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IN THIS ISSUE

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Cover
See Augusto I. Costa, Miguel Julve and Maria Vanda Marinho *et al.*, pp. 3994–4004.

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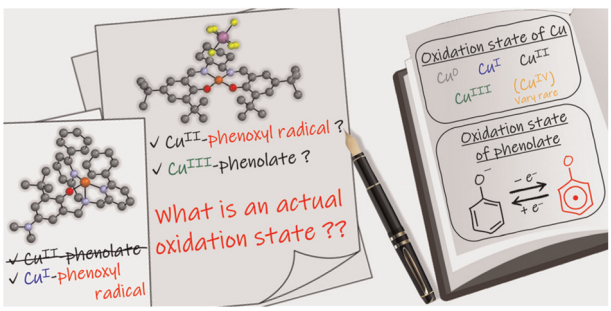
PERSPECTIVES

3911

Diversity of oxidation state in copper complexes with phenolate ligands

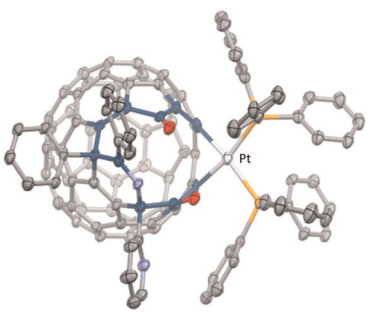
Tomoyuki Takeyama* and Yuichi Shimazaki*



3930

Open-cage fullerenes as ligands for metals

Alan L. Balch



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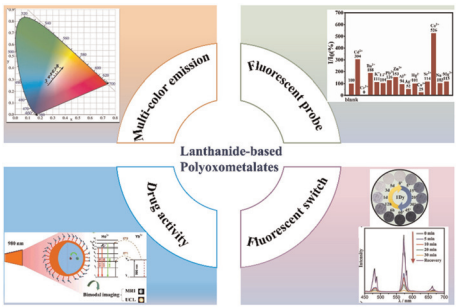
FRONTIERS

3949

Recent advances in lanthanide-based POMs for photoluminescent applications

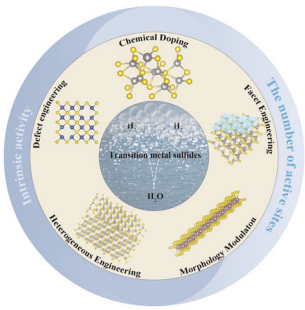
Kangting Zheng and Pengtao Ma*



3959

A review of modulation strategies for improving the catalytic performance of transition metal sulfide self-supported electrodes for the hydrogen evolution reaction

Qianqian Liu, Kehan Liu, Jianfeng Huang, Chiyuan Hui,* Xiaoyi Li and Liangliang Feng*

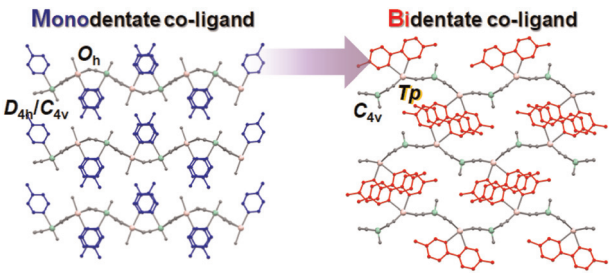


COMMUNICATIONS

3970

A novel style of 2D Hofmann-type coordination polymer incorporated trigonal prismatic coordination geometry with bidentate co-ligands

Yuki Imamura, Haruka Yoshino, Benjamin Le Ouay, Ryo Ohtani and Masaaki Ohba*



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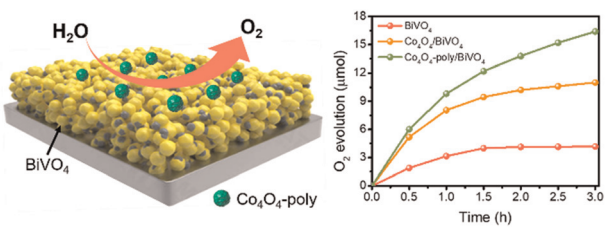
A heterogeneous cobalt cubane polymer co-catalyst for cooperative water oxidation

Siyuan Li, Wenchao Jiang, Qi Sui, Yujie Gao and Yi Jiang*



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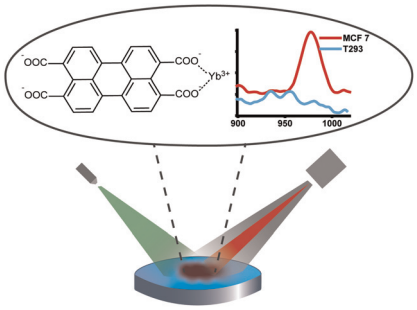
COMMUNICATIONS

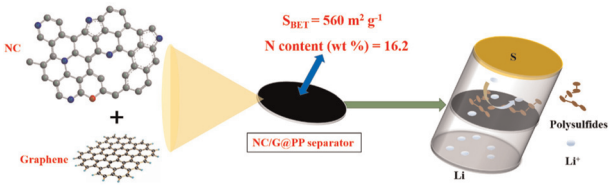
3980



Ytterbium 10-carboxyperylene-3,4,9-tricarboxylates for targeted NIR luminescent bioimaging

Anastasia V. Orlova,* Nazar V. Shmychkov, Kseniia Yu. Vlasova, Tamara M. Iakimova, Leonid S. Lepnev, Andrei A. Eliseev and Valentina V. Utochnikova

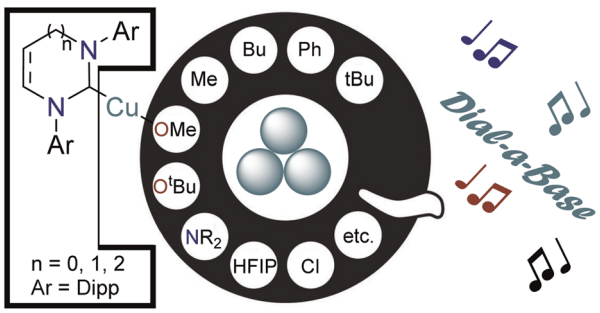
3985



Facile preparation of a lightweight multifunctional interlayer for high-performance Li–S batteries

Yuan Lei, Zhenyu Zhang, Zhan Lin, Samiran Bhattacharjee and Chao Chen*

3990

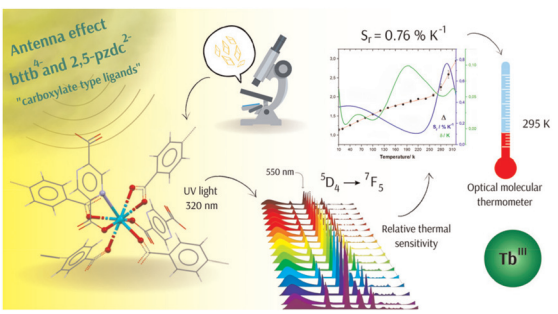


Dial-a-base mechanochemical synthesis of N-heterocyclic carbene copper complexes

Dawid J. Babula, Rex S. C. Charman, Josie A. Hobson, Mary F. Mahon and David J. Liptrot*

PAPERS

3994



Intensity and lifetime ratiometric luminescent thermometer based on a Tb(III) coordination polymer

Augusto Iwashita Costa, Rafaela M. R. da Silva, Luckerman D. G. Botelho, Sergio F. N. Coelho, Fernando A. Sigoli, João Honorato, Javier Ellena, Felipe T. Martins, Angelo M. Gomes, Wallace C. Nunes, Francesc Lloret, Miguel Julve and Maria Vanda Marinho*

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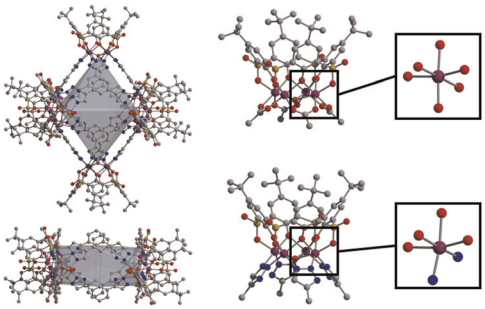
4005

Increasing the stability of calixarene-capped porous cages through coordination sphere tuning

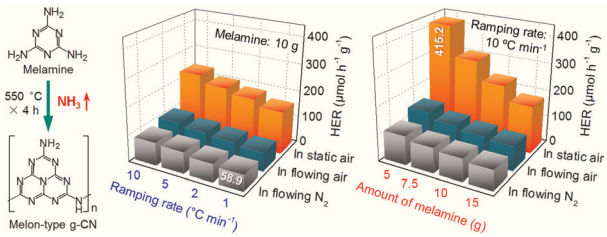
Avishek Dey, Michael R. Dworzak, Kaushalya D. P. Korathotage, Munmun Ghosh, Jahidul Hoq, Christine M. Montone, Glenn P. A. Yap and Eric D. Bloch*



4010

Small variation induces a big difference: the effect of polymerization kinetics of graphitic carbon nitride on its photocatalytic activity

Tong Li, Bo Lai, Jing Liu, Shuangtao Yuan, Nan Liu, Xiaojia Zhao, Xiaoguang Luo, Dongli Yu* and Yuanchun Zhao*



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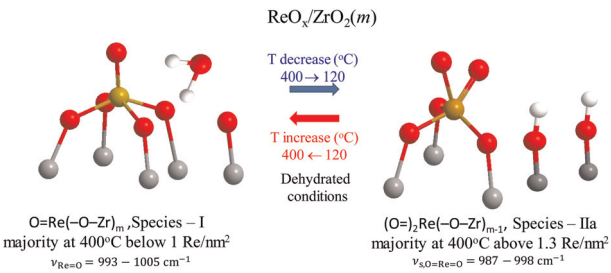
Vibrational spectroscopy of dispersed $Re^{VII}O_x$ sites supported on monoclinic zirconia

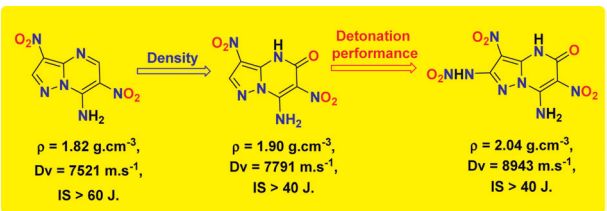
Chrysanthi Andriopoulou, Theocharis Kentri and Soghomon Boghosian*



4035

Obtaining superior high-density fused-ring energetic materials *via* the introduction of carbonyl, *o*-NH_2–NO_2 and nitroamino groups

Xiaoyu Guo, Yizhen Feng, Shengjie Zhi, Yajie Fu, Yingle Liu,* Qiangqiang Liu and Haixiang Gao*



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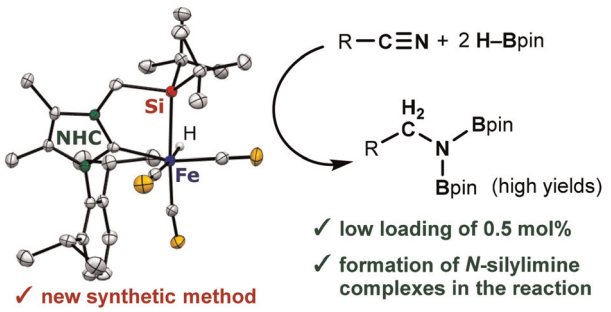
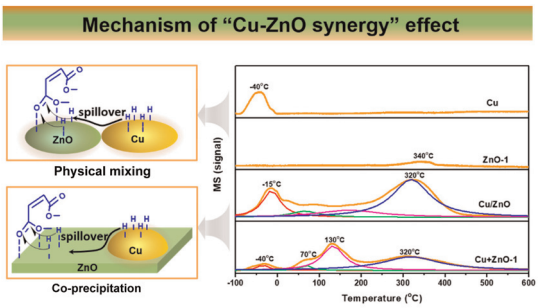


Iron complexes supported by silyl-NHC chelate ligands: synthesis and use for double hydroboration of nitriles

Takashi Komuro,* Kohei Hayasaka, Kasumi Takahashi, Nozomu Ishiwata, Kota Yamauchi, Hiromi Tobita and Hisako Hashimoto*

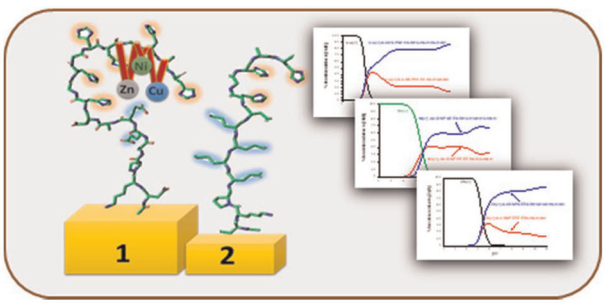
4048



New insight into the catalytic mechanism of ester hydrogenation over the Cu/ZnO catalyst: the contribution of hydrogen spillover

Lin Gao,* Guoqiang Ding,* Lei Zhu, Zhanqiu Yu, Hongju Li, Guoqiang Li, Yulei Zhu, Hongwei Xiang, Xiaodong Wen,* Yong Yang and Yongwang Li

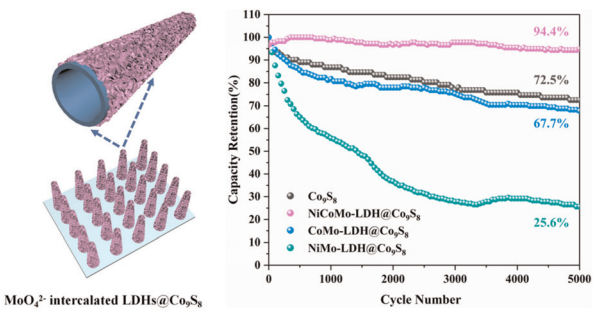
4054



Exploring binding preferences: Cu(II), Ni(II), and Zn(II) complexes of mycobacterial GroEL1 His-rich and Glu/His-rich domains

Anna Rola, Elżbieta Gumienna-Kontecka and Sławomir Potocki*

4067



Design and fabrication of MoO_4^{2-}-intercalated LDH nanosheets coated on Co_9S_8 nanotubes with enhanced cycling stability for high-performance supercapacitors

Lei Wu, Linli Chen, Hao Chen, Guochang Li, Wenna Zhao* and Lei Han*

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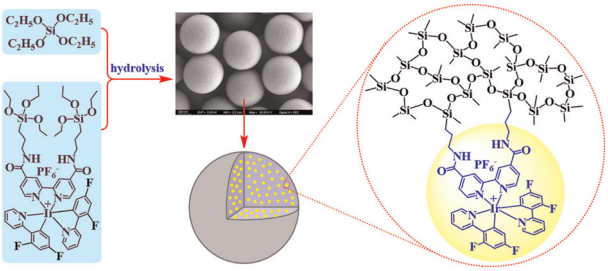
4080

Hybrid nanospheres of silica covalently containing yellow-emitting cationic iridium(III) complex: preparation and application in white light-emitting diodes

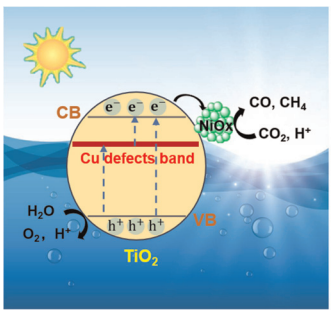
Haoju Li, Jing Qin, Shanglan Xian, Huaijun Tang,* Yuxiang Jiao, Meifang Zhang,* Long Wang, Qiang Zhou and Zhengliang Wang



4088

Constructing Cu defect band within TiO_2 and supporting NiO_x nanoparticles for efficient CO_2 photoreduction

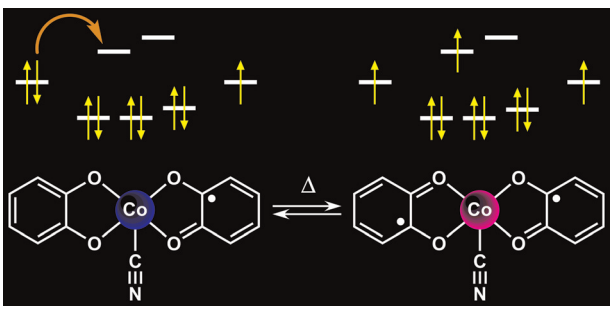
Jun-ying Tang, Xiao-jing Liu,* Rui-tang Guo,* Juan Wang, Qing-shan Wang and Wei-guo Pan*



4098

Low-spin to low-spin valence tautomeric transition in cobalt bis-dioxolenes

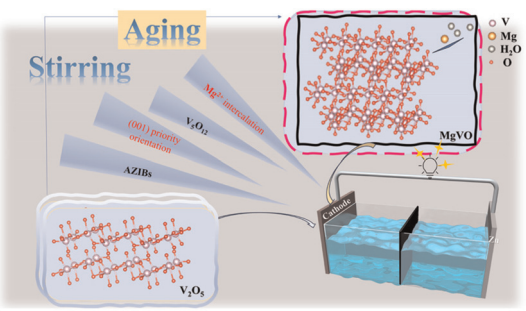
Max Mörtel, Stephen J. Goodner, Johannes Oschwald, Andreas Scheurer, Thomas Drewello and Marat M. Khusniyarov*



4108

Tailoring vanadium oxide crystal orientation for high-performance aqueous zinc-ion batteries

Rong Li, Yifei Yuan, Linyu Yang,* Jun Wang,* Shuying Wang,* Ablat Abliz, Xuefang Xie, Hongyu Mi and Haibing Li



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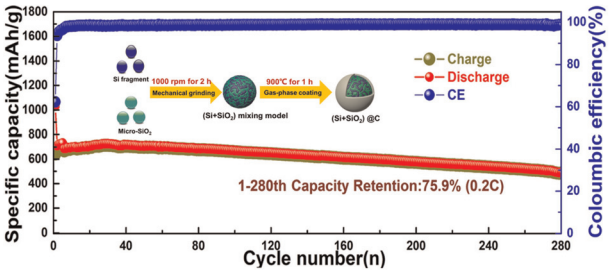
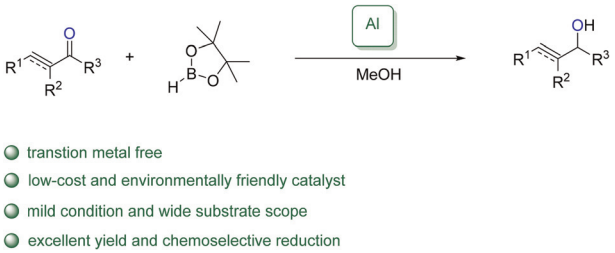


Facile synthesis of multi-phase (Si+SiO_2)@C anode materials for lithium-ion batteries

Shuai Wang, Zhenfei Cai, Rui Cao, Ziyang Ma, Qinyu Wu, Muhmmad Moin, Zishan Ahsan, Yangzhou Ma,* Guangsheng Song,* Weidong Yang and Cuie Wen

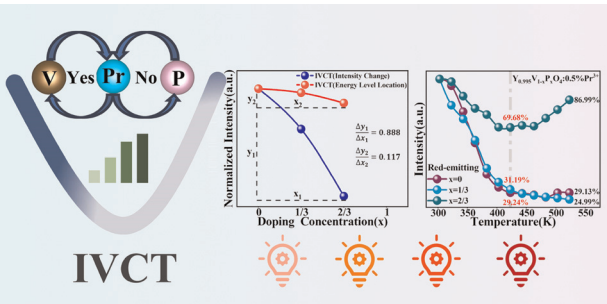
4127



Chemoselective Luche-type reduction of α,β-unsaturated ketones by aluminium hydride catalysis

Ben Yan, Xiaoli Ma,* Ziyuan Pang and Zhi Yang*

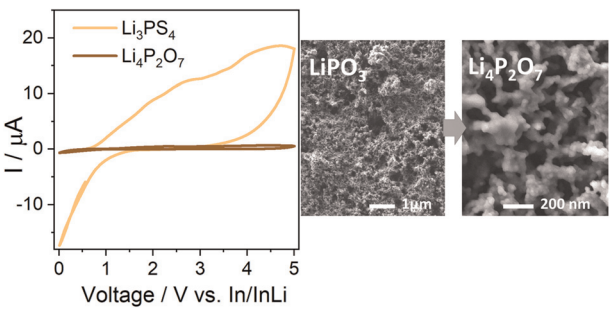
4132



Enhanced thermally stable performance of Pr^{3+}-doped vanadate phosphor by inhibiting the intervalence charge transfer quenching channel

Jianxia Liu, Chunwei Yang, Hong Chai, Yanmei Xin, Song Qu and Ning Guo*

4139



Morphology-controlled synthesis of novel nanostructured $Li_4P_2O_7$ with enhanced Li-ion conductivity for all-solid-state battery applications

Hany El-Shinawi,* Edmund J. Cussen and Serena A. Cussen

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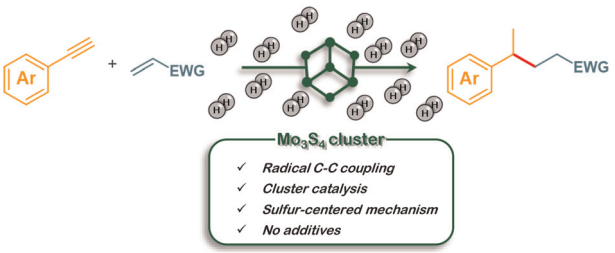
4147

Unprecedented Mo_3S_4 cluster-catalyzed radical C–C cross-coupling reactions of aryl alkynes and acrylates

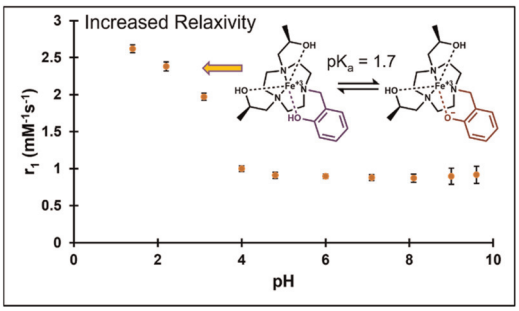
Juanjo Mateu-Campos, Eva Guillamón, Vicent S. Safont, Kathrin Junge, Henrik Junge, Matthias Beller* and Rosa Llusar*



4154

Macrocyclic complexes of Fe(III) with mixed hydroxypropyl and phenolate or amide pendants as T_1 MRI probes

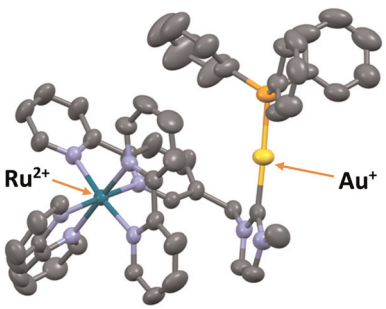
Elizabeth A. Kras, Roy Cineus, Matthew R. Crawley and Janet R. Morrow*



4165

Synthesis and luminescent properties of hetero-bimetallic and hetero-trimetallic Ru(II)/Au(I) or Ir(III)/Au(I) complexes

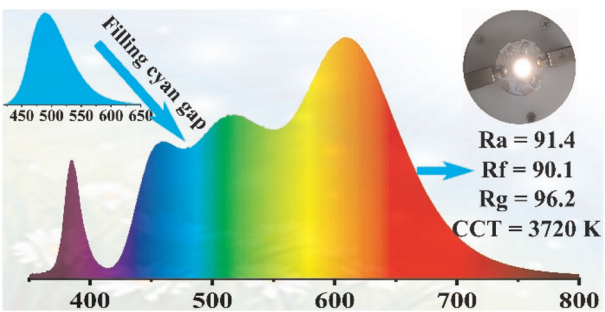
Richard C. Knighton and Simon J. A. Pope*



4175

Development of a novel Eu^{2+} activated oxonitrido-silicate cyan phosphor for enhancing the color quality of a violet-chip-based white LED

Langping Dong,* Jinqing Gao, Yijia Guo, Jingshan Hou,* Baiqi Shao and Yongzheng Fang*



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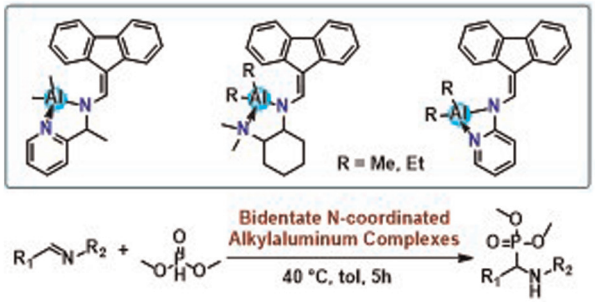
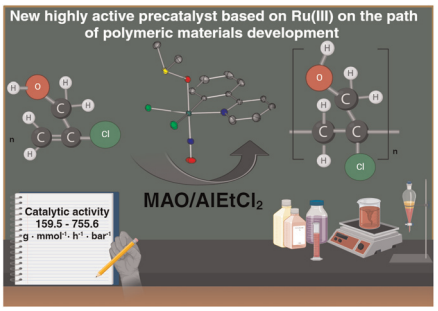


Novel bidentate *N*-coordinated alkylaluminum complexes: synthesis, characterization, and efficient catalysis for hydrophosphonylation

Biao Wei, Chaoqun Wang, Hui Miao,* Zhibiao Qin, Mengna Huang, Yan Xu, Wenhui Xue, Shucheng Yang, Chenxu Liu, Cuibing Bai and Zheng Chen*

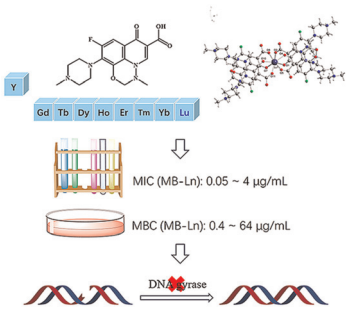
4194



Porous oligomeric materials synthesised using a new, highly active precatalyst based on ruthenium(III) and 2-phenylpyridine

Kacper Pobłocki,* Katarzyna N. Jarzembska, Radosław Kamiński, Joanna Drzeżdżon, Krystyna A. Deresz, Dominik Schaniel, Anna Gołąbiewska, Barbara Gawdzik, Przemysław Rybiński and Dagmara Jacewicz*

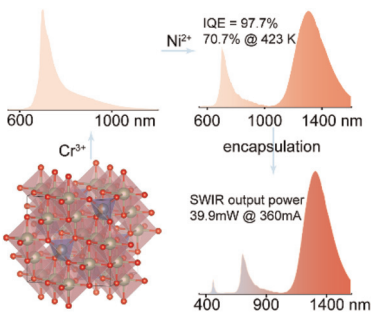
4204



Marbofloxacin combined with heavy rare-earth ions makes better candidates for veterinary drugs: crystal structure and bio-activity studies

Zhi-chuan Chen, Rui-xue Liu, Yan-jie Xie, Qin Hu, Fu-ping Huang, Yan-cheng Liu* and Hong Liang*

4214



Boosting broadband short-wave infrared emission to achieve near-unity quantum efficiency *via* bridging Cr^{3+}–Ni^{2+} in spinel solid-solutions towards light-emitting diode applications

Geng Chen, Lifang Yuan,* Chaoyue Peng, Haoyi Wu and Yahong Jin*

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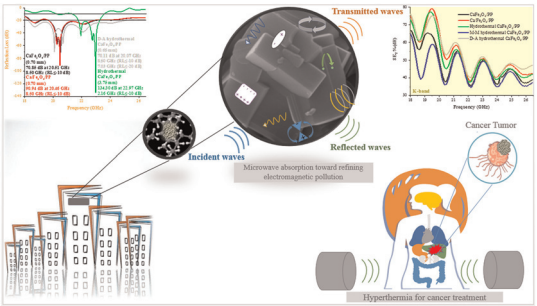
Dendrimer-assisted defect and morphology regulation for improving optical, hyperthermia, and microwave-absorbing features

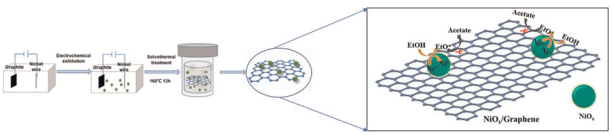
Somayeh Sheykhmoradi, Arezoo Ghaffari, Ali Mirkhan, Guangbin Ji, Shujuan Tan and Reza Peymanfar*



4237

Facile electrolysis-solvothermal synthesis of NiO_x/graphene for enhanced ethanol oxidation to acetate

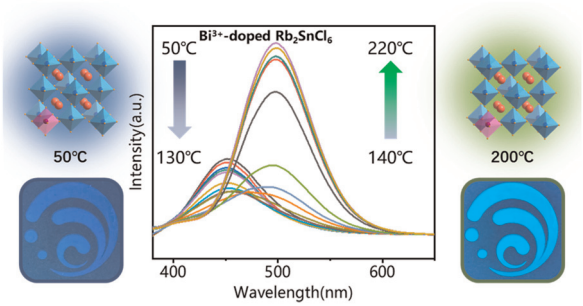
Man Zhao, Xuemin Yang, Zimei Fu, Wenxiang Wang, Wei Wen, He Xiao,* Li Zhang, Junming Zhang, Baoliang Lv and Jianfeng Jia*



4243

Temperature-controlled tunable emission of Bi^{3+}-doped Rb_2SnCl_6 all-inorganic vacancy ordered lead-free perovskite for advanced anticounterfeiting

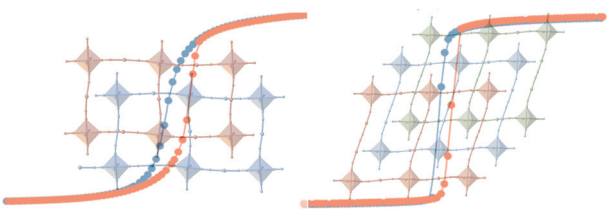
Chengyue Xin, Wenjun Zhang,* Zhongfa Li, Zihan Chen and Zhongyu Duan*



4251

Nature of cyanoargentate bridges defining spin crossover in new 2D Hofmann clathrate analogues

Valerii Y. Sirenko, Olesia I. Kucheriv, Sergiu Shova, Sergii I. Shylin, Vadim Ksenofontov, Igor O. Fritsky, Wolfgang Tremel and Il'ya A. Gural'skiy*



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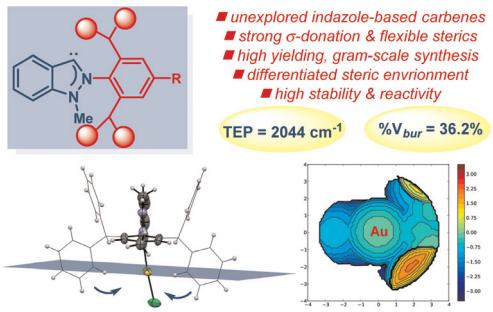
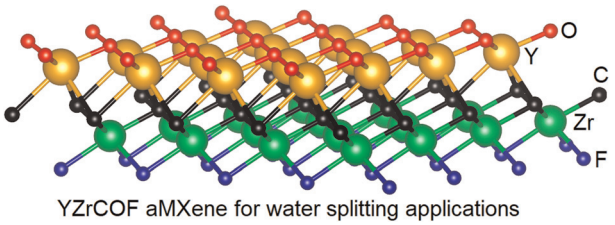
4260



Indazolin-3-ylidenes (Indy*): easily accessible, sterically-hindered indazole-derived N-heterocyclic carbenes and their application in gold catalysis

Jin Zhang,* Ting Liu, Gaopeng Zhang, Jianglong Cai, Yue Wang, Jianbo Tong,* Yangmin Ma, Roman Szostak and Michal Szostak*

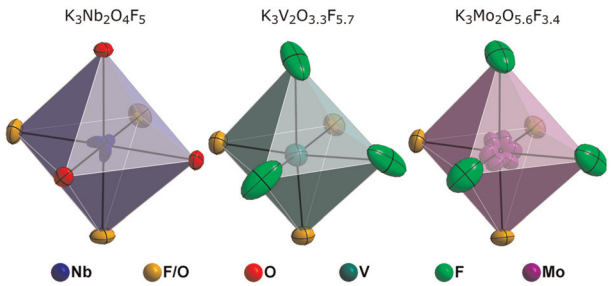
4266



Tuning the electronic properties of asymmetric YZrCOF MXene for water splitting applications: an *ab initio* study

Mounir Ould-Mohamed,* Tarik Ouahrani,* Chewki Ougherb, Ruth Franco and Daniel Errandonea*

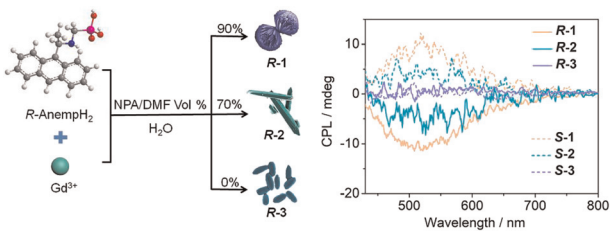
4278



$K_3Mo_2O_{5.6}F_{3.4}$ and $K_3V_2O_{3.3}F_{5.7}$ – exploring transition metal cation valence and anion distribution in oxyfluorides

Fabian Zimmerhofer, Eric Wolf, Baris Öcal, Selina Olthof, Maximilian Kai Reimann, Rainer Pöttgen and Hubert Huppertz*

4291



Solvent modulation of the morphology of homochiral gadolinium coordination polymers and its impact on circularly polarized luminescence

Ting Hou, Chen-Chen Zhao, Song-Song Bao, Zhi-Min Zhai and Li-Min Zheng*

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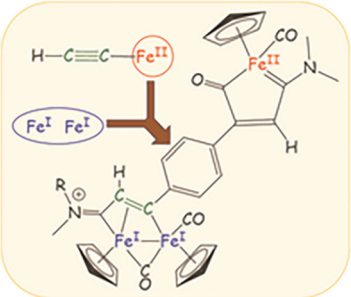
4299

Mixed valence triiron complexes from the conjugation of [Fe^{I}Fe^{I}] and [Fe^{II}] complexes *via* intermolecular carbyne/alkyne coupling

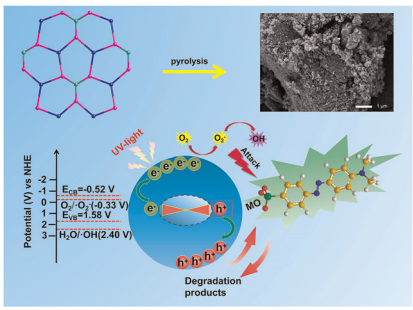
Giulio Bresciani,* Gianluca Ciancaleoni, Stefano Zacchini, Lorenzo Biancalana, Guido Pampaloni, Tiziana Funaioli* and Fabio Marchetti



4314

Fabrication of carbon-based materials derived from a cobalt-based organic framework for enhancing photocatalytic degradation of dyes

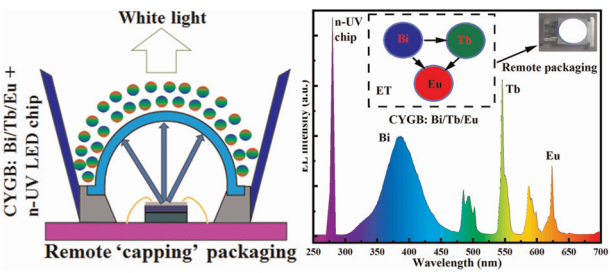
Wan-Lin Ma, Ya-Qian Zhang,* Wen-Ze Li,* Jing Li and Jian Luan*



4325

Stable color-tunable $Ca_3Y(GaO)_3(BO_3)_4$:Bi^{3+}/Tb^{3+}/Eu^{3+} phosphors for application in *n*-UV-pumped *w*LEDs

P. J. Xia, X. Z. Zheng, L. Yue, Y. F. Lei, M. Xu and W. B. Dai*



CORRECTION

4342

Correction: The {Cu_2I_2} cluster bearing metal organic frameworks: crystal structures and fluorescence detecting performances towards cysteine and explosive molecules

Jiang Jiang,* Zi-Wei Li, Zhi-Zhuan Zhang, Bin Tan, Simon Teat, Zhao-Feng Wu* and Xiao-Ying Huang

RETRACTION

4343

Retraction: Synthesis of a chiral dinuclear Cu(II)-benzothiazolamine complex: evidence of cuprophilic interaction in its structure and exploration of its electrochemical properties and catalytic performance

O. Stephen Ojo,* Halilu Sale, Mark D. Symes and Claire Wilson

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