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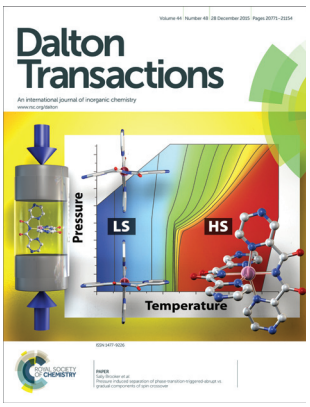
IN THIS ISSUE

ISSN 1477-9226 CODEN DTARAF 44(48) 20771–21154 (2015)



Cover
See Sally Brooker *et al.*, pp. 20843–20849.

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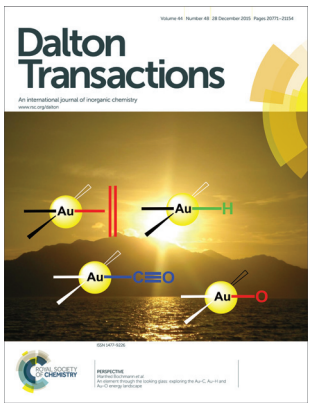

Inside cover
See Manfred Bochmann *et al.*, pp. 20785–20807.

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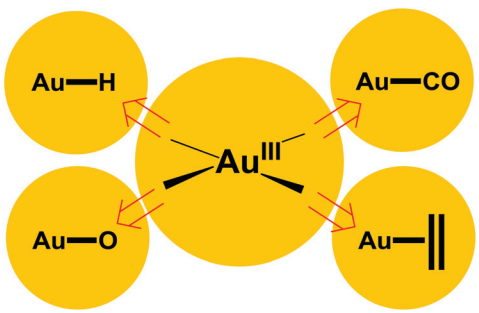
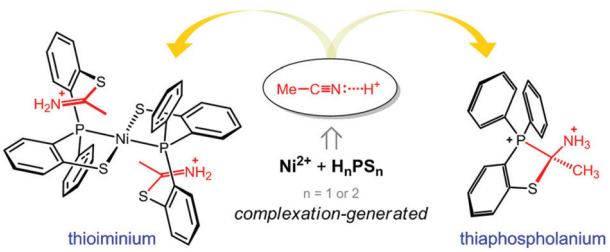
PERSPECTIVE



COMMUNICATIONS



Dalton Transactions (print: ISSN 1477-9226; electronic: ISSN 1477-9234) is published 48 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF.

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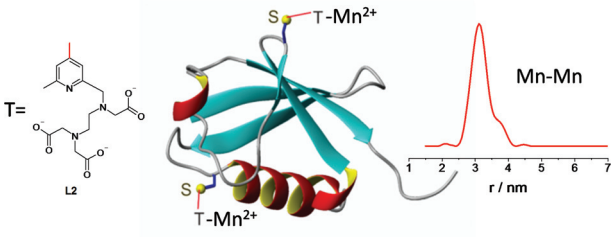

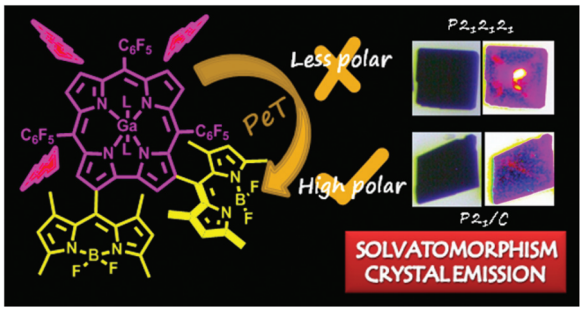

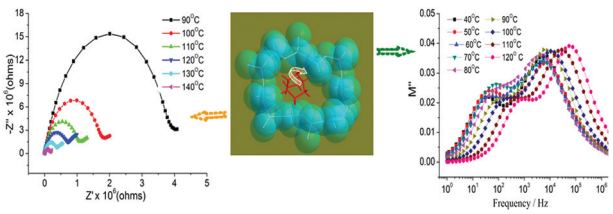

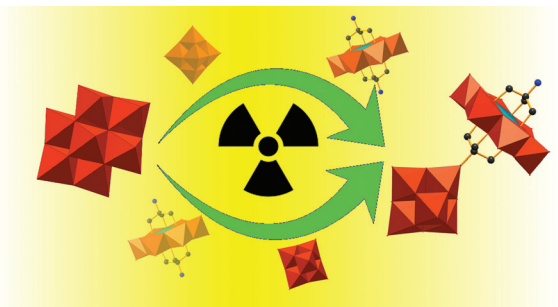

COMMUNICATIONS

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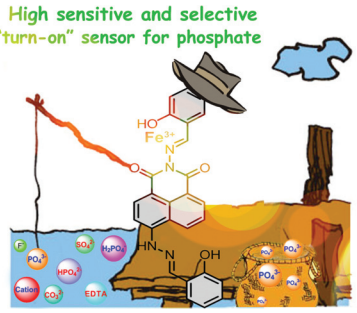
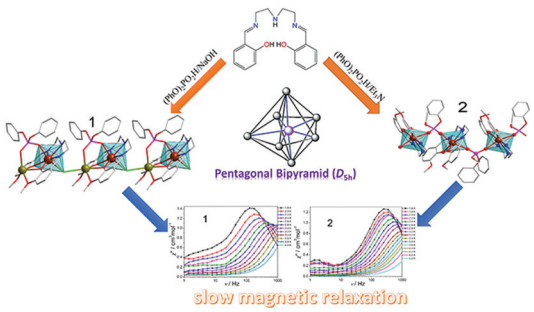


Rational design of a highly sensitive and selective "turn-on" fluorescent sensor for PO_4^{3-} detection

Si-Quan Jiang, Zi-Yan Zhou,* Shu-Ping Zhuo, Guo-Gang Shan,* Ling-Bao Xing, Hai-Ning Wang and Zhong-Min Su*

An *in situ*-generated iron(III) complex with a 1,8-naphthalene-based Schiff base unit has been rationally designed, which exhibits a highly selective response and excellent sensitivity for the turn-on detection of PO_4^{3-} anions.

20834

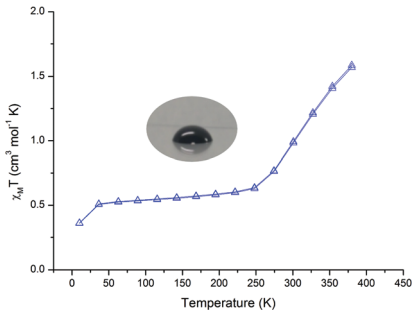


Single molecule magnet behavior observed in a 1-D dysprosium chain with quasi-D_{5h} symmetry

Xing-Cai Huang, Ming Zhang, Dayu Wu,* Dong Shao, Xin-Hua Zhao, Wei Huang and Xin-Yi Wang*

Two one-dimensional coordination polymers with pentagonal bipyramidal Dy^{III} centres show slow magnetic relaxation featuring single molecule magnet behavior.

20839



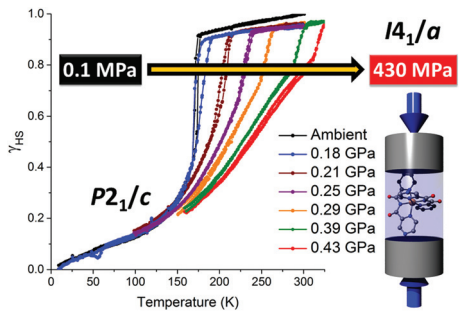
A room temperature spin crossover ionic liquid

Anthony J. Fitzpatrick, Helen M. O'Connor and Grace G. Morgan*

Two new paramagnetic ionic liquids (ILs) comprising a mononuclear iron(III) or manganese(III) complex cation, charge balanced by a dicyanamide anion are reported which show a range of spin states including spin crossover.

PAPERS

20843



Pressure induced separation of phase-transition-triggered-abrupt *vs.* gradual components of spin crossover

Reece G. Miller, Suresh Narayanaswamy, Simon M. Clark, Przemslaw Dera, Geoffrey B. Jameson, Jeffery L. Tallon and Sally Brooker*

For the first time, the effects of pressure on cobalt(II) spin crossover are investigated in detail both magnetically and structurally (including structure determinations).

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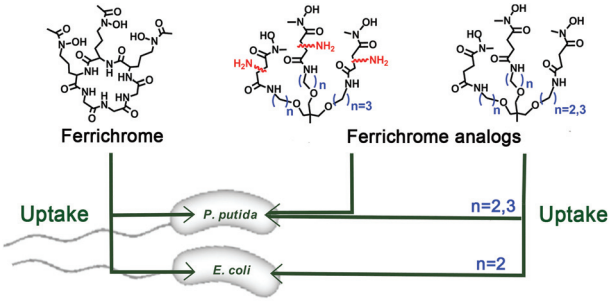

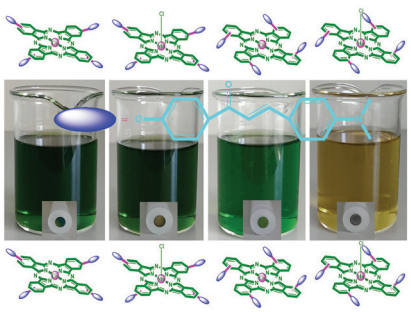

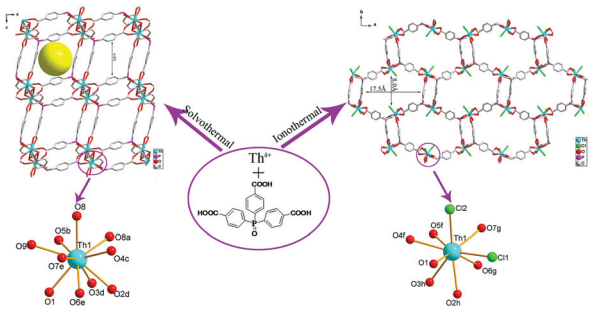

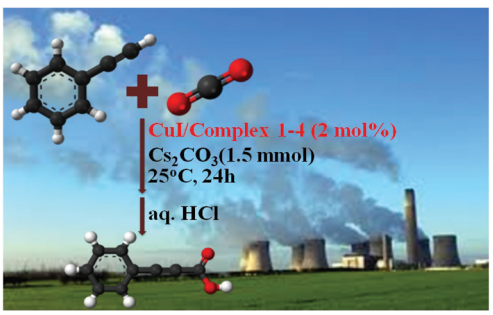

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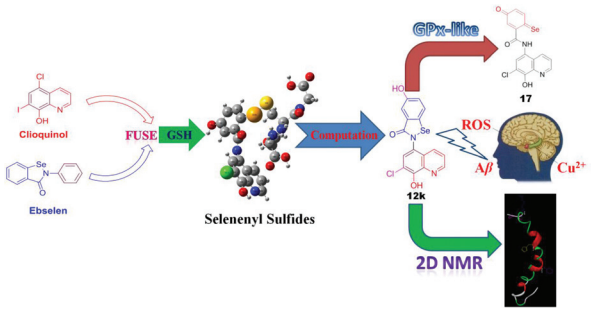

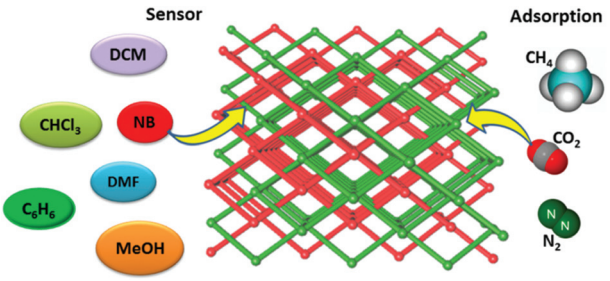

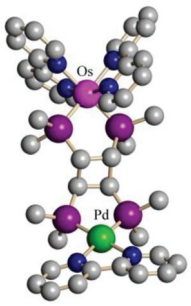

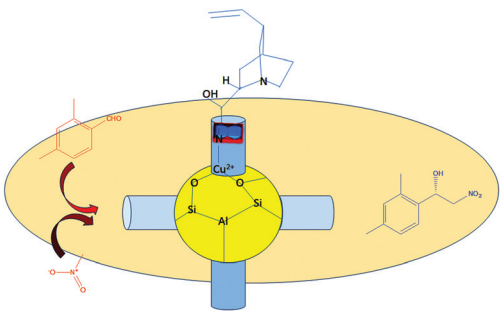

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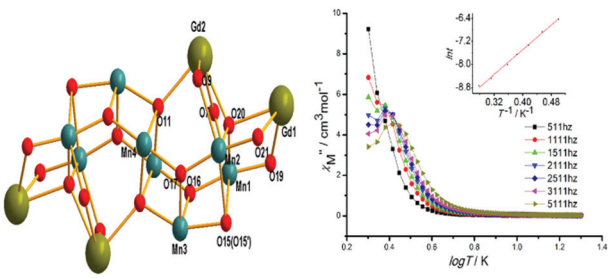
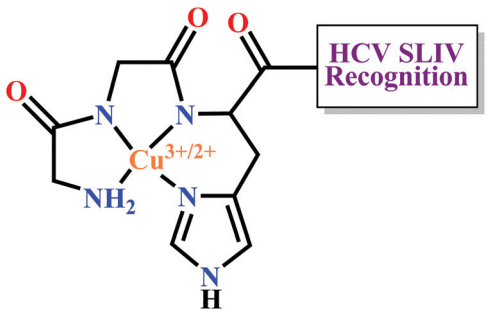


Dodenuclear $[Mn^{III}_8Ln^{III}_4]$ clusters with 2-(hydroxymethyl)pyridine: syntheses, structures, and magnetic properties

Lei Sun, Hui Chen, Chengbing Ma and Changneng Chen*

Dodenuclear Mn/Ln clusters with 2-(hydroxymethyl)-pyridine as a ligand have been synthesized. Complexes **1** and **5** showed a frequency-dependent decrease in χ'_MT and an out-of-phase χ''_M peak maximum, indicating slow magnetic relaxation and potential SMM behaviour.

20972

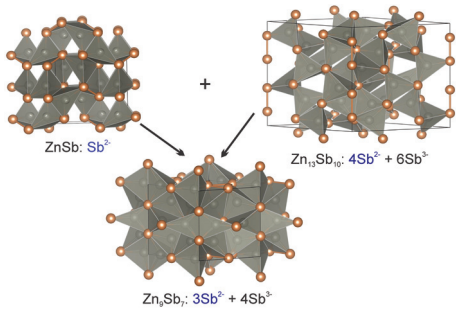


Catalytic metallodrugs based on the LaR2C peptide target HCV SLIV IRES RNA

Martin James Ross, Seth S. Bradford and J. A. Cowan*

Catalytic metallodrugs based on the human La protein demonstrate selected cleavage of stem-loop IV of the Hepatitis C Virus IRES.

20983

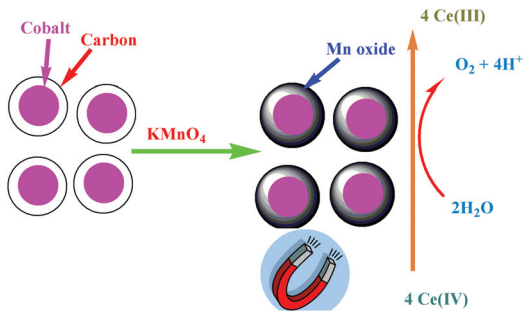


Identification, structural characterization and transformations of the high-temperature $Zn_{9-\delta}Sb_7$ phase in the Zn–Sb system

Allan He, Volodymyr Svitlyk, Dmitry Chernyshov and Yurij Mozharivskyj*

The Zn_9Sb_7 phase stable between 514 and 581 °C has structural features of both ZnSb and $Zn_{13}Sb_{10}$.

20991



Carbon for engineering of a water-oxidizing catalyst

Mohammad Mahdi Najafpour* and Saeideh Salimi

Herein, we report a conductive, self-healing, recycling, highly dispersible, magnetically separable, environmentally friendly, and nano-sized water-oxidizing catalyst. Carbon has a significant role in engineering of the water-oxidizing catalyst.

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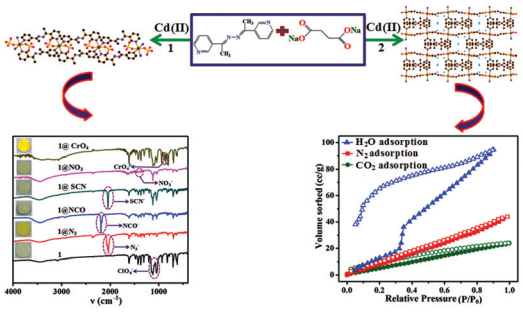

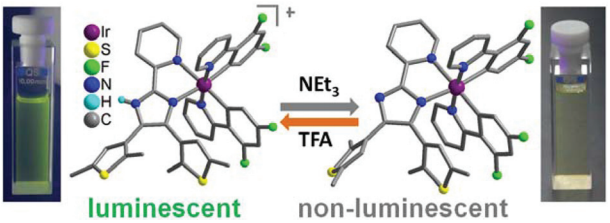

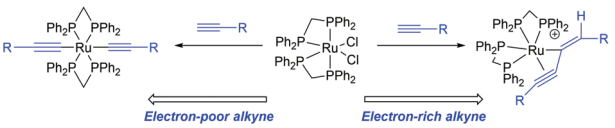

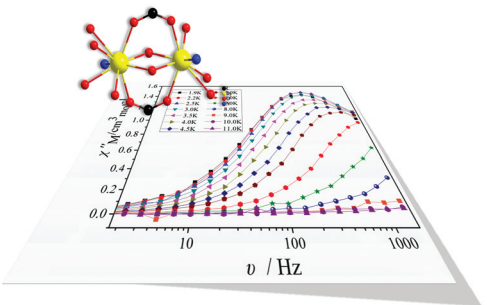

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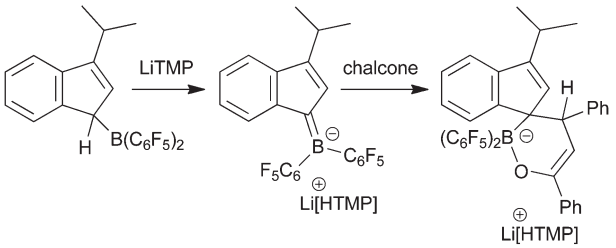
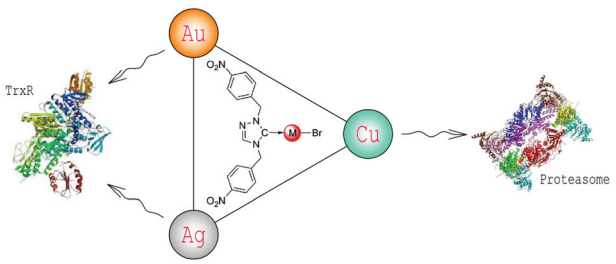


Stabilized borata-alkene formation: structural features, reactions and the role of the counter cation

Sonja Kohrt, Steffen Dachwitz, Constantin G. Daniliuc, Gerald Kehr and Gerhard Erker*

A stable borata-alkene was prepared starting from dimethylbenzofulvene and Piers' borane [$HB(C_6F_5)_2$]. It undergoes a cycloaddiiton reaction with chalcone.

21041

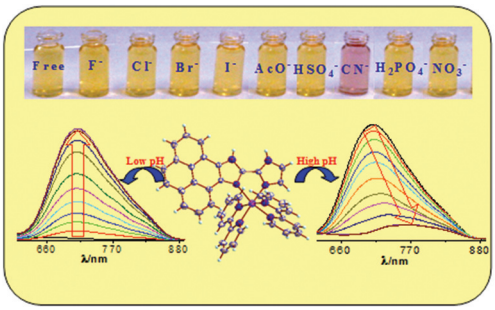


Novel triazolium based 11th group NHCs: synthesis, characterization and cellular response mechanisms

M. Pellei, V. Gandin,* M. Marinelli, A. Orsetti, F. Del Bello, C. Santini* and C. Marzano

The novel NHC ligand precursor 1,4-bis(4-nitrobenzyl)-1*H*-1,2,4-triazol-4-ium bromide, [$HTz^{(pNO_2}Bz)_2$]Br, has been synthesized and used in the synthesis of the corresponding metal complexes M[$Tz^{(pNO_2}Bz)_2$]Br (M = Cu(I), Ag(I) or Au(I)).

21053

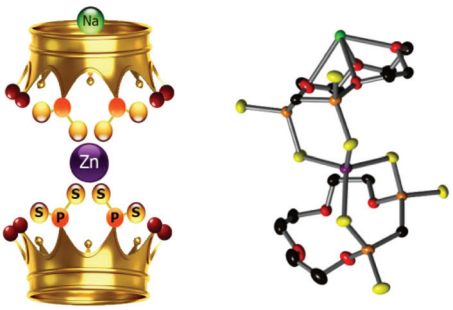


Pyrene-biimidazole based Ru(II) and Os(II) complexes as highly efficient probes for the visible and near-infrared detection of cyanide in aqueous media

Sourav Mardanya, Srikanta Karmakar, Manoranjan Bar and Sujoy Baitalik*

Pyrenyl-biimidazole based Ru(II) and Os(II) complexes are used as highly efficient cyanide sensors in aqueous media.

21073



Novel crown-ether–methylenediphosphono-tetrathioate hybrids as Zn(II) chelators

Diana Meltzer, Hugo E. Gottlieb, Aviran Amir, Linda J. W. Shimon and Bilha Fischer*

A 13-membered methylenediphosphonotetrathioate–crown ether hybrid is a water-soluble, air-stable, high-affinity Zn(II)-chelator, exhibiting selectivity to Zn(II) *vs.* Mg(II), Na(I), and Li(I).

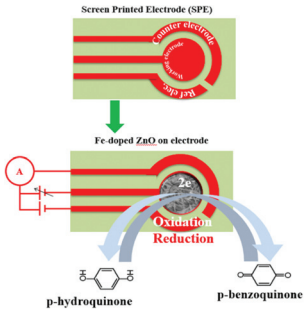
PAPERS

21081

Fabrication and characterization of a highly sensitive hydroquinone chemical sensor based on iron-doped ZnO nanorods

Ahmad Umar,* Ali Al-Hajry, Rafiq Ahmad, S. G. Ansari, Mohammed Sultan Al-Assiri and Hamed Algarni

Herein, we report the development of a simple and highly sensitive hydroquinone (HQ) chemical sensor based on an electrochemically activated iron-doped zinc oxide nanorod modified screen-printed electrode.

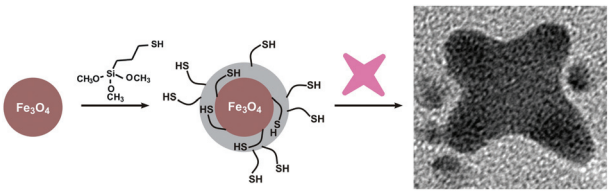


21088

Silane-coated magnetic nanoparticles with surface thiol functions for conjugation with gold nanostars

Piersandro Pallavicini,* Elisa Cabrini, Alberto Casu, Giacomo Dacarro, Yuri Antonio Diaz-Fernandez, Andrea Falqui, Chiara Milanese and Francesco Vita

Superparamagnetic magnetite nanoparticles are coated with a tunable number of free surface –SH, enabling them to decorate gold nanostars.

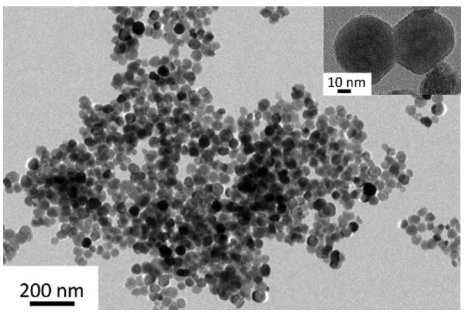


21099

The formation mechanism of iron oxide nanoparticles within the microwave-assisted solvothermal synthesis and its correlation with the structural and magnetic properties

Z. Kozakova,* I. Kuritka, N. E. Kazantseva, V. Babayan, M. Pastorek, M. Machovsky, P. Bazant and P. Saha

Iron oxide nanoparticles were prepared by MW assisted solvothermal synthesis. A reaction mechanism was elucidated that allowed us to tailor the properties of particles.

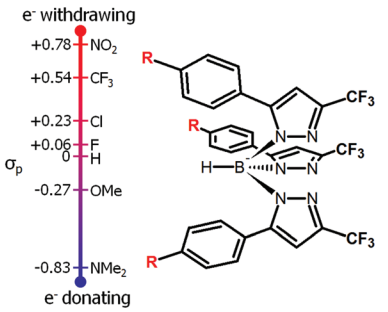


21109

Highly tunable fluorinated trispyrazolylborates $[HB(3\text{-}CF_3\text{-}5\text{-}\{4\text{-}RPh\}pz)_3]^-$ (R = NO_2, CF_3, Cl, F, H, OMe and NMe_2) and their copper(I) complexes

Thomas F. van Dijkman, Maxime A. Siegler and Elisabeth Bouwman*

A spectroscopic series of fluorinated trispyrazolylborate ligands was used to make copper(I) complexes with carbon monoxide and ethene. The tunable ligands induce clear trends in infrared and NMR spectra of the copper compounds.



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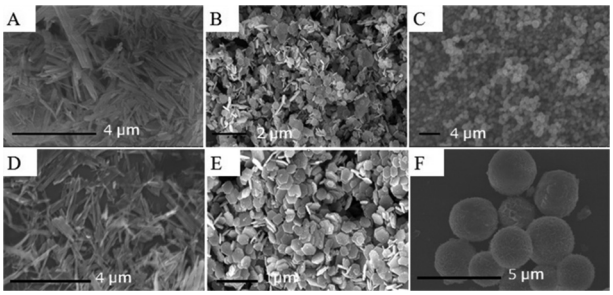
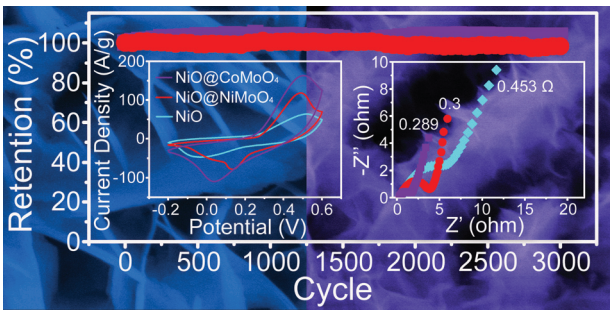


Investigation of $ZnCo_2O_4$–Pt hybrids with different morphologies towards catalytic CO oxidation

Fan Wang, Xiao Wang, Dapeng Liu,* Jiangman Zhen, Junqi Li and Hongjie Zhang*

In this work, three kinds of $ZnCo_2O_4$ morphologies, that is, rod, plate and sphere, have been successfully prepared and further used to support Pt nanoparticles (NPs) *via in situ* deposition.

21131

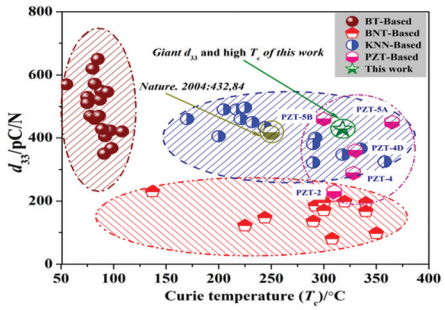


Comprehending the effect of $MMoO_4$ (M = Co, Ni) nanoflakes on improving the electrochemical performance of NiO electrodes

Lei An, Wenyao Li, Yunjiu Cao, Kaibing Xu, Rujia Zou, Tao Ji, Li Yu and Junqing Hu*

The hierarchical heterostructures of a NiO@$MMoO_4$ (M = Co, Ni) nanosheet array electrode demonstrated remarkable electrochemical performance with a high specific capacitance and predominant cycling stability.

21141



Modification of both d_{33} and T_C in a potassium–sodium niobate ternary system

Bo Wu, Jiagang Wu,* Dingquan Xiao* and Jianguo Zhu

In this work, we simultaneously achieved a giant d_{33} and a high T_C in a lead-free piezoelectric ternary system of $(1 - x - y)K_{0.48}Na_{0.52}NbO_3$–$xBiFeO_3$–$yBi_{0.5}Na_{0.5}ZrO_3$ {$(1 - x - y)$KNN–xBF–yBNZ}.