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IN THIS ISSUE

ISSN 1477-9226 CODEN DTARAF 54(8) 3081–3512 (2025)

Cover
See Masahisa Osawa pp. 3106–3112.

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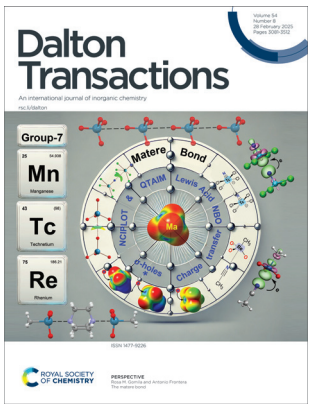

Inside cover
See Rosa M. Gomila and Antonio Frontera, pp. 3095–3105.

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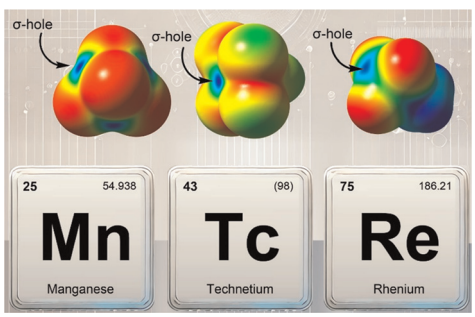
PERSPECTIVE

3095

The matere bond

Rosa M. Gomila and Antonio Frontera*

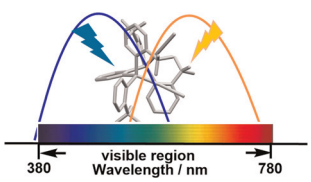


FRONTIER

3106

Study of the molecular design and synthesis status of metal complexes as unimolecular luminescent materials for white light emission

Masahisa Osawa



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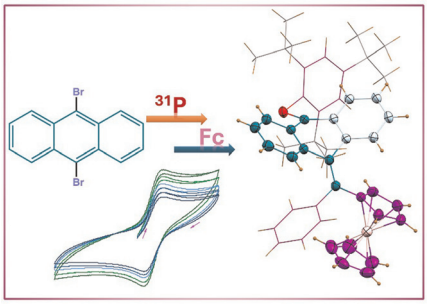
COMMUNICATION

3113

Contorting the hetero phosphaquinoid: synthesis and electronic insights into a non-planar, ferrocenyl phosphaquinoid

Rajesh Deka,* Samir Chattopadhyay and Andreas Orthaber*

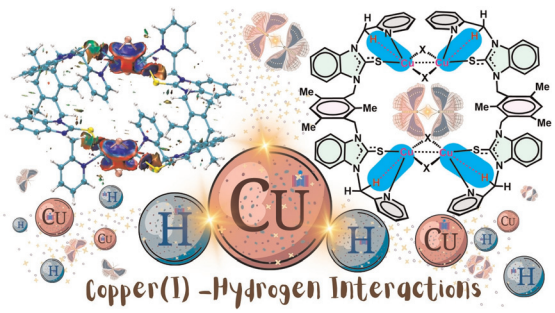


PAPERS

3118

Probing the nature of intramolecular (sp^3)C–H···Cu(I) interactions in organo thione copper(I) cages

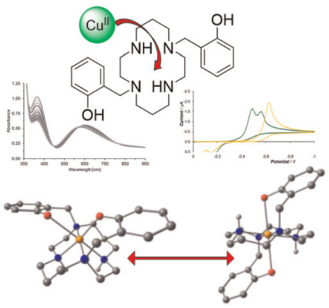
Girbide Amitkumar Ramakant, Gopendra Muduli, Rakesh Kumar Rai and Ganesan Prabusankar*



3127

Unusual variability of isomers in copper(II) complexes with 1,8-bis(2-hydroxybenzyl)-cyclam

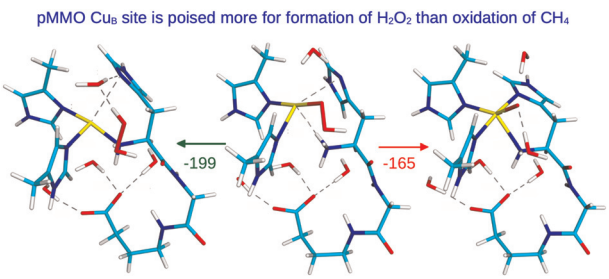
Milan Maďar, Jan Faltejsek, Hana Bušková, Lucie Koláčná, Adam Jaroš, Jan Kotek, Michal Straka, Vojtěch Kubíček* and Jiří Ludvík



3141

The Cu$_B$ site in particulate methane monooxygenase may be used to produce hydrogen peroxide

Kristoffer J. M. Lundgren, Lili Cao, Magne Torbjörnsson, Erik D. Hedegård and Ulf Ryde*



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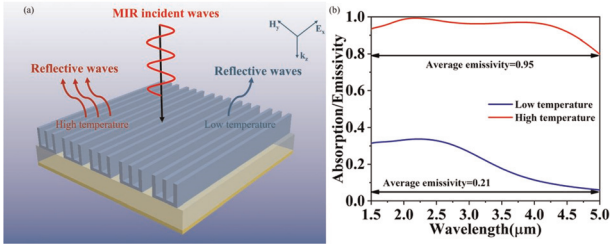
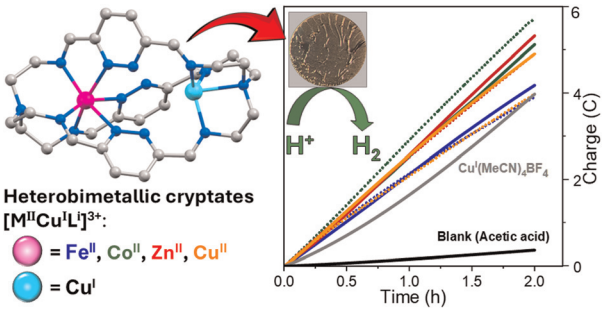
3157



Thermal management broadband-emitting device based on VO_2 applied in the mid-infrared band

Ying Zheng, Zhiyou Wang,* Qianju Song, Zao Yi,* Shubo Cheng and Yougen Yi

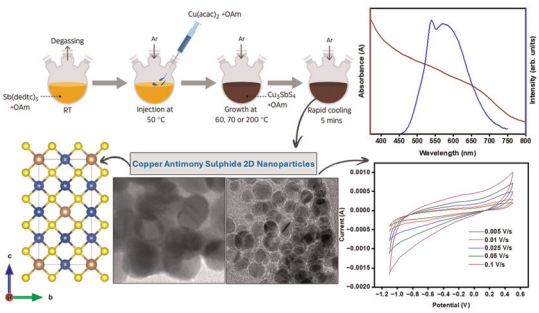
3165



Testing mixed metal bimetallic, and monometallic, cryptates for electrocatalytic hydrogen evolution

Varinder Singh, Matthew G. Robb and Sally Brooker*

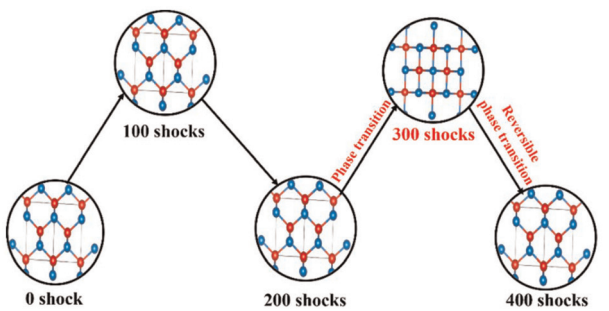
3174



Effect of growth dynamics on the structural, photophysical and pseudocapacitance properties of famatinite copper antimony sulphide colloidal nanostructures (including nanosheets)

Kimberly Weston, Richard A. Taylor,* Kim Kisslinger and Shobha Mantripragada

3188



Reversible phase transition and tunable band gap in zinc telluride induced by acoustic shock exposure

Oviya Sekar, F. Irine Maria Bincy, Raju Suresh Kumar, Kannappan Perumal, Ikhyun Kim* and S. A. Martin Britto Dhas*

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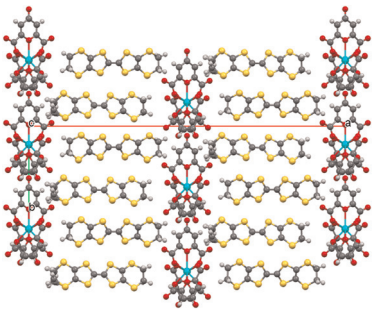
3207

Radical-cation salts of BEDT-TTF with tris-coordinated racemic dysprosium(III) and terbium(III) anions

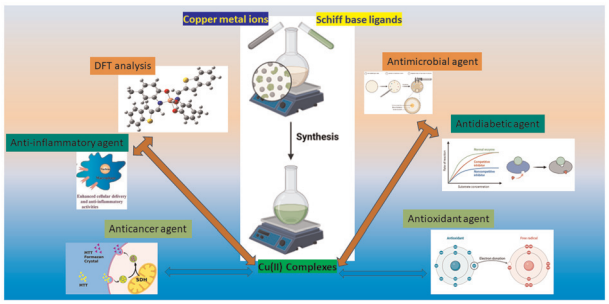
Emily Howarth, Jordan Lopez, Joseph O. Ogar, Toby J. Blundell, Hiroki Akutsu, Yasuhiro Nakazawa, Shusaku Imajo, Yoshihiko Ihara, Simon J. Coles, Peter N. Horton, Jeppe Christensen and Lee Martin*



3216

Unveiling the multifaceted bioactivity of copper(II)–Schiff base complexes: a comprehensive study of antioxidant, anti-bacterial, anti-inflammatory, enzyme inhibition and cytotoxic potentials with DFT insights

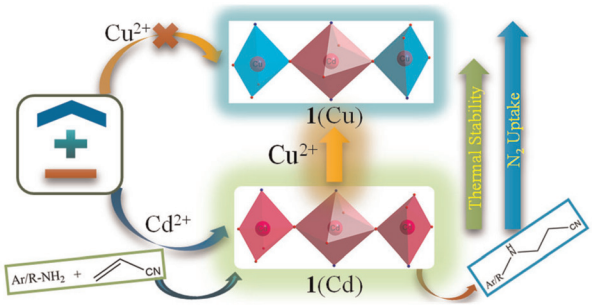
T. M. Dhanya, M. R. Prathapachandra Kurup, K. J. Rajimon, G. Anjali Krishna, Jibin K. Varughese, K. G. Raghu, Sachin Philip, K. M. Divya, Maria Augustine and P. V. Mohanan*



3235

A Cd-based crystalline network material: catalytic properties and post-synthetic metal-ion metathesis with enhanced stability and gas sorption behaviour

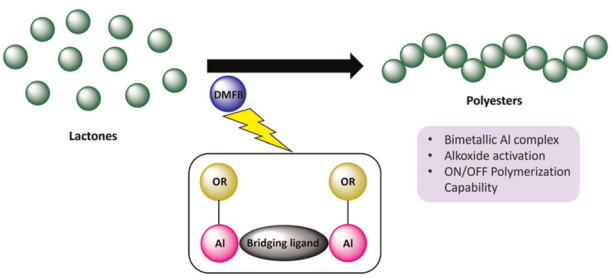
Chhatan Das, Arunava Misra, Mohabul Alam Mondal and Partha Mahata*



3246

Bimetallic constrained aluminum alkoxide complexes for ring-opening polymerization of cyclic esters: activity enhancement *via* cationic activation

Narongchai Kanhanond, Phongnarin Chumsaeng, Supawadee Namuangruk and Khamphee Phomphrai*



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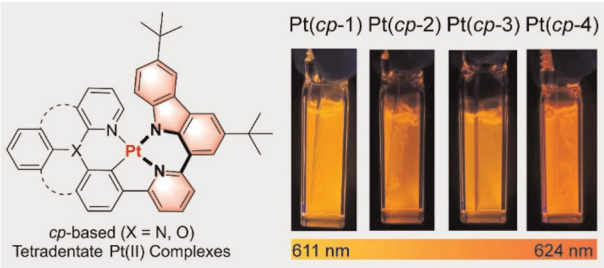
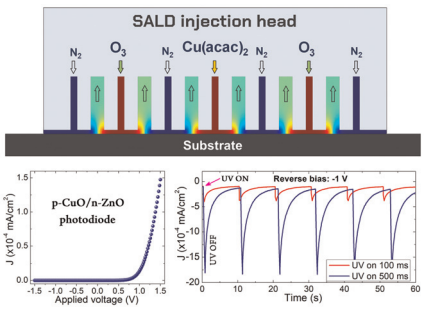


Carbazolylpyridine (*cp*)-based tetradentate platinum(II) complexes containing fused 6/5/6 metallocycles

Chengyao Zhang, Lijie Dou, Xia Wang, Kewei Xu, Jianqiang Chen, Feng Zhan, Guijie Li,* Yun-Fang Yang* and Yuanbin She*

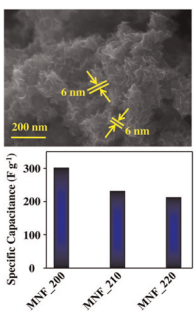
3266



Atmospheric pressure spatial atomic layer deposition of p-type CuO thin films from copper(II) acetylacetonate and ozone for UV detection

Hung-Anh Tran Vu, Duc-Trung Pham, Hang Tran Thi My, Duc Anh Duong, Abdullah H. Alshehri, Van Tan Tran, Thi Minh Hien Nguyen, De Pham-Cong and Viet Huong Nguyen*

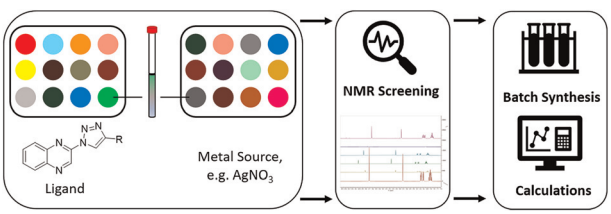
3277



Structural-morphological insights into optimization of hydrothermally synthesized $MoSe_2$ nanoflowers for improving supercapacitor applications

Poonam Yadav, Rohit Yadav, Jitesh Pani, Ram Mehar Singh,* Davender Singh, Kusum Kumari, Hitesh Borkar* and Jitendra Gangwar*

3287



Identification of novel triazolylquinoxaline-based metal complexes supported by experimental and virtual screenings

Laura Holzhauer, Vitalii Shekhovtsev, Cecilia Bruschi, Mathis Gunther, Olaf Fuhr, Patrick Hodapp, Claudia Bizzarri, Wolfgang Wenzel, Nicole Jung* and Stefan Bräse*

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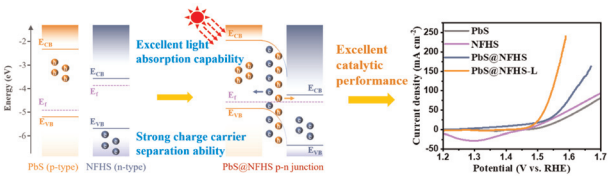
3296

PbS@NiFe-LDH heterojunction: an efficient photo-assisted electrocatalyst for the OER

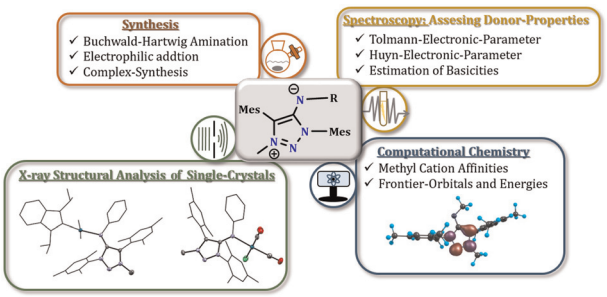
Shixiong Zhang, Yajun Ji,* Pengcheng Zhang, Shulei Wang, Bin Zhang and Peng Zhou



3305

Leveraging N-*exo* substituents to tune the donor/acceptor properties of mesoionic imines (MIIs)

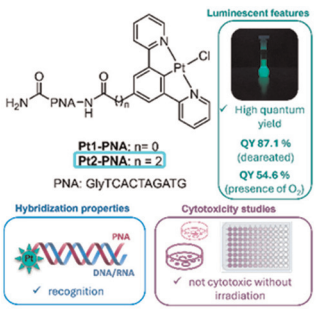
Richard Rudolf, Andrej Todorovski, Hartmut Schubert and Biprajit Sarkar*



3314

Highly phosphorescent N^C^N platinum(II)-peptide nucleic acid conjugates: synthesis, photophysical studies and hybridization behaviour

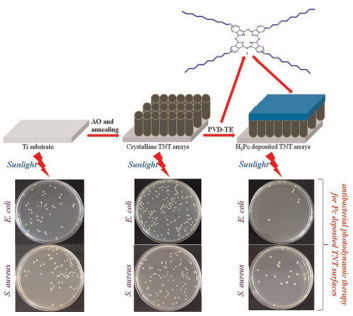
Rosa Maria Dell'Acqua, Francesco Fagnani, Monika Wojciechowska, Daniele Marinotto, Graziano Colombo, Isabella Dalle-Donne, Joanna Trylska, Silvia Cauteruccio* and Alessia Colombo*



3323

Antibacterial and surface properties of post-light-activated metal-free phthalocyanine-deposited TiO_2 nanotube smart surfaces

Salih Durdu,* Yasemin Caglar, Kadriye Ozcan and Ece Tugba Saka*



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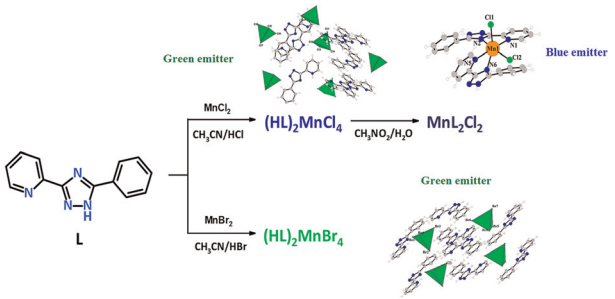
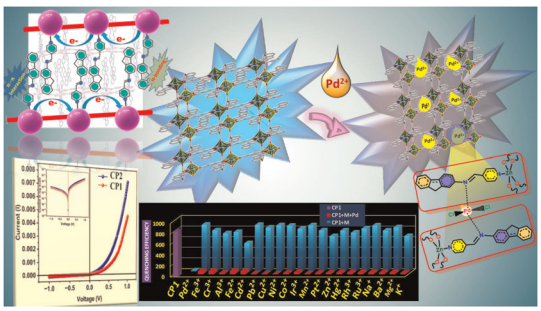


New highly efficient phosphorescent manganese halides as green and blue emitters

Alexey Gusev,* Mikhail Kiskin, Elena Braga, Ekaterina Zamnius, Alexandr Lisichnikov and Wolfgang Linert

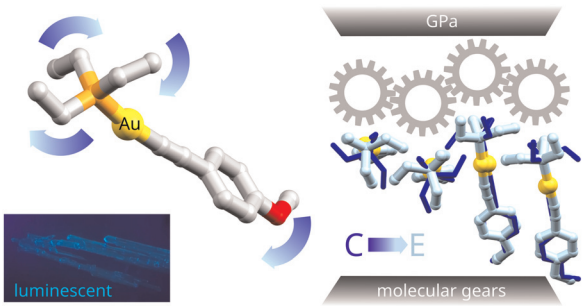
3346



Structure-directing effect of terephthalate in bridging Zn(II)- and Cd(II)-based coordination polymers towards application in the detection of trace quantities of Pd^{2+} in aqueous media and their electrical conductivities

Koushik Saha, Basudeb Dutta, Pubali Das, Angeera Chandra, Arnab Samanta, Sudeep Ranjan Jana, Sudip Naskar, Rajat Saha, Partha Pratim Ray and Chittaranjan Sinha*

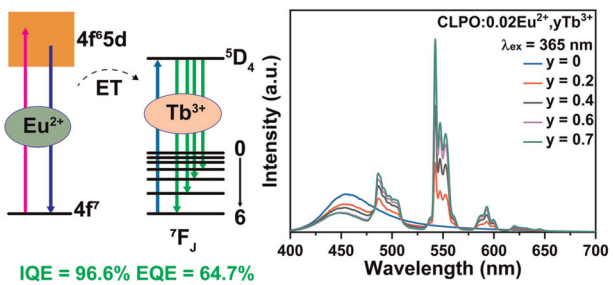
3362



Pressure-induced phase transitions in a new luminescent gold(I)–arylacetylide

Róża Dziewiątkowska,* Joanna Krzeszczakowska, Marta Głodek, Michał Łomzik, Damian Plażuk and Anna Makal*

3375



Highly efficient green phosphor $Ca_4La(PO_4)_3O$: Eu^{2+},Tb^{3+} for white LEDs

Congcong Fan, Dashuai Sun,* Zeyu Lyu, Luhui Zhou, Pengcheng Luo, Zheng Lu, Xiaowei Zhang, Shuai Wei and Hongpeng You*

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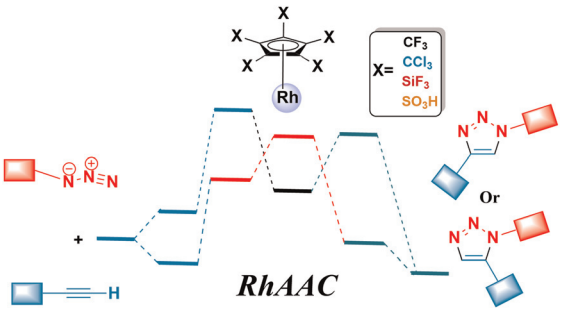
Computational study on novel RhCp^X (X = CF_3, SiF_3, CCl_3, SO_3H) as promising catalysts in the [3 + 2] azide–alkyne cycloaddition reaction: insights into mechanistic pathways and reactivity

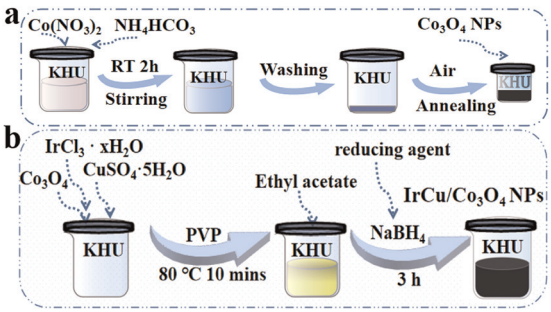
Ali A. Khairbek,* Mohammad Abd-Al Hakim Badawi, Abdullah Y. Alzahrani, Ralph Puchta and Renjith Thomas*



3393

Synthesis of IrCu/Co_3O_4 hybrid nanostructures and their enhanced catalytic properties toward oxygen evolution reaction under both acidic and alkaline conditions

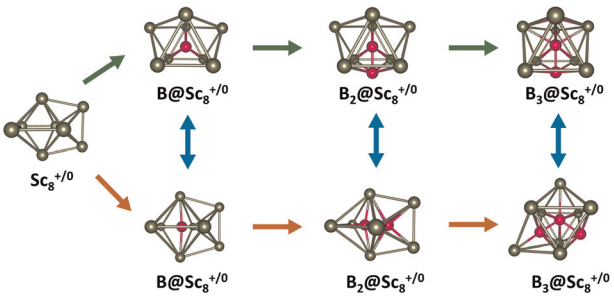
Xiaomei Xu and Taekyung Yu*



3401

Endohedral boron-doped scandium clusters $B_mSc_{n-m}^{+/0}$ (m = 2–3, n = 3–13): triangular – linear rearrangement of the B_3 dopant

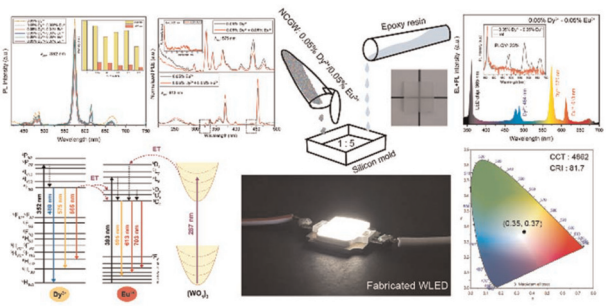
Bao-Ngan Nguyen-Ha, Nguyen Minh Tam, My Phuong Pham-Ho* and Minh Tho Nguyen



3414

Tunable photoluminescence and energy transfer in Dy^{3+} and Eu^{3+} co-doped $NaCaGd(WO_4)_3$ phosphors for pc-WLED applications

Utku Ekim, Ikhlas Kachou, Tarak Kallel, Mohamed Dammak,* Miray Çelikbilek Ersundu* and Ali Erçin Ersundu*



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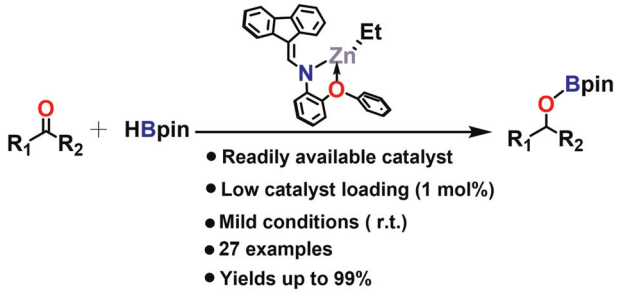
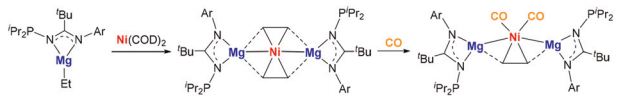


Alkyl zinc complexes derived from formylfluorenimide ligands: synthesis, characterization and catalysis for hydroboration of aldehydes and ketones

Biao Wei, Zhibiao Qin, Hui Miao,* Chaoqun Wang, Mengna Huang, Chenxu Liu, Cuibing Bai and Zheng Chen*

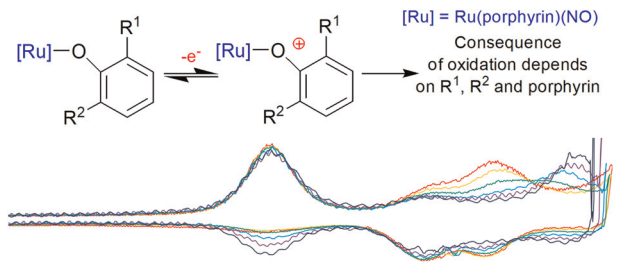
3437



Synthesis and characterization of heterotrimetallic Mg–Ni–Mg complexes with amidinato ligands

Rongping Zhang, Yanping Cai and Xin Xu*

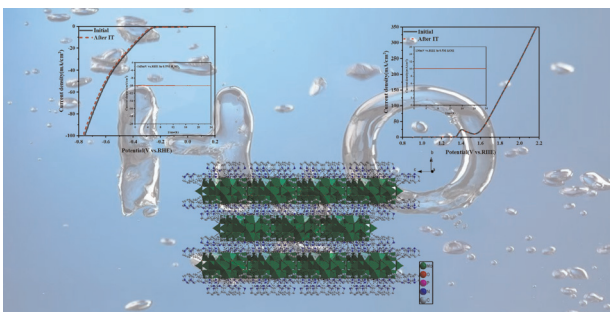
3444



Electrochemical and spectroelectrochemical investigation of Ru(por)(NO)(OAr) derivatives (por = octaethylporphyrin, tetraanisolylporphyrin; Ar = Ph, C_6H_4-2-NHC(═O)CF_3; C_6H_3-2,6-(NHC(═O)CF_3)$_2$)

Anthony R. Ramuglia, Jeremy R. Zink, Adam J. Warhausen, Erwin Abucayon, Nan Xu, Kailash Shrestha, George Richter-Addo* and Michael J. Shaw*

3456



Pyridine polymer tubular structures connected with polyoxometalates as bifunctional electrocatalysts for water splitting

Jihua Wang, Hui Li, Lige Gong,* Limin Dong, Yunhao Gu, Meijia Wang and BingHe Yang

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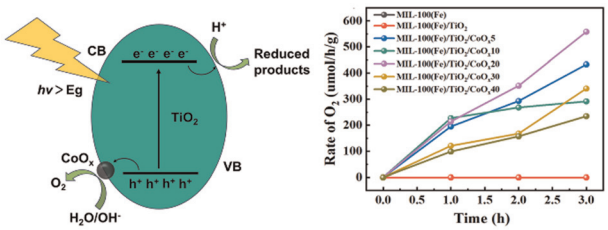
PAPERS

3467

TiO_2/CoO_x heterostructure decorated MIL-100(Fe) by atomic layer deposition for enhanced photocatalytic oxygen production

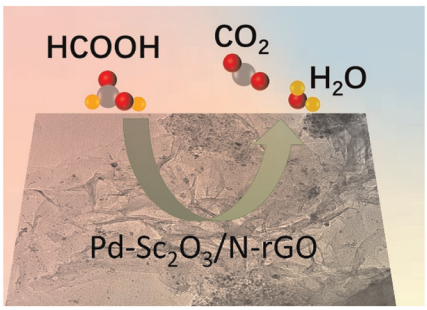
Wenhui Hu, Zhongxin Song, Lingna Sun, Lei Zhang, Qianling Zhang, Xiangzhong Ren and Yongliang Li*



3478

Rare-earth oxide promoted Pd electrocatalyst for formic acid oxidation

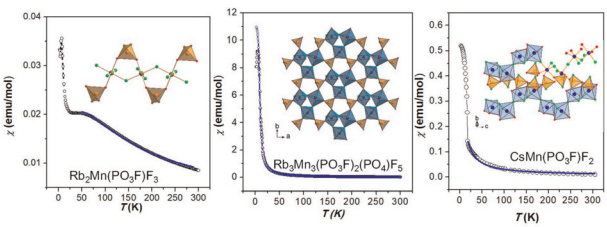
Lusheng Xiao, Danqi Jia, Chen Chen, Tingting Liu,* Xiaofeng Zhang, Qiufeng Huang,* Mohd Ubaidullah, Yuzhi Sun, Shengyun Huang* and Zonghua Pu*



3486

Synthesis, structures, and magnetic properties of alkali metal manganese(III) fluorophosphates containing low-dimensional S = 2 spin structures

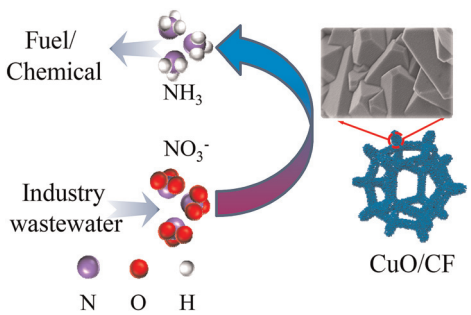
Xiedong Cheng, Feifan Li, Qingqing Huang, Laura C. J. Pereira, Rui Cui, Yaping Li and Minfeng Lü*



3500

***In situ* reconstructed prism-like CuO on copper foam assisted by fumaric acid for an enhanced electrochemical nitrate reduction reaction**

Di Chen, Zhaobin Ye, Jie Xu, Shasha Ma and Jianyong Zhang*



CORRECTION

3509

Correction: Structure-directing effect of terephthalate in bridging Zn(II)- and Cd(II)-based coordination polymers towards application in the detection of trace quantities of Pd^{2+} in aqueous media and their electrical conductivities

Koushik Saha, Basudeb Dutta, Pubali Das, Angeera Chandra, Arnab Samanta, Sudeep Ranjan Jana, Sudip Naskar, Rajat Saha, Partha Pratim Ray and Chittaranjan Sinha*

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