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Pyrazolate-Based Dipalladium (II, II) Complexes: Syntheses, Characterization and Catalytical Performance in Suzuki-Coupling Reaction

CHEN Han, YU Zhi-Chun, DENG Wei, JIANG Xuan-Feng, YU Shu-Yan

DOI:10.11862/CJIC.2017.090

Chinese J. Inorg. Chem., **2017**,**33**:939-946

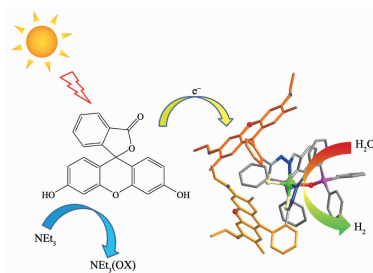
Articles

Photocatalytic Hydrogen Production Based on Cobalt-Thiosemicarbazone Complex with the Xanthene Dye Moiety (English)

YANG Lin-Lin, JING Xu, HE Cheng, DUAN Chun-Ying

DOI:10.11862/CJIC.2017.126

Chinese J. Inorg. Chem., **2017**,**33**:913-922



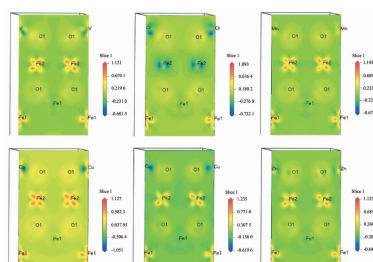
By incorporating a triphenylphosphine donor within a thiosemicarbazone moiety, two cobalt thiosemicarbazone complexes with different terminal ligands were prepared as the proton reduction catalyst for light driven H_2 evolution in homogeneous environment with **FI** as the photosensitizer. The intermolecular π - π interactions between rhodamine groups in **2** are benefit for the photo-induced electron transform, and achieve the better catalytic activity than **1** with the TON and initial TOF reaching to 2 800 $\text{mol}_{H_2} \cdot \text{mol}_{cat}^{-1}$ and 930 $\text{mol}_{H_2} \cdot \text{mol}_{cat}^{-1} \cdot \text{h}^{-1}$, respectively.

Theoretical Study of the Magnetic and Electric Properties of Transition Elements Doped Fe_3O_4 (001) Surface

ZHAO Zhong-Xia, REN Ren, REN Yi-Jing, ZHOU Zhi-Li

DOI:10.11862/CJIC.2017.091

Chinese J. Inorg. Chem., **2017**,**33**:923-931



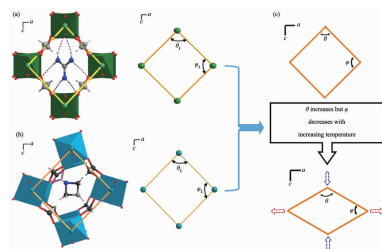
The covalent interaction between doped V, Cr, Mn, Co, Cu, Zn ions and O have formed as shown in electron density Fe_3O_4 (001). The magnetic moment of Fe_3O_4 doped Mn are mainly derived from 3d orbital spin polarization of Mn and Fe shown in PDOS.

Negative Thermal Expansion Properties of Two Metal-Organic Perovskite Frameworks

FENG Guo-Qiang, MA Jun, GUI Di,
LI Zhi-Hua, LI Wei

DOI:10.11862/CJIC.2017.133

Chinese J. Inorg. Chem., **2017**,**33**:932-938



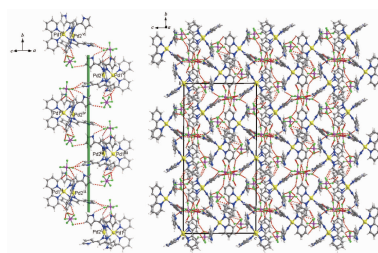
Two metal-organic perovskites $[\text{C}(\text{NH}_2)_3][\text{Mn}(\text{HCOO})_3]$ (**1**) and $[(\text{CH}_2)_3\text{NH}_2][\text{Mn}(\text{HCOO})_3]$ (**2**) show significant negative thermal expansion (NTE) phenomena along their *c*-axes, which can be explained by using a hinge-strut structural motif.

Pyrazolate-Based Dipalladium (II, II) Complexes: Syntheses, Characterization and Catalytical Performance in Suzuki-Coupling Reaction

CHEN Han, YU Zhi-Chun, DENG Wei,
JIANG Xuan-Feng, YU Shu-Yan

DOI:10.11862/CJIC.2017.090

Chinese J. Inorg. Chem., **2017**,**33**:939-946



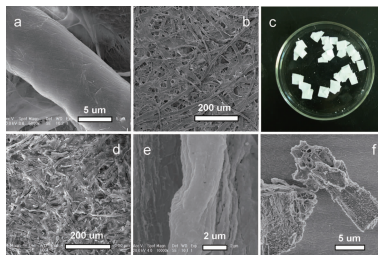
A series of bipyrazolate-bridged dimetal corners with chiral helical structure are constructed by pyrazolate-based dipalladium clips and their catalytic activities are characterized by Suzuki-coupling reaction.

Synthesis of Mesoporous Bioactive Glass Microtubes by Biotemplate of Filter Paper

LÜ Zhuo, DIAO Meng-Xue, GAO Ya-Wen,
WANG Hong-Su

DOI:10.11862/CJIC.2017.092

Chinese J. Inorg. Chem., **2017**,**33**:947-953



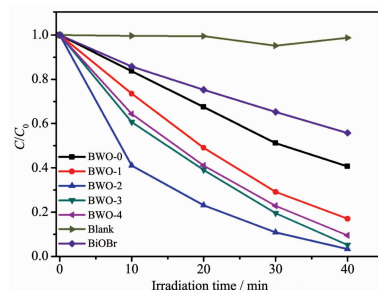
Mesoporous bioactive glass microtubes were successfully prepared through a surface sol-gel process followed by a calcination treatment and using filter paper as the biotemplate. In the synthesized mesoporous bioactive glass microtubes, the tubular structures of rapid filter paper were replicated with the walls containing highly ordered mesoporous bioactive glasses as well. By introducing FeCl_3 , the microtubes materials had not only delicate multichannel tubular structures, bioactivities, biocompatibilities and the capability for sustained drug delivery, but also magnetic properties.

Hydrothermal Synthesis and Visible-Light Photocatalytic Performance of Br^- Doped Bi_2WO_6

ZHANG Tian, ZOU Zheng-Guang, HE Jin-Yun,
LONG Fei, WANG Ji-Lin, MO Shu-Yi

DOI:10.11862/CJIC.2017.093

Chinese J. Inorg. Chem., **2017**,**33**:954-962



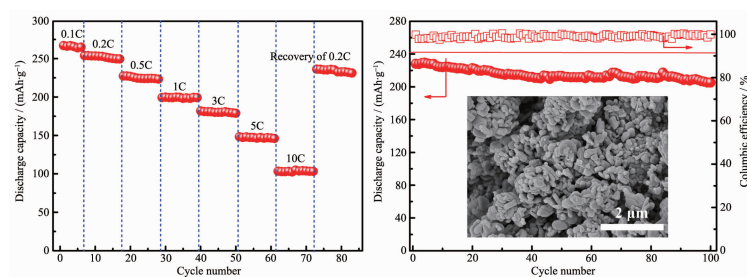
The lattice defects of Bi_2WO_6 was caused by appropriate amount of Br^- doping, which accelerates the charge separation rate. When doped 8% mole ratio of Br^- , the Bi_2WO_6 photocatalyst displayed much higher photocatalytic activity than pristine sample and BiOBr . It could decomposed 96.73% RhB after 40 minutes irradiation.

Effective Enhancement of the Electrochemical Performance of Layered Li-Rich Cathode $\text{Li}_{1.5}\text{Ni}_{0.25}\text{Mn}_{0.75}\text{O}_{2.5}$ by a Facile Molten Salt Method for Lithium-Ion Batteries

ZHENG Zhuo, YANG Xiu-Shan, HUA Wei-Bo, TANG Yan

DOI:10.11862/CJIC.2017.114

Chinese J. Inorg. Chem., **2017**,**33**:963-969



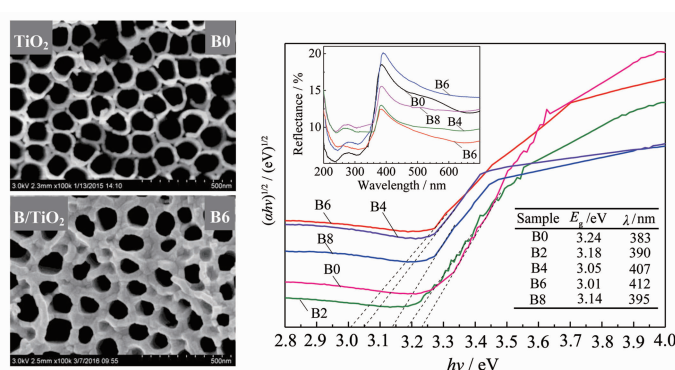
A nanocrystalline lithium-rich cathode $\text{Li}_{1.5}\text{Mn}_{0.75}\text{Ni}_{0.25}\text{O}_{2.5}$ has been prepared by a novel synthetic route, which combines the co-precipitation method and a modified molten salt method. The cathode exhibits an excellent high rate performance ($102 \text{ mAh} \cdot \text{g}^{-1}$ at 10C) and long-term cycling stability (90% of capacity retention at 0.5C after 100 cycles).

Effect of NaBF_4 Addition on the Preparation of TiO_2 Nanotubes Photocatalyst by Anodic Oxidation Method

WANG Zhu-Mei, ZHU Xiao-Ling, LI Yue-Ming, LIAO Run-Hua, SHEN Zong-Yang

DOI:10.11862/CJIC.2017.113

Chinese J. Inorg. Chem., **2017**,**33**:970-976



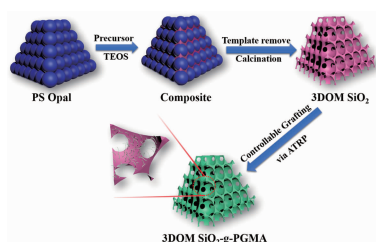
Boron doped TiO_2 nanotube arrays with regular shape were synthesized by adding 0.6% (w/w) NaBF_4 (B6) in anodic oxidation electrolyte. B doping could effectively promote the formation of active group Ti-OH on the surface of TiO_2 , decrease the band gap energy, and make the absorption edges of the samples red-shifting.

Three-Dimensionally Ordered Hybrid Macroporous SiO_2 : Preparation, Characterization and Application

ZHAO Bin, HUANG Yan, ZHANG Xu, WANG Xiao-Mei

DOI:10.11862/CJIC.2017.130

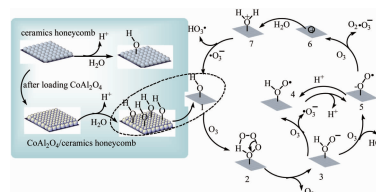
Chinese J. Inorg. Chem., **2017**,**33**:977-984



A novel hybrid porous SiO_2 based on 3DOM structure were prepared by grafting PGMA from 3DOM SiO_2 via SI-ATRP, which presented the high adsorption capacity towards SA after ring-opening reaction by diethylenetriamine.

CoAl_2O_4 /Ceramic Honeycomb Catalyst: Preparation and Performance on Catalytic Ozonation in Wastewater Treatment

ZHANG Lan-He, GAO Wei-Wei, CHEN Zi-Cheng, ZHOU Jing, WANG Xu-Ming, ZHANG Hai-Feng



CoAl_2O_4 /ceramic honeycomb catalyst with a typical spinel structure was prepared by coated method, and catalytic ozonation of hydroquinone on CoAl_2O_4 /ceramic honeycomb should follow a hydroxyl radical mechanism.

DOI:10.11862/CJIC.2017.115

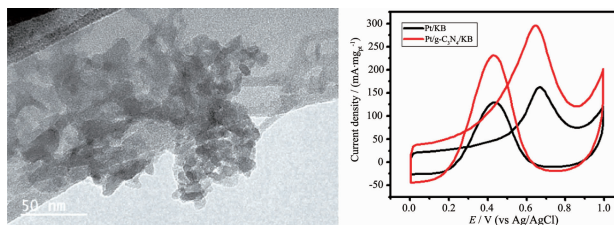
Chinese J. Inorg. Chem., **2017**,**33**:985-992

Facile Fabrication of Pt/g-C₃N₄/KB Catalyst for Methanol Oxidation

CHENG Jie-Xu, HU Xiu-Lan,
ZHANG Jian-Bo, HUANG Hui-Hong, SU Nan

DOI:10.11862/CJIC.2017.119

Chinese J. Inorg. Chem., **2017**,**33**:993-999

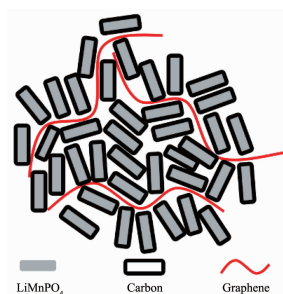


Effect of Carbon and Graphene on Performance of LiMnPO₄ Material

LUO Di-Di, TIAN Jian-Hua, ZHU Xi,
WANG Zhao-Dong, SHAN Zhong-Qiang

DOI:10.11862/CJIC.2017.129

Chinese J. Inorg. Chem., **2017**,**33**:1000-1006



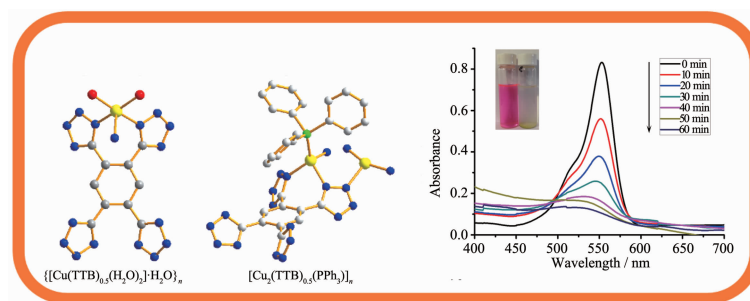
A proper amount of carbon coating and graphene modification can significantly improve the conductivity of LiMnPO₄ composite. LiMnPO₄-C-G composite with 4% pyrolytic carbon and 2% graphene exhibits better electrochemical performances.

Cu(I)/Cu(II) Complexes Based on Tetrazole Derivative: Degradation of Organic Dye under Visible Light Irradiation

HOU Bu-Wei, LI Kai

DOI:10.11862/CJIC.2017.110

Chinese J. Inorg. Chem., **2017**,**33**:1007-1014

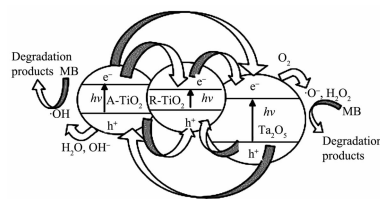


Controllable Oxidation Preparation and Performances of Hollow Ta₂O₅/TiO₂ Composite Photocatalysts

CHEN Jia, ZHANG Jiang, LI Xuan-Ke,
YUAN Guan-Ming, DONG Zhi-Jun,
CONG Ye, LI Yan-Jun, CUI Zheng-Wei

DOI:10.11862/CJIC.2017.121

Chinese J. Inorg. Chem., **2017**,**33**:1015-1022



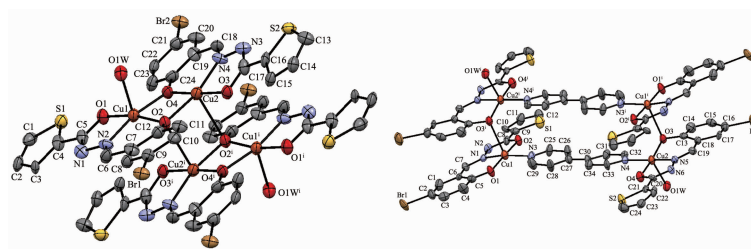
The effective separation of photogenerated electrons and holes was carried out by the effective coupling of electronic energy band structures between TiO₂ and Ta₂O₅.

Two Adjustable Tetranuclear Copper(II) Schiff Base Complexes: Self-Assembly, Crystal Structures and Antitumor Activities

CHEN Yan-Min, JIANG Yan, HONG Si-Yu,
YAO Yong-Gang, XIE Qing-Fan

DOI:10.11862/CJIC.2017.122

Chinese J. Inorg. Chem., **2017**,**33**:1023-1029

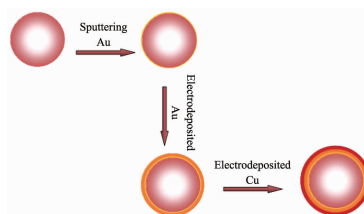


Electrodepositing Double Au-Cu Shells on Hollow Polystyrene Microsphere (English)

WU Guo-Guo, JIN Rong, PU Yong,
LI Jun-Jun, YAN Heng-Qing,
ZHANG Yun-Wang, ZHANG Lin

DOI:10.11862/CJIC.2017.120

Chinese J. Inorg. Chem., **2017**,**33**:1030-1034



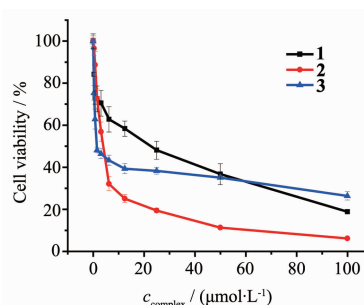
Hollow polystyrene microspheres are not conductive to be sputtered Au of 10-100-nm-thick. And the sputtered microspheres are moving on the cathode and deposited gold of 5.6 μm in the self-designed electrodeposition setup. Then Au and Cu are face-centered cubic structure, so Cu is suitable to be deposited on Au film via epitaxial growth. The Cu layer is 8.62 μm and Au-Cu is compact. Finally, the PS/Au/Cu keep a good spherical symmetric.

Syntheses, Characterization and Antitumor Activity of Three Mononuclear Ruthenium(II) Complexes (English)

ZHANG Yan, YANG Yan, WEN Yan-Zhen,
JIA Shi-Fang

DOI:10.11862/CJIC.2017.123

Chinese J. Inorg. Chem., **2017**,**33**:1035-1042



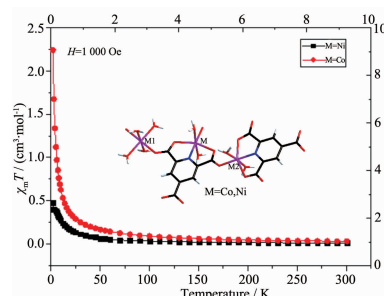
Spectroscopic properties, electrochemical properties and cytotoxicity of three ruthenium(II) complexes were studied. $[\text{Ru}(\text{dmb})_2(\text{paH})]\text{PF}_6$ (**2**) (dmb=4,4'-dimethyl-2,2'-bipyridine, paH=pyridinecarboxylic acid) showed excellent antitumor effects in a cellular study indicating that it might be a potential anticancer agent.

Syntheses, Structures and Magnetic Analysis of Co(II), Ni(III) Coordination Polymers Based on Pyridine-2,4,6-tricarboxylic Acid (English)

YIN Xiu-Ju, LIAO Bei-Ling,
WU Han-Min, PANG Yi-Lin, LI Shi-Xiong

DOI:10.11862/CJIC.2017.116

Chinese J. Inorg. Chem., **2017**,**33**:1043-1050

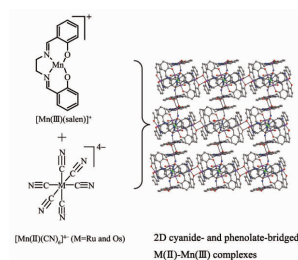


Syntheses, Crystal Structures and Magnetic Properties of Cyanide- and Phenolate-Bridged Two-Dimensional M(II)-Mn(III) (M=Ru and Os) Complexes (English)

ZHANG Li-Fang, XU Lu, JI Yu-Jie,
NI Zhong-Hai

DOI:10.11862/CJIC.2017.124

Chinese J. Inorg. Chem., **2017**,**33**:1051-1058



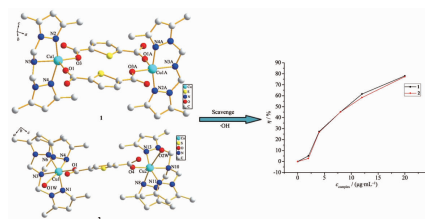
Two cyanide- and phenolate-bridged M(II)-Mn(III) 2D (M=Ru and Os) complexes have been synthesized based on $[\text{Mn}(\text{III})(\text{salen})]^+$ segment and cyanide-containing building blocks $[\text{M}(\text{II})(\text{CN})_6]^{4-}$. Magnetic studies show that they are abnormal antiferromagnetic.

Syntheses, Characterization and Radical Scavenging Activity of Two Copper(II) Complexes Containing Pyrazoles (English)

YANG Hong, GUO Li-Jun

DOI:10.11862/CJIC.2017.125

Chinese J. Inorg. Chem., **2017**,**33**:1059-1064



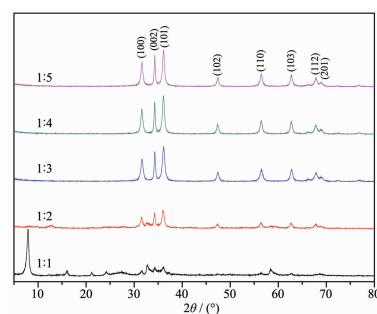
Two binuclear copper complexes $[\text{Cu}_2(\text{DMPzA})_2(\text{TPDC})_2]\text{ClO}_4$ (**1**) and $[\text{Cu}_2(\text{TMPzA})_2(\text{TPDC})(\text{H}_2\text{O})_2](\text{ClO}_4)_2$ (**2**) have been synthesized. The hydroxyl radicals scavenging activity has been studied and the results exhibit that **1** has better activity than **2** may be due to the different coordination modes.

Characterization, Photocatalytic Property and Kinetics of ZnO Nanoparticles Synthesized by One Step Solid State Reaction (English)

HE Deng-Liang, TAN Zi-Xiang, TIAN Qi

DOI:10.11862/CJIC.2017.142

Chinese J. Inorg. Chem., **2017**,**33**:1065-1073



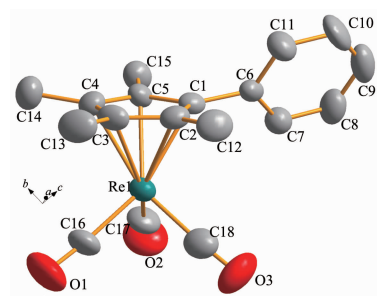
ZnO nanoparticles were synthesized by one step solid state reaction using only zinc sulfate heptahydrate and sodium hydroxide. In the process the dosage of NaOH is an important parameter, which can affect the composition, crystallinity and morphology of the ZnO nanoparticles.

Syntheses, Crystal Structures and Catalytic Activity of Rhenium Carbonyl Complexes Containing Aryl-Substituted Tetramethylcyclopentadienyl Ligands (English)

MA Zhi-Hong, LI Zhan-Wei, QIN Mei, LI Su-Zhen, HAN Zhan-Gang, ZHENG Xue-Zhong, LIN Jin

DOI:10.11862/CJIC.2017.117

Chinese J. Inorg. Chem., **2017**,**33**:1074-1080



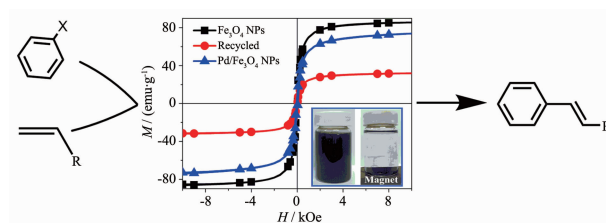
Thermal treatment of cyclopentadienes C_5HMe_4Ar ($Ar=Ph$, 4- CH_3Ph , 4- OCH_3Ph , 4- $ClPh$, 4- $BrPh$) with $Re_2(CO)_{10}$ in refluxing xylene gave five new aryl-substituted tetramethylcyclopentadienyl mononuclear rhenium carbonyl complexes. Friedel-Crafts reactions of aromatic substrates with *tert*-butyl halides catalyzed by these complexes showed that they have obvious catalytic activity.

Efficient Synthesis and Application in Heck Reaction of Pd/Fe₃O₄ Magnetic Nanoparticles(English)

SUN Yuan-Xu, GUO Dan-Dan, ZHU Xiao-Qing, WANG Cheng, CHEN She-Yun, DAI Jing-Tao

DOI:10.11862/CJIC.2017.132

Chinese J. Inorg. Chem., **2017**,**33**:1081-1089



Pd/Fe₃O₄ nanoparticles were prepared with PVP as a capping agent. These nanoparticles are highly efficient, magnetically recoverable, and recyclable catalysts for the Heck coupling reactions. In addition, the catalyst can be separate easily from the reaction system. Simple environment are the other advantage of this catalytic system.

Syntheses, Crystal Structures and Properties of Two *d*¹⁰ Metal Complexes Constructed from 1,5-bis(2-ethyl-imidazolyl)pentane(English)

CHEN Man-Sheng, HUANG Xiu-Yu, CHEN Xiao-Li, LIU Qin, HE Xiang-Liang, ZENG Zhao-Jian

DOI:10.11862/CJIC.2017.128

Chinese J. Inorg. Chem., **2017**,**33**:1090-1096

