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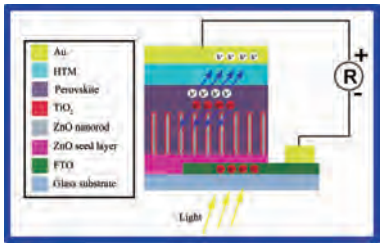
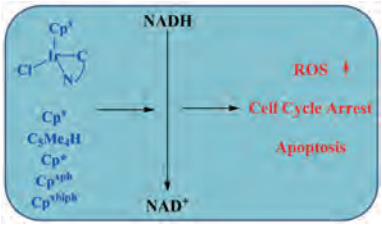


Combining with the innovative achievements of Zhong Min′s research group on the preparation and performance research of all-solid-state perovskite sensitized solar cells based on ZnO@TiO_2 core-shell structure nanorod arrays, this paper emphatically summarized the preparation technology and optimization of electron transport layer and perovskite layer and also discussed the stability and the prospect of the commercialization of perovskite solar cells.

Articles

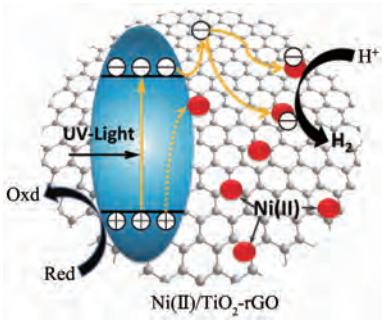


Half-sandwich cyclopentadienyl iridium complexes containing C^N-chelating ligands display potent anticancer activities and are attractive for development as new anticancer agents.

Synergistic Effect of Graphene as Electron-Transfer Mediator and Ni(Ⅱ) as Interfacial Catalytic Active Site for Enhanced H_2-Production Performance of TiO_2

ZHANG Chao-Ying, WANG Ping,
LIU Yan-Yan, HU Ling-Na

DOI:10.11862/CJIC.2017.170
Chinese J. Inorg. Chem., **2017**,**33**:1132-1138

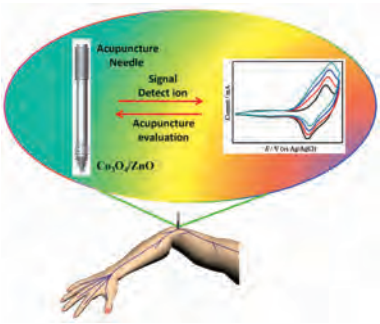


Highly efficient TiO_2 photocatalysts co-modified by reduced graphene oxide (rGO) as electron-transfer mediator and Ni(Ⅱ) as interfacial catalytic active-site were synthesized via a two-step process including the initial hydrothermal method of rGO on the TiO_2 surface and the following low-temperature impregnation method of Ni(Ⅱ) on the rGO.

Co_3O_4/ZnO Modified Acupuncture Needle: Preparation and Application in Detecting Glucose (English)

YUAN Hong-Wen, WANG Yu-Lu, MA Chi,
GENG Jun-Long, ZHANG Li-Qiang, CUI Hai

DOI:10.11862/CJIC.2017.118
Chinese J. Inorg. Chem., **2017**,**33**:1139-1146

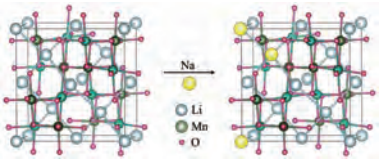


The Co_3O_4/ZnO acicular nanorod arrays (ANRAs) decorated acupuncture needle exhibits a high sensitivity of 2 264.27 $\mu A \cdot L \cdot mmol^{-1} \cdot cm^{-2}$, a fast response time (<4 s) and a detection limit as low as 0.311 $\mu mol \cdot L^{-1}$ (S/N=3).

Aqueous Li-Ion Battery Cathode Material $Li_{1-x}Na_xMn_2O_4$ Prepared by Sol-gel Method and Its Electrochemical Performance

TAO Hong-Liang, MI Chang-Huan,
ZHANG Ying-Xia

DOI:10.11862/CJIC.2017.156
Chinese J. Inorg. Chem., **2017**,**33**:1147-1152

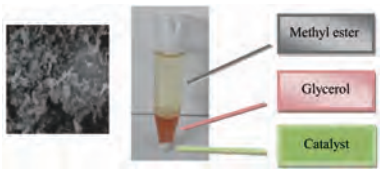


Sodium is doped into the 8a site to replace lithium and sodium can stay in the structure after the material is fully delithiated. This can make the structure more stable and improve cycle performance.

Synthesis and Characterization of Solid Base Catalyst Na_2O/Al_2O_3-MgO with High Activity

LIU Shou-Qing, LI Xue-Mei, HE Xian-Wu,
LIU Xiang-Yi, ZHENG Zhi-Feng

DOI:10.11862/CJIC.2017.141
Chinese J. Inorg. Chem., **2017**,**33**:1153-1160

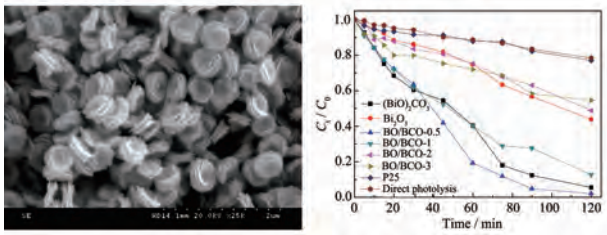


By using the ammonia as precipitator and undergoing impregnation with Na_2CO_3, Na_2O/Al_2O_3-MgO catalyst with hydrotalcite-like structure has been synthesized. The methyl esterification rate of malania oleifera oil is more than 90%.

Hierarchical Nanoflower-Ring Structure $Bi_2O_3/(BiO)_2CO_3$ Composite for Photocatalytic Degradation of Rhodamine B

SONG Qiang, LI Li, LUO Hong-Xiang,
LIU Yue, YANG Chang-Long

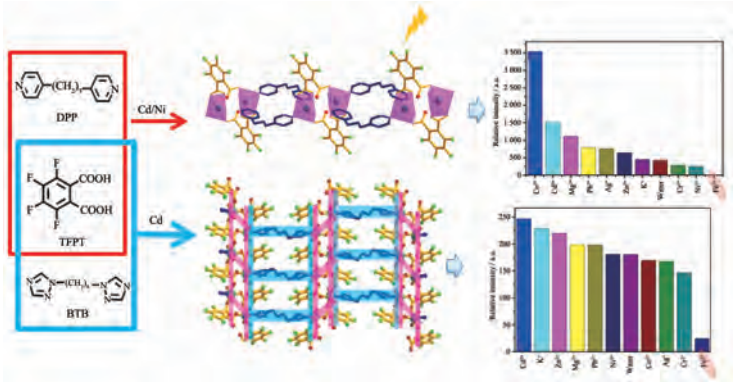
DOI:10.11862/CJIC.2017.139
Chinese J. Inorg. Chem., **2017**,**33**:1161-1171



Hierarchical nanoflower-ring structure $Bi_2O_3/(BiO)_2CO_3$ (BO/BCO) composite was synthesized, and the formation of special morphology leaded to narrowed band gap and change the reflection and scattering of photoelectrons, which were conducive to the absorption efficiency of light and transfering of photogenerated charges.

Syntheses, Crystal Structures and Fluorescence Sensing for Fe^{3+} of Transition Metal Complexes with 3,4,5,6-Tetrafluorophthalic Acid and N-Donor Ligands

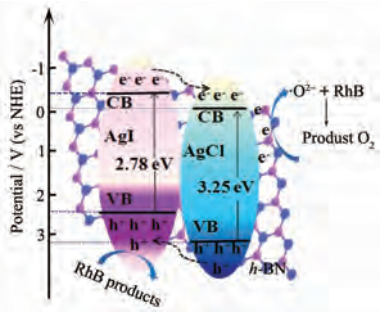
ZHANG Mei-Na, ZHENG Xiao-Li,
QU Xiang-Long, LI Xia, GAO Yuan



DOI:10.11862/CJIC.2017.137
Chinese J. Inorg. Chem., **2017**,**33**:1172-1180

Preparation and Photocatalytic Performance of AgI/AgCl/*h*-BN Composites

ZHANG Su-Yun, WANG Jia-Xi, WANG Qian,
BAI Ji, BI Yuan-Quan, LU Run-Qing,
LÜ Xiao-Meng

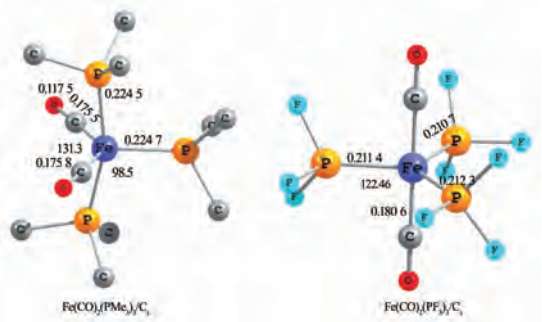


The ternary composite AgI/AgCl/*h*-BN was synthesized via water-soluble KCl crystal temple and ion-exchange process using *h*-BN nanosheets as support. The obtained composite was obtained with high visible light activity and stability. The result paved the way of potential application of *h*-BN in the field of photocatalyst.

DOI:10.11862/CJIC.2017.146
Chinese J. Inorg. Chem., **2017**,**33**:1181-1186

Theoretical Study on Structure and Property of Iron Carbonyl Derivatives $Fe(CO)_{5-x}(PR_3)_x$

GUO Cai-Hong, LI Hai-Yu, LI Jun,
JIA Jian-Feng, WU Hai-Shun

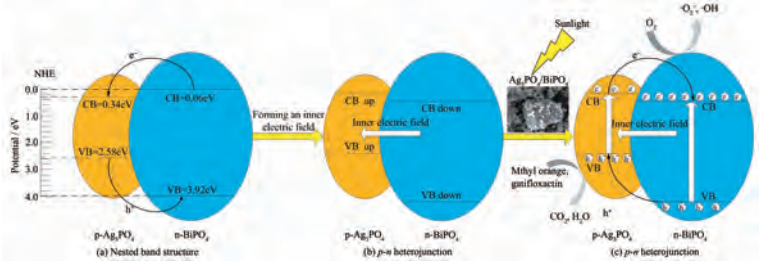


The geometric structures, bonding characteristic, and bond dissociation of iron complexes $Fe(CO)_{5-x}(PR_3)_x$(x=1~3, R=H, F, Me) were investigated by DFT method. NBO analysis shows that the charge transfer between the phosphorus ligand (s) and iron enhanced the covalent interaction between Fe and CO.

DOI:10.11862/CJIC.2017.143
Chinese J. Inorg. Chem., **2017**,**33**:1187-1195

$BiPO_4/Ag_3PO_4$ p-n Heterojunction with Enhanced Photocatalytic Activity under Simulated Sunlight Irradiation

WANG Zhao-Hua, CAI Qiong-Yao,
YE Ting-Ming, GUO Ying-Na, GENG Zhi,
YANG Xia, YU Hong-Bin



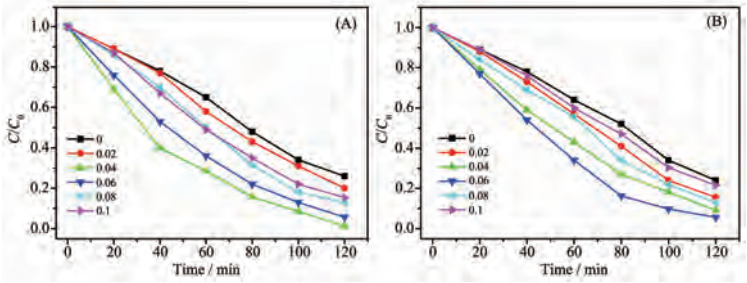
The p-n heterojunction $BiPO_4/Ag_3PO_4$ exhibits higher degradation and mineralized activities, and the better stability on degradation of methyl orange and gatifloxacin than the single $BiPO_4$ and Ag_3PO_4.

DOI:10.11862/CJIC.2017.140
Chinese J. Inorg. Chem., **2017**,**33**:1196-1204

Photocatalytic Degradation Activity and Mechanism of Niobate Bismuth Nanoparticles Doped with La and Zn

XU Qing-Qing, LÜ Liang, YE Dong-Ju, SONG Kai-Quan

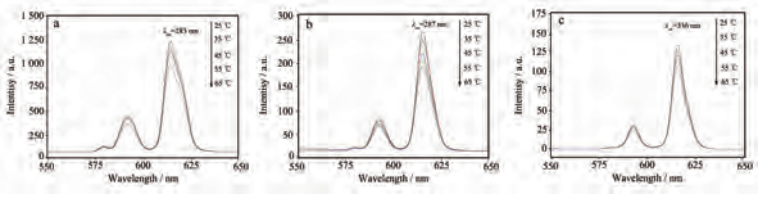
DOI:10.11862/CJIC.2017.134
Chinese J. Inorg. Chem., **2017**,**33**:1205-1216



Preparation and Property of Temperature Sensitive Paints with Different Europium Complexes as Probe Molecules

SUN Meng-Ting, LU Si-Yu, SUN Jing, WANG Yuan, YU Wen-Sheng, CUI Si-Yuan

DOI:10.11862/CJIC.2017.000
Chinese J. Inorg. Chem., **2017**,**33**:1217-1222

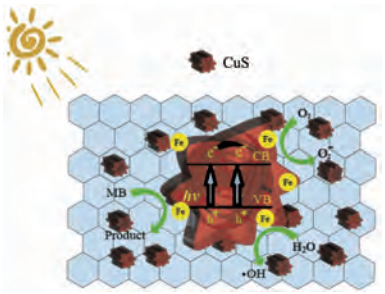


Three kinds of temperature sensitive paint ($Eu(MAA)_3Phen$/PMMA, $Eu(Sal)_3Phen$/PMMA and $Eu(CA)_3Phen$/PMMA) were obtained. It is found that the temperature sensitivity of TSPs is different in different temperature ranges.

Synthesis of Fe-CuS/RGO by Solvothermal Method with High Visible Photocatalytic Activity

YANG Ming-Rong, SHEN Yong, HU Xiao-Sai, ZHANG Hui-Fang, WANG Li-Ming, XU Li-Hui, XING Ya-Jun

DOI:10.11862/CJIC.2017.148
Chinese J. Inorg. Chem., **2017**,**33**:1223-1230

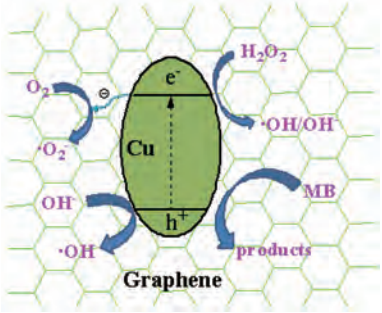


The Fe-CuS/RGO photocatalysts showed enhanced photocatalytic activity for methylene blue solution in comparison with CuS/RGO because Fe element could act as an interfacial charge transfer channel.

Preparation and Catalytic Properties of Copper/Graphene Composites

LI Juan, ZHAO An-Ting, SHAO Jiao-Jing, LU Li-Ping

DOI:10.11862/CJIC.2017.167
Chinese J. Inorg. Chem., **2017**,**33**:1231-1235

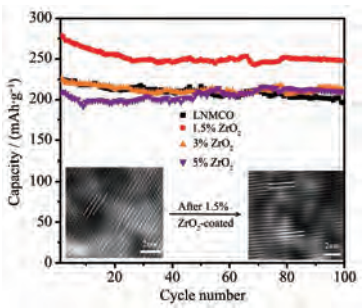


Cu/RGO composites exhibited enhanced catalytic activity toward MB. The dominant contribution is associated with RGO which can act as electron acceptors and transfer channels to enhance the charge separation efficiency, results also indicated that $\cdot O^{2-}$, $\cdot OH$ and h^+ were critical species in the catalytic reaction. Copper/graphene catalysts have potential applications.

Electrochemical Performance of Li-rich Layered Cathode Material $0.6Li[Li_{1/3}Mn_{2/3}]O_2 \cdot 0.4LiNi_{5/12}Mn_{5/12}Co_{1/6}O_2$ by ZrO_2 Coating

HUANG Ji-Chun, MEI Lin, MA Zheng, ZHU Xian-Yu, QUAN Jing-Bin, LI De-Cheng

DOI:10.11862/CJIC.2017.173
Chinese J. Inorg. Chem., **2017**,**33**:1236-1242

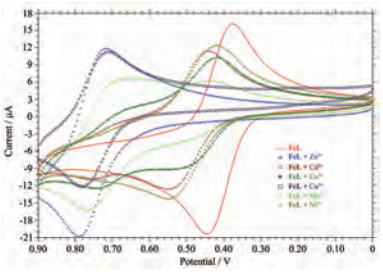


The 1.5% ZrO_2-coated LNMCO provides a large discharge capacities of 279.3 $mAh \cdot g^{-1}$, and 248.3 $mAh \cdot g^{-1}$ after 100 cycles, superior to the bare sample at a current density of 20 $mA \cdot g^{-1}$ and shown little disordered arrangements of lattice fringes compared with the LNMCO sample after 101 cycles.

Synthesis, Crystal Structure and Electrochemical Metal Cation Recognition Investigation of $Fe(C_5H_4\text{-}CH_2\text{-}Trp\text{-}OMe)_2$

LIU Wei, LI Xia, Li Yin-Feng, ZHAO Jin-An, WU Ben-Lai, SONG Mao-Ping

DOI:10.11862/CJIC.2017.127
Chinese J. Inorg. Chem., **2017**,**33**:1243-1248

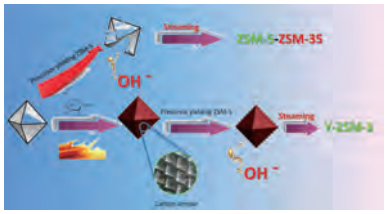


Electrochemical investigations of **FcL** have demonstrated that addition of Zn^{2+} and Cu^{2+} results in large shifts of respective Fc/Fc^+ redox couple to more positive potentials, 342 and 335 mV, respectively, and this suggests that **FcL** has good abilities in recognizing the vital Zn^{2+} and Cu^{2+}.

Y-ZSM-5 Zeolite-Zeolite Composites Prepared by the Steam-Assisted Conversion Method

GAO He-Xin, LI Peng, DU Yan-Ze, ZHENG Jia-Jun, PAN Meng, LIU Zhi-Ping, LI Rui-Feng

DOI:10.11862/CJIC.2017.148
Chinese J. Inorg. Chem., **2017**,**33**:1249-1256

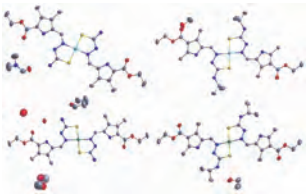


Carbon membrane yielded from glucose alleviates the depolymerization of the frameworks of Y zeolite crystals during the preparation of dry gel and steam-assisted conversion processes, which guarantees the constant composition in the precursors yileding ZSM-5 zeolite, and a zeolite-zeolite composite composed of FAU and MFI crystals was therefore obtained.

Ni(Ⅱ)/Cu(Ⅱ) Complexes with Two Pyrrole Thiosemicarbazone Ligands: Crystal Structures and DNA Interaction (English)

LI Xiao-Jing, MAO Pan-Dong, WU Wei-Na, KOU Kai, LIU Shu-Yang, WANG Yuan

DOI:10.11862/CJIC.2017.151
Chinese J. Inorg. Chem., **2017**,**33**:1257-1265

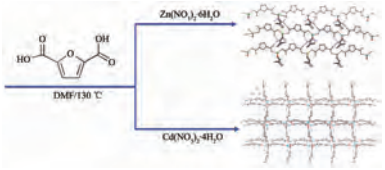


Four complexes $[Ni(L^1)_2]\cdot 2DMF$, $[Cu(L^1)_2]\cdot THF\cdot 0.25MeOH\cdot 2.25H_2O$, $[Ni(L^2)_2]\cdot 2MeOH$ and $[Cu(L^2)_2]\cdot 2EtOH$ with two thiosemicarbazone ligands bearing pyrrole unit have been synthesized and characterized. All complexes can bind to DNA and have potential pharmaceutical activity.

Metal Ions Controlled Assembly of Two Coordination Polymers: Structures and Luminescence Properties (English)

MA De-Yun, LI Xiang, GUO Hai-Fu, MA Yan-Hua, LIN Wan-Chun, WEN Mei-Ling, CAI Li-Wen, ZHU Li-Feng

DOI:10.11862/CJIC.2017.162
Chinese J. Inorg. Chem., **2017**,**33**:1266-1272

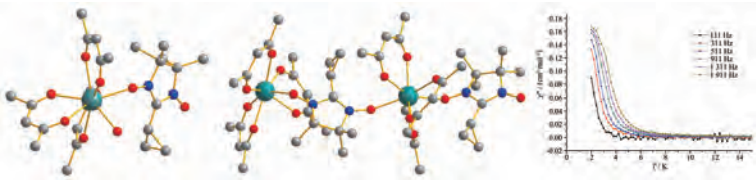


By changing the metal ions, two CPs have been prepared based on the 2,5-furandicarboxylic acid under the same reaction conditions (130 ℃) and structural characterized. Moreover, the luminescence properties have also been investigated.

Two Dy(Ⅲ)-Radical Complexes: Synthesis, Structures and Magnetic Properties (English)

HU Peng, XIAO Feng-Ping, ZHI Zhong-Qiang, DU Feng-Xiang, DENG Xiao-Juan, HUANG Guo-Hong, ZHANG Miao, SU Feng, WANG Li-Na

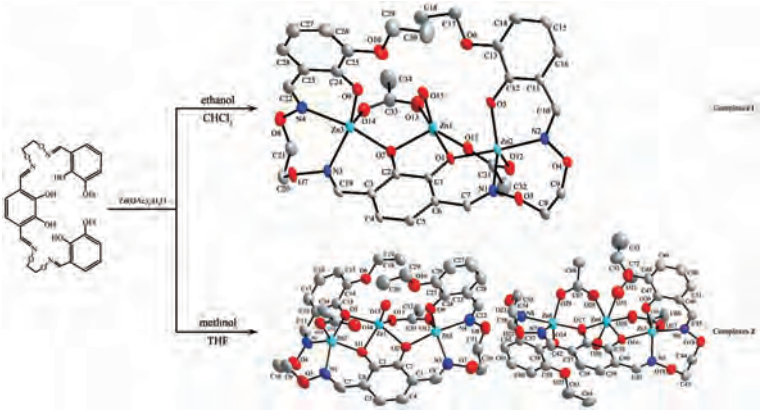
DOI:10.11862/CJIC.2017.149
Chinese J. Inorg. Chem., **2017**,**33**:1273-1279



Two Znic(Ⅱ) Complexes Constructed from a Bis(salamo)-type Tetraoxime Ligand: Syntheses, Crystal Structures and Luminescence Properties (English)

YANG Yu-Hua, HAO Jing, DONG Yin-Juan, WANG Gang, DONG Wen-Kui

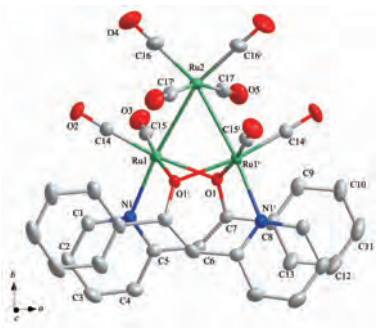
DOI:10.11862/CJIC.2017.150
Chinese J. Inorg. Chem., **2017**,**33**:1280-1292



Synthesis, Structure and Reactivity of a Trinuclear Ruthenium Cluster Compound $[PyCH=C(Ph)O]_2Ru_3(CO)_8$ (English)

MA Zhi-Hong, LIU Qian, QIN Mei, HAN Zhan-Gang, ZHENG Xue-Zhong, LIN Jin

DOI:10.11862/CJIC.2017.135
Chinese J. Inorg. Chem., **2017**,**33**:1293-1298

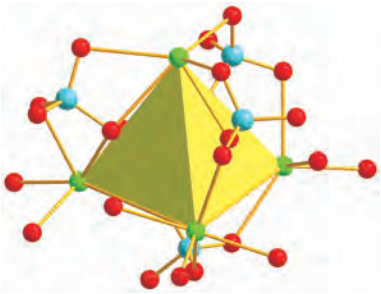


Thermal treatment of $PyCH_2COPh$ with $Ru_3(CO)_{12}$ in refluxing toluene gave a new trinuclear ruthenium cluster compound $[PyCH=C(Ph)O]_2Ru_3(CO)_8$. Reactions of this compound with cyclopentadiene or indene show that the coordination properties of cyclopentadiene and indene are higher than that of pyridine alcohol.

A Tripodal Tris-tacn (tacn=1,4,7-Triazacyclononane) Ligand and Its Ability to Assemble a $[Na_4(ClO_4)_4]$ Tetrahedron Cluster (Englsih)

LI Xiu-Min, YANG Yu, ZHANG Zong-Yao, CAO Rui

DOI:10.11862/CJIC.2017.144
Chinese J. Inorg. Chem., **2017**,**33**:1299-1304

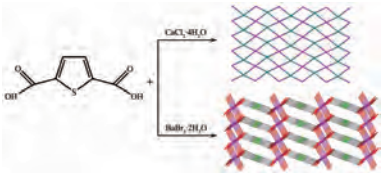


Novel tripodal ligands derived from tris (xylyl)amine backbone assemble a $[Na_4(ClO_4)_4]$ tetrahedron cluster with C_3 symmetry.

Syntheses, Crystal Structures and Characterization of Ca(Ⅱ) and Ba(Ⅱ) Coordination Polymers Derived from Thiophene-2,5-dicarboxylate (English)

ZHANG Yan-Hong, Adhikari Shiba Prasad, Day Cynthia, Lachgar Abdou

DOI:10.11862/CJIC.2017.158
Chinese J. Inorg. Chem., **2017**,**33**:1305-1312



Two new alkaline earth metal coordination polymers $[Ca(tdc)(DMF)_2]_n$ (**1**) and $[Ba(tdc)]_n$ (**2**) (H_2tdc=2,5-thiophene dicarboxylate) have been synthesized. Complex **1** exhibits a two-dimensional (2D) layer structure, whereas complex **2** features a 3D framework. Both the two complexes exhibit strong fluorescent properties at room temperature.