

无机化学学报

2016 年

第 32 卷

第 2 期

目 次

论 文

- “软-硬”模板法制备的 $\text{Pd/Ce}_{0.65}\text{Zr}_{0.35}\text{O}_2$ 催化剂的结构和性能
..... 黄利华 陈山虎 龚茂初 陈耀强(193)
- 阿拉伯树胶修饰的纳米 Ru-Zn 催化剂上苯选择加氢制环己烯
..... 孙海杰 陈建军 黄振旭 刘仲毅 刘寿长(202)
- 以正辛烷为稀释剂用不对称 N -甲基- N -癸基烷基酰胺从硝酸中萃取 U(VI)
..... 崔 玉 李业新 杨小凤 杨红晓 陈国柱 孙国新(211)
- Ag_3PO_4 光催化耦合微生物燃料电池去除罗丹明 B..... 袁 华 柳丽芬(216)
- Ti^{3+} 自掺杂的 $\text{TiO}_2(\text{A})/\text{TiO}_2(\text{R})/\text{In}_2\text{O}_3$ 纳米异质结的制备与可见光催化性能
..... 刘 冰 付荣荣 高善民 黄柏标 戴 瑛(223)
- 表面氨基高密度化介孔氧化硅的合成及其高效去除酸性橙 7..... 郝仕油 邓黄秀 章国栋(233)
- 球形和花形 ZnO 纳米结构的可控制备及其光催化机理
..... 李 丽 刘晓明 周舒婷 刘仕涛 贾殿赠(241)
- 2-呋喃甲醛-4-羟基苯甲酰肼及其 Cu(II) 配合物的晶体结构及与 CT-DNA 的结合性能
..... 刘向荣 孙秀超 杨再文 赵顺省 杨水兰 闫 森(250)
- 由联苯-2,4,4',6-四甲酸构筑的三维镉配位聚合物的合成、结构及与 DNA 作用
..... 余玉叶 沈 伟 吴小勇 赵国良(259)
- 三个基于 Wells-Dawson 型多酸的三核铜簇的合成、结构及性能
..... 应 俊 宁亚莉 侯 雪 田爱香(267)
- 含咪唑基配体镉配位聚合物的合成、结构及荧光性质..... 钟开龙 罗 莉(275)
- 两个基于 4-(1*H*-1,2,4-三氮唑)苯甲酸的 4*d*-4*f* 异核配位聚合物的合成、结构及荧光性质(英文)
..... 方智利 熊 姗 李康宇 俞权锋 徐文媛(280)
- 温和条件下制备形貌可控的羟基磷灰石(英文)..... 肖鑫礼 孔德艳 张巨生(289)
- 含氮氧自由基的 Gd, Tb, Dy 配合物的合成、结构及磁性(英文)
..... 胡 鹏 吴燕妮 黄期晓 连思绵 付兴慧 何高鹏 陈侠敏(297)
- 采用稀释成盐法从富硼浓缩盐卤中合成的镁硼酸盐化合物及其结构与性质(英文)
..... 彭姣玉 林 锋 杨 波 王立平 Dinnebier E. Robertc 董亚萍 李 武(305)
- 羧酸配体和铁(II)构筑的两个过渡金属配位聚合物的结构、表征和性质(英文)
..... 黄艳菊 杜 刚 郝向荣 张铁赢(313)
- 以 6-甲基-2,3,5-吡啶三酸为配体的过渡金属配合物的合成、结构与性质(英文)
..... 宿秀梅 姜 丽 伊勇玲(320)
- 两个 Schiff 碱铜配合物的合成、晶体结构、光谱性质及取代基效应
..... 孙银霞 李春宇 杨成娟 赵亚元 郭建强 俞 彬(327)

三个喹啉氧基乙酰胺镧系(Eu、Gd、Er)配合物的合成、结构及 Eu 配合物的荧光性质(英文)	毛盼东 陈 亮 吴伟娜 贾 磊 王 元(336)
基于 2-甲基-8-羟基喹啉的镧单分子磁体的晶体结构及磁性(英文)	王慧娜 刘颖昕 李 荣 周 琦 付文升(343)
多次透射反射红外光谱法灵敏和准确地测量单晶硅中间隙氧和代位碳的含量(英文)	路小彬 肖守军(351)
由 V-型双咪唑和芳香羧酸根配体共同构筑的 Zn(II)配位聚合物的合成、结构与性能(英文)	李 霞 孙淑香 黄爱萍 李文杰 赵 红 吕路路 吴本来(360)
一个基于 N'-(3-溴-5-氯-2-羟基苯亚甲基)-3-羟基-4-甲氧基苯甲酰肼的甲基麦芽酚配位的氧钒(V)配合物: 合成、晶体结构及其胰岛素增强活性	李鹿曦 孙 莹 谢 青 孙宇冰 李坤华 李 巍 由忠录(369)

CHINESE JOURNAL OF INORGANIC CHEMISTRY

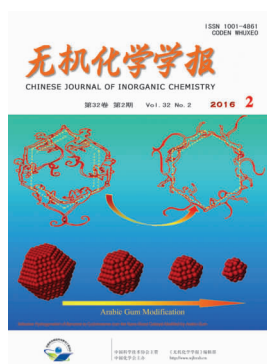
Vol.32

No.2

Feb. 2016

CONTENTS

Cover



Selective Hydrogenation of Benzene to Cyclohexene over the Nano-Sized Ru-Zn Catalyst Modified by Arabic Gum

SUN Hai-Jie, CHEN Jian-Jun, HUANG Zhen-Xu, LIU Zhong-Yi, LIU Shou-Chang

DOI:10.11862/CJIC.2016.019

Chinese J. Inorg. Chem., **2016**,**32**:202-210

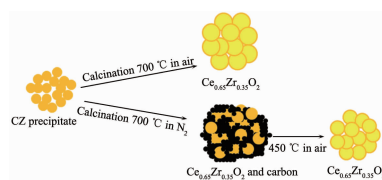
Articles

The Structure and Performance of Pd/Ce_{0.65}Zr_{0.35}O₂ Catalysts Prepared by Soft-Hard Template Method

HUANG Li-Hua, CHEN Shan-Hu,
GONG Mao-Chu, CHEN Yao-Qiang

DOI:10.11862/CJIC.2016.004

Chinese J. Inorg. Chem., **2016**,**32**:193-201



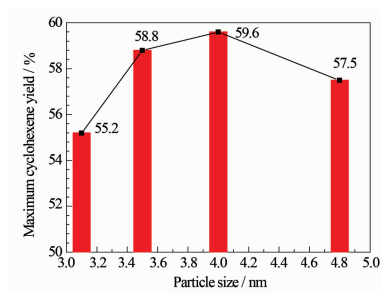
Soft-hard template method offered catalyst with high surface area and pore volume, enhanced the ratio of Ce³⁺, Pd dispersion and homogeneity of solid solution, which imparted catalyst excellent three-way catalytic performance before and after aging.

Selective Hydrogenation of Benzene to Cyclohexene over the Nano-Sized Ru-Zn Catalyst Modified by Arabic Gum

SUN Hai-Jie, CHEN Jian-Jun,
HUANG Zhen-Xu, LIU Zhong-Yi,
LIU Shou-Chang

DOI:10.11862/CJIC.2016.019

Chinese J. Inorg. Chem., **2016**,**32**:202-210



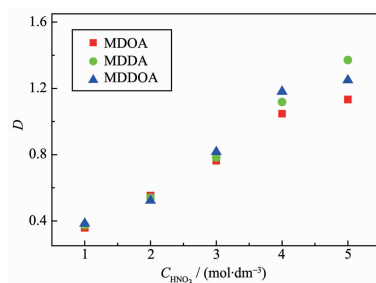
The dosage of arabic gum could tune the particle size of the Ru-Zn catalysts. The maximum cyclohexene yield showed a volcanic-type variation tendency with the particle size of Ru-Zn catalysts increasing. The Ru-Zn catalyst with an optimum particle size of 4.0 nm gave a maximum cyclohexene yield of 59.6%.

Extraction of U(VI) from Nitric Acid Media with Asymmetric *N*-methyl-*N*-decyl Alkylamide in *n*-Octane

CUI Yu, LI Ye-Xin, YANG Xiao-Feng,
YANG Hong-Xiao, CHEN Guo-Zhu,
SUN Guo-Xin

DOI:10.11862/CJIC.2016.050

Chinese J. Inorg. Chem., **2016**,**32**:211-215



Three unsymmetric monoamides can extract uranium nitrate effectively and the alkyl chain length had little effect on the extraction.

Removal of RhB by Photocatalysis with Ag₃PO₄ on Stainless Steel Integrated in Microbial Fuel Cell as Photocathode

YUAN Hua, LIU Li-Fen

DOI:10.11862/CJIC.2016.030

Chinese J. Inorg. Chem., **2016**,**32**:216-222

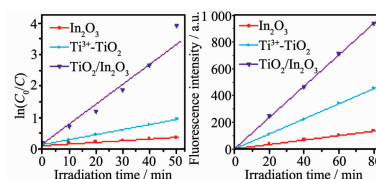
Ag₃PO₄ deposited on stainless steel functions as photocatalytic cathode, and degrades pollutants synergistically by bio-bias and photo-excitation in cathode chamber. It increases electricity generation in integrated photo-catalytic & microbial fuel cell.

Preparation of Ti³⁺ Self-Doped TiO₂(A)/TiO₂(R)/In₂O₃ Nanoheterojunctions with Enhanced Visible-Light-Driven Photocatalytic Properties

LIU Bing, FU Rong-Rong, GAO Shan-Min,
HUANG Bai-Biao, DAI Ying

DOI:10.11862/CJIC.2016.045

Chinese J. Inorg. Chem., **2016**,**32**:223-232



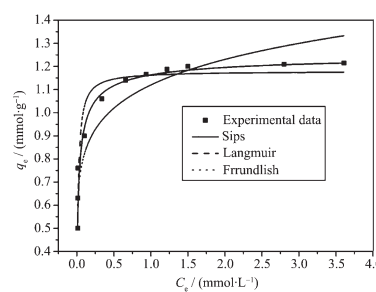
Ti³⁺ self-doped TiO₂(A)/TiO₂(R)/In₂O₃ nanoheterojunctions exhibited extended visible light absorption and higher photocatalytic activity were synthesized by hydrothermal treatment method. The improved visible-light photocatalytic properties which could be attributed to the enhanced photogenerated charge separation of the nanoheterojunction.

Synthesis and Efficient Removal of Acid Orange 7 of Mesoporous Silicas with High Surface Amino-Loading

HAO Shi-You, DENG Huang-Xiu,
ZHANG Guo-Dong

DOI:10.11862/CJIC.2016.051

Chinese J. Inorg. Chem., **2016**,**32**:233-240



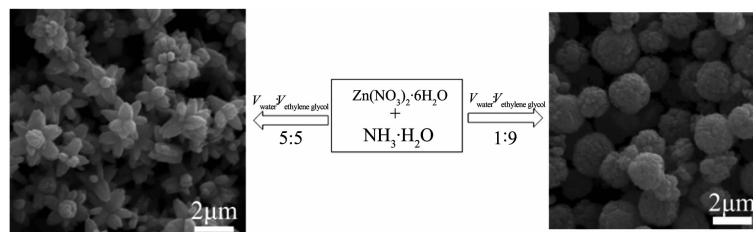
The synthesized amino-functionalized mesoporous silica (AFMS) with high amino loading and large pore size possesses higher adsorption capacities and faster adsorption rates for the removal of acid orange 7 (AO7), compared to those reported in the literature so far, and a practical application of this AFMS for removing AO7 from wastewater is anticipated.

Controllable Synthesis and Photocatalytic Mechanism of Spherical and Flower-like ZnO Nanostructures

LI Li, LIU Xiao-Ming, ZHOU Shu-Ting,
LIU Shi-Tao, JIA Dian-Zeng

DOI:10.11862/CJIC.2016.041

Chinese J. Inorg. Chem., **2016**,**32**:241-249



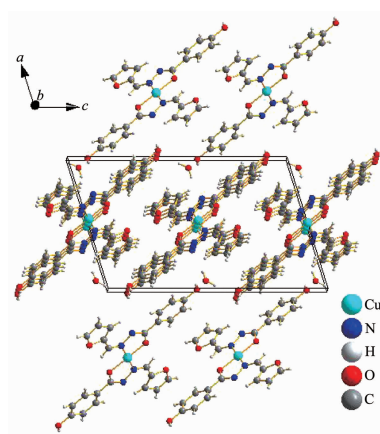
The spherical and flower-like ZnO nanostructures have been synthesized by a simple hydrothermal reaction of Zn(NO₃)₂·6H₂O with NH₃·H₂O by varying the volume ratio of ethylene glycol and water at 140 °C for 2 h, respectively.

2-Furancarbaldehyde-4-hydroxy-benzoylhydrazone and Its Cu(II) Complex: Crystal Structures and Binding Ability with CT-DNA

LIU Xiang-Rong, SUN Xiu-Chao,
YANG Zai-Wen, ZHAO Shun-Sheng,
YANG Shui-Lan, YAN Sen

DOI:10.11862/CJIC.2016.037

Chinese J. Inorg. Chem., **2016**,**32**:250-258



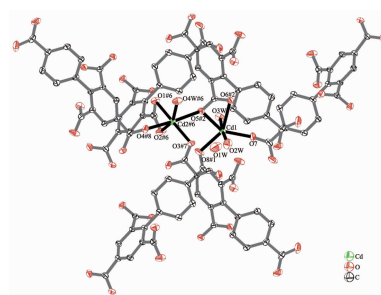
A Cu(II) complex of 2-furancarbaldehyde-4-hydroxy-benzoylhydrazone has a staggered framework and shows better thermal stability. UV-Vis absorption and microcalorimetry indicate that the Cu(II) complex has stronger interaction with calf thymus DNA (CT-DNA) than the corresponding ligand.

Syntheses, Structures and DNA-Binding of Cadmium Coordination Polymer with 3D Frameworks Constructed by Biphenyl-2,4,4',6-tetracarboxylic Acid

YU Yu-Ye, SHEN Wei, WU Xiao-Yong,
ZHAO Guo-Liang

DOI:10.11862/CJIC.2016.049

Chinese J. Inorg. Chem., **2016**,**32**:259-266



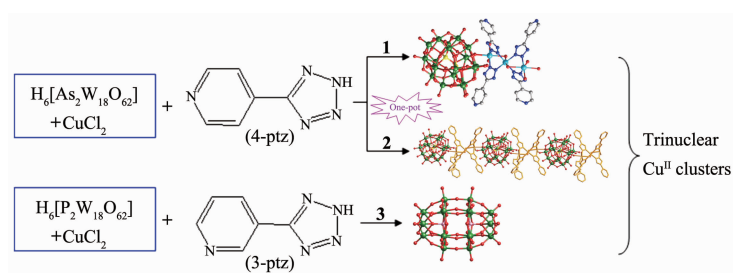
Two cadmium coordination polymers were synthesized by hydrothermal reactions using biphenyl-2,4,4',6-tetracarboxylic acid and characterized by elemental analysis, IR spectra. Crystal structures of the complexes were determined by single crystal X-ray diffraction method.

Syntheses, Structures and Properties of Three Tri-nuclear Copper Clusters Based on Wells-Dawson Polyoxometalate

YING Jun, NING Ya-Li, HOU Xue,
TIAN Ai-Xiang

DOI:10.11862/CJIC.2016.036

Chinese J. Inorg. Chem., **2016**,**32**:267-274



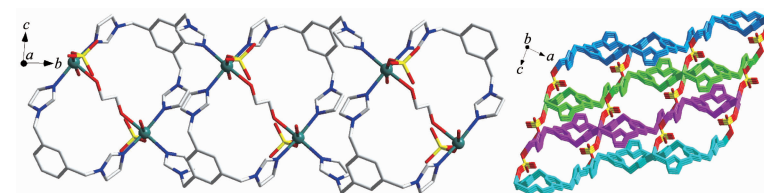
The isomeric ligands 3-ptz and 4-ptz are important structural factors for constructing tri-nuclear copper clusters in compounds **1**~**3**.

Syntheses, Crystal Structures and Fluorescence Properties of Cadmium Coordination Polymers with 1,3,5-Tris(imidazol-1-ylmethyl)benzene

ZHONG Kai-Long, LUO Li

DOI:10.11862/CJIC.2016.035

Chinese J. Inorg. Chem., **2016**,**32**:275-279



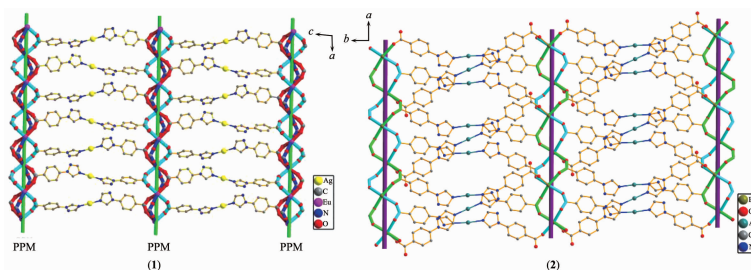
Two coordination polymers $\{[\text{Cd}(\text{L})(\text{EG})_{0.5}(\text{H}_2\text{O})(\text{SO}_4)] \cdot \text{EG} \cdot \text{H}_2\text{O}\}_n$ (**1**) and $\{[\text{Cd}(\text{L})(\text{EG})(\text{SO}_4)]\}_n$ (**2**) (L=1,3,5-tris(imidazol-1-ylmethyl)benzene, EG=ethylene glycol) were solvothermally synthesized and their structures were determined.

Two Heterometallic 4d-4f Coordination Polymers Based on 4-(1*H*-1,2,4-Triazol-1-yl)benzoic Acid: Syntheses, Structures, and Fluorescence Properties (English)

FANG Zhi-Li, XIONG Shan, LI Kang-Yu, YU Quan-Feng, XU Wen-Yuan

DOI:10.11862/CJIC.2016.046

Chinese J. Inorg. Chem., **2016**,**32**:280-288



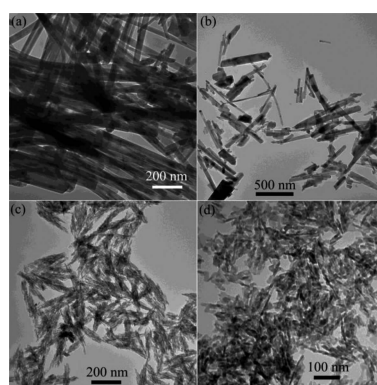
2D heterometallic 4d-4f complex **1** features right-right-left (PPM)-handed triple strand helical chains $[\text{Eu}(\text{OCO})_3]_n$, which further are linked by the fragments of the ligands and Ag(I) to form 2D layer. Complex **2** possesses 2D layer consisting of mesomeric (PM) chains $[\text{Eu}(\text{OCO})_2]_n$.

Morphologically Controlled Synthesis of Hydroxyapatite at Mild Conditions (English)

XIAO Xin-Li, KONG De-Yan, ZHANG Ju-Sheng

DOI:10.11862/CJIC.2016.038

Chinese J. Inorg. Chem., **2016**,**32**:289-296



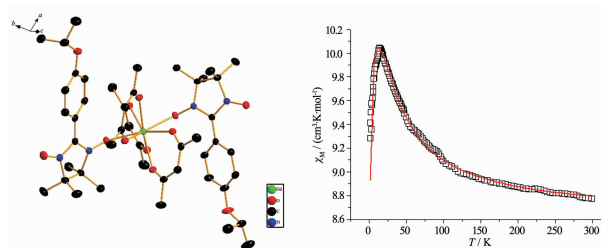
Hydroxyapatite nanorods have been prepared via a precipitation-hydrolysis method under mild conditions with the surfactants of PEG (a) or PVP (b). Different hydroxyapatite nanoparticles have been obtained via the one-step precipitation route with the surfactants of PEG (c) or PVP (d).

Gd(III), Tb(III) and Dy(III) Complexes Based on a Nitronyl Nitroxide Radical: Syntheses, Structures and Magnetic Properties(English)

HU Peng, WU Yan-Ni, HUANG Qi-Xiao, LIAN Si-Mian, FU Xing-Hui, HE Gao-Peng, CHEN Xia-Min

DOI:10.11862/CJIC.2016.032

Chinese J. Inorg. Chem., **2016**,**32**:297-304



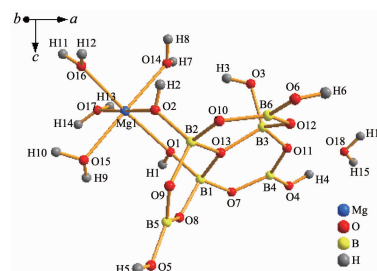
Three mononuclear tri-spin compounds based on nitronyl nitroxide radical showed ferromagnetic interactions between Ln-Radical and antiferromagnetic interactions between the intramolecular radicals.

Synthesis, Structure and Properties of a Magnesium Borate in Concentrated Boron-Bearing Salt Lake Brine by Dilution Method (English)

PENG Jiao-Yu, LIN Feng, YANG Bo, WANG Li-Ping, Dinnebier E. Robertc, DONG Ya-Ping, LI Wu

DOI:10.11862/CJIC.2016.042

Chinese J. Inorg. Chem., **2016**,**32**:305-312



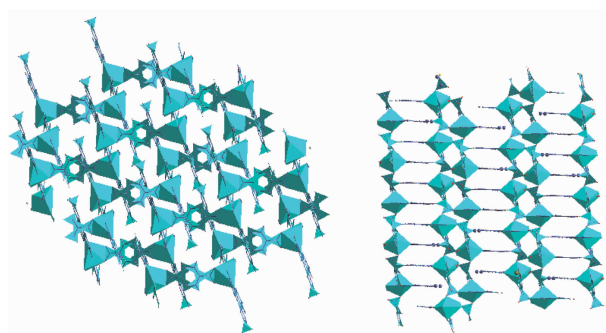
$\text{Mg}[\text{B}_6\text{O}_7(\text{OH})_6] \cdot 5\text{H}_2\text{O}$ is that it was synthesized by diluting the natural concentrated boron-bearing salt lake brine and its crystal structure refined using X-ray powder diffraction data shows remarkable similarity with the nickel borate compound $(\text{Ni}[\text{B}_6\text{O}_7(\text{OH})_6] \cdot 5\text{H}_2\text{O})$.

Two Coordination Polymers Based on Carboxylate Ligands and Fe(II): Preparation, Structural Characterization and Properties (English)

HUANG Yan-Ju, DU Gang, HAO Xiang-Rong, ZHANG Tie-Ying

DOI:10.11862/CJIC.2016.049

Chinese J. Inorg. Chem., **2016**,**32**:313-319



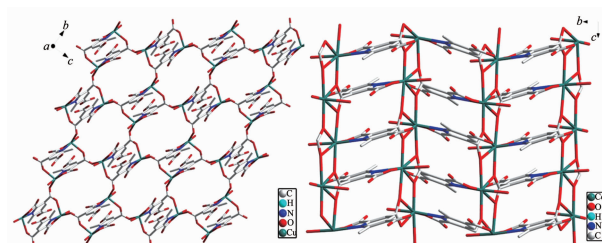
Two coordination polymers have been prepared by the combination of two different carboxylic acid, iron salts and 2-methyldipyrido[3,2-*f*:2',3'-*h*]quinoxaline ligands.

Syntheses, Structures, and Properties of Transition Metal Complexes Constructed from 6-Methyl-2,3,5-pyridinetricarboxylic Acid (English)

SU Xiu-Mei, JIANG Li, YI Yong-Ling

DOI:10.11862/CJIC.2016.027

Chinese J. Inorg. Chem., **2016**,**32**:320-326



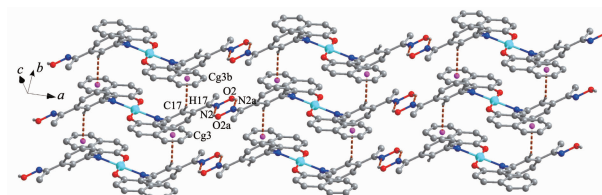
Two Cu(II) or Cd(II) complexes based on 6-methyl-2,3,5-pyridinetricarboxylic acid have been synthesized and characterized. Complex **1** presents a two-dimensional (2D) rectangle channels. Rich hydrogen bonds exist in **1** and **2**, and **2** emits intense blue/green fluorescence.

Two Cu(II) Complexes with Schiff Base Ligands: Syntheses, Crystal Structures, Spectroscopic Properties, and Substituent Effect (English)

SUN Yin-Xia, LI Chun-Yu, YANG Cheng-Juan, ZHAO Ya-Yuan, GUO Jian-Qiang, YU Bin

DOI:10.11862/CJIC.2016.034

Chinese J. Inorg. Chem., **2016**,**32**:327-335



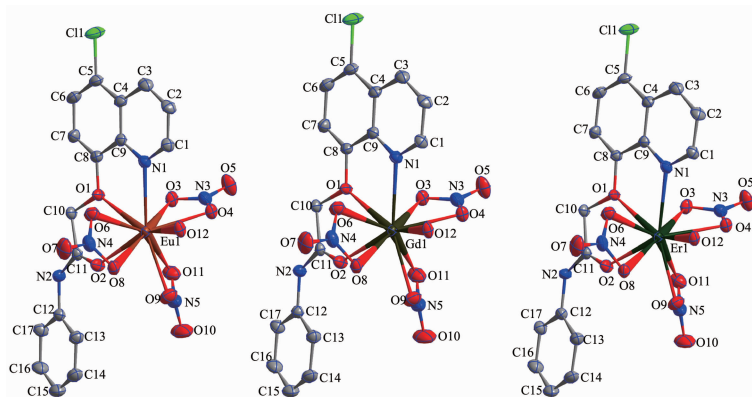
Two Schiff base mononuclear Cu(II) complexes **1** and **2** all formed a 2D-layer supramolecular structure by different intermolecular interaction, And the substituted groups on the ligands could play a small impact on the coordination geometries and supramolecular structure.

Three Lanthanide (Eu, Gd, Er) Complexes with Quinolinyloxy Acetamide Ligand: Syntheses, Crystal Structures and Fluorescence Property of Eu Complex (English)

MAO Pan-Dong, CHEN Liang, WU Wei-Na, JIA Lei, WANG Yuan

DOI:10.11862/CJIC.2016.050

Chinese J. Inorg. Chem., **2016**,**32**:336-342

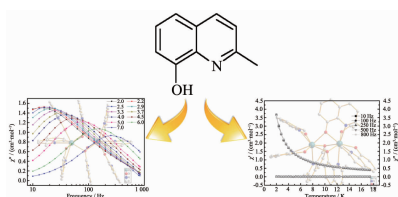


Structures and Magnetic Properties of Single-Molecule Magnet Based on Dy(III) and 2-Methyl-8-quinolinol Ligand (English)

WANG Hui-Na, LIU Ying-Xin, LI Rong, ZHOU Qi, FU Wen-Sheng

DOI:10.11862/CJIC.2016.047

Chinese J. Inorg. Chem., **2016**,**32**:343-350



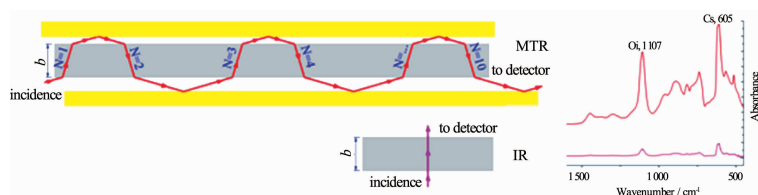
The different coordination modes of the same ligand lead to a difference in the dynamic magnetic behaviors of the lanthanide coordination compounds.

Sensitive and Accurate Measurement of Interstitial Oxygen and Substitutional Carbon in Single Crystalline Silicon by Multiple Transmission-Reflection Infrared Spectroscopy (MTR-IR) (English)

LU Xiao-Bin, XIAO Shou-Jun

DOI:10.11862/CJIC.2016.044

Chinese J. Inorg. Chem., **2016**,**32**:351-359



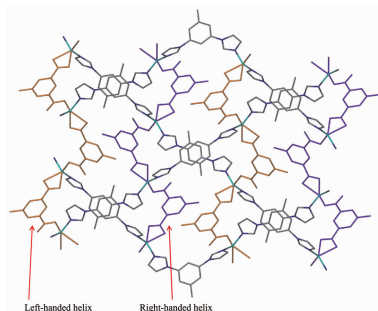
The MTR-IR method greatly improves the measurement sensitivity and accuracy of interstitial oxygen and substitutional carbon in single crystalline silicon materials, with a detection limit at least one order of magnitude lower than the current standard infrared absorption method for a sample with the same thickness. Further, MTR-IR attenuates the interference fringes of thin silicon wafers greatly, and improves the representativeness of data collections.

Syntheses, Structures and Properties of Zinc(II) Coordination Polymers Constructed by V-Shaped Bis-imidazole and Aromatic Carboxylate Ligands (English)

LI Xia, SUN Shu-Xiang, HUANG Ai-Ping, LI Wen-Jie, ZHAO Hong, LÜ Lu-Lu, WU Ben-Lai

DOI:10.11862/CJIC.2016.048

Chinese J. Inorg. Chem., **2016**,**32**:360-368



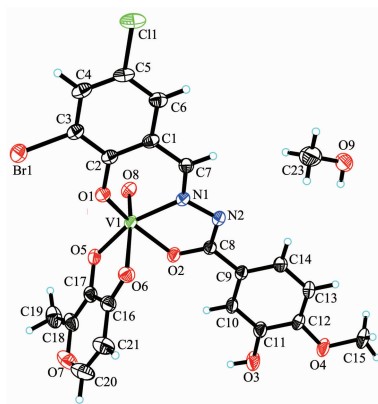
Two 1D or 2D Zn(II) coordination polymers based on a V-shaped bis-imidazole ligand 1,1'-(5-methyl-1,3-phenylene)bis(1*H*-imidazole) and V-shaped auxiliary ligands 5-bromonicotinate and 5-methylisophthalate were obtained.

A Maltolato-Coordinated Oxovanadium (V) Complex Derived from *N'*-(3-Bromo-5-chloro-2-hydroxybenzylidene)-3-hydroxyl-4-methoxybenzohydrazide: Synthesis, Crystal Structure, and Insulin-Enhancing Activity (English)

LI Lu-Xi, SUN Ying, XIE Qing, SUN Yu-Bing, LI Kun-Hua, LI Wei, YOU Zhong-Lu

DOI:10.11862/CJIC.2016.040

Chinese J. Inorg. Chem., **2016**,**32**:369-376



An aroylhydrazone compound *N'*-(3-bromo-5-chloro-2-hydroxybenzylidene)-3-hydroxyl-4-methoxybenzohydrazide and its oxovanadium(V) complex with maltol as coligand have been prepared and characterized. The complex significantly stimulated cell glucose utilization with cytotoxicity at 0.07 g·L⁻¹.