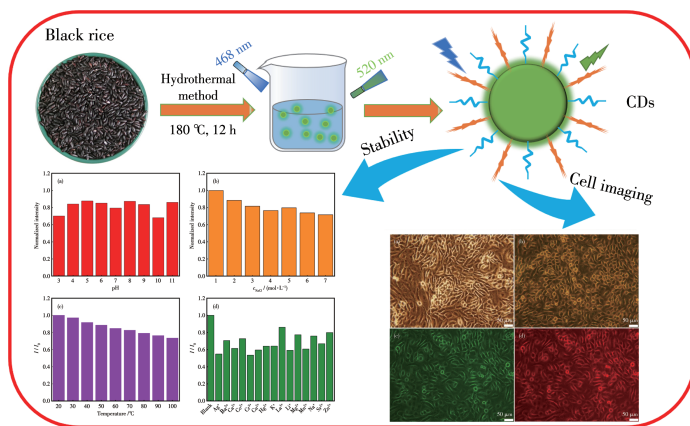
Magnetic chitosan/Fe₃O₄/graphene oxide nanocomposite (CS/Fe₃O₄/GO) was formed by chemical bonding. The obtained adsorbent had excellent multiple-dye adsorption owing to the synergistic effect of CS and GO.

Green synthesis of high-stability black rice carbon dots for application in cell imaging (English)

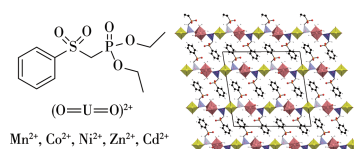
ZHANG Qing-Mei, ZHANG Lu-Peng, ZHENG Kai-Wen, YANG Guo-Qing, HE Song-Jie, DU Xiu-Juan, CHEN Feng-Hua, LI Bing

DOI:10.11862/CJIC.2023.045

Chinese J. Inorg. Chem., **2023**,**39**(4):735-745



Heterometallic uranyl sulfophosphonates: Synthesis, crystal structures, and fluorescence properties (English)



HOU Xiao-Min, TANG Si-Fu

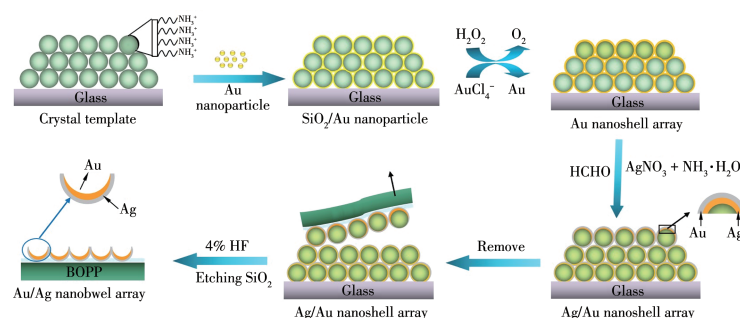
DOI:10.11862/CJIC.2023.034

Chinese J. Inorg. Chem., **2023**,**39**(4):746-752

A series of heterometallic uranyl sulfophosphonates have been synthesized from a sulfophosphonate ester ligand. These compounds display 2D crystal structures and interesting fluorescence properties.

Facile fabrication and surface-enhanced Raman scattering properties of ordered Au/Ag nanobowl array (English)

RAO Yan-Ying, WANG Bing-Gui,
LI Zhang-Liang, CHEN Xue-Wen, QIU Li-Rong,
XU Hong, HUANG Jian-Hui



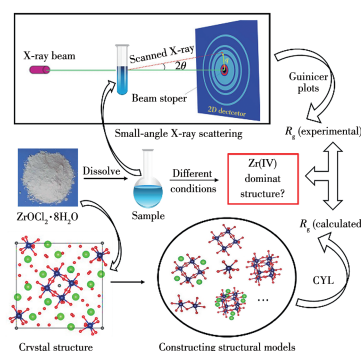
A novel and simple method was presented to fabricate large-area ordered Au/Ag nanobowl array based on colloidal crystals by wet chemosynthesis. The ordered Au/Ag nanobowl array combines the advantages of gold and silver, and the surface-enhanced Raman scattering (SERS) analytical enhancement factor (AEF) of this excellent SERS substrate could reach 2.23×10^7 .

DOI:10.11862/CJIC.2023.018

Chinese J. Inorg. Chem., **2023**,**39**(4):753-764

Zr(IV) structure in aqueous zirconium chloride octahydrate solution from small-angle X-ray scattering analysis (English)

ZHANG Zhi-Yu, SONG Jing, SUN Hong-Qian,
LI Yun-Peng, LAN Hao, QI Tao,
TIAN Liang-Liang



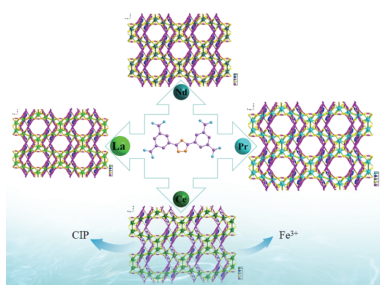
The dominant structures of Zr (IV) are changed at different influence factors, which results in the macroscopic difference of $\text{ZrOCl}_2 \cdot 8\text{H}_2\text{O}$ after crystallization.

DOI:10.11862/CJIC.2023.041

Chinese J. Inorg. Chem., **2023**,**39**(4):765-774

Four isostructural lanthanide metal-organic frameworks: Syntheses, structures, and fluorescence sensing of Fe^{3+} and ciprofloxacin hydrochloride (English)

CHAI Hong-Mei, YAN Jia-Ling, SUN Xue-Hua,
ZHANG Gang-Qiang, REN Yi-Xia, GAO Lou-Jun



To obtain a highly selective and sensitive sensor for Fe^{3+} and ciprofloxacin hydrochloride (CIP), we designed and synthesized four Ln-MOFs (Ln=La (1), Ce (2), Pr (3), Nd (4)) with identical structures. Among them, 2 has good fluorescence sensing performance for Fe^{3+} and CIP in water.

DOI:10.11862/CJIC.2023.039

Chinese J. Inorg. Chem., **2023**,**39**(4):775-784