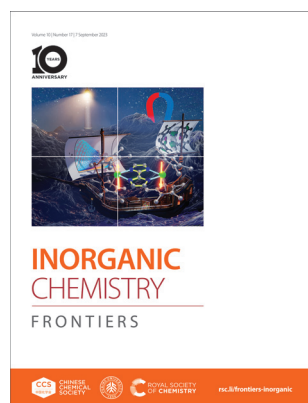


IN THIS ISSUE

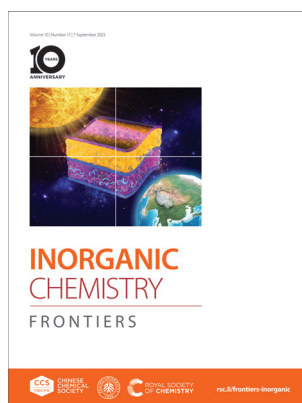
ISSN 2052-1553 CODEN ICFNAW 10(17) 4891-5200 (2023)



Cover

See Florian Benner and Selvan Demir, pp. 4981–4992.

Image reproduced by permission of Selvan Demir from *Inorg. Chem. Front.*, 2023, **10**, 4981.



Inside cover

See Lianfeng Duan, Fushen Lu *et al.*, pp. 4993–5003.

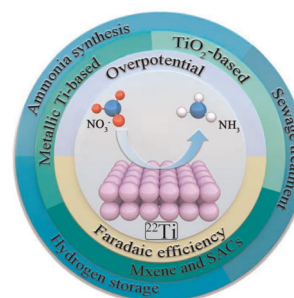
Image reproduced by permission of Lianfeng Duan from *Inorg. Chem. Front.*, 2023, **10**, 4993.

REVIEWS

4901

Recent developments in Ti-based nanocatalysts for electrochemical nitrate-to-ammonia conversion

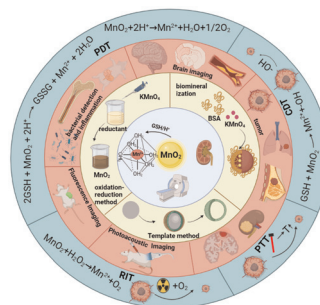
Wenda Chen, Yuan Xu, Jiaxin Liu, Huiqun Cao, Yongliang Li, Xiangzhong Ren, Shenghua Ye,* Jianhong Liu* and Qianling Zhang*



4918

Advances in the application of manganese dioxide and its composites for theranostics

Jiaqi Hao, Yu Zhao, Yiqi Ma, Beibei Liu, Yonglan Luo, Sulaiman Alfaifi, Xuping Sun* and Min Wu*



EDITORIAL STAFF

Executive Editor

Wenjun Liu

Deputy Editor

Kailin Deng

Development Editor

Cheng Du

Editorial Production Manager

Helen Saxton

Senior Publishing Editor

Becky Webb

Publishing Editors

Kirstine Anderson, Matthew Bown, Laura Cooper, Hannah Fielding, Clare Fitzgerald, Anoushka Handa, Claire Harding, Alan Holder, Charlie Palmer, Rosie Rothwell, Donna Smith, Laura Smith

Assistant Editors

Jie Gao, Yu Zhang

Publisher

Jeanne Andres

For queries about submitted papers, please contact Helen Saxton, Editorial Production Manager, in the first instance. E-mail: InorgChemFrontiersPROD@rsc.org

For pre-submission queries please contact Wenjun Liu, Executive Editor. Email: InorgChemFrontiersED@rsc.org

Inorganic Chemistry Frontiers (electronic: ISSN 2052-1553) is published 24 times a year by the Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, UK CB4 0WF.

All orders, with cheques made payable to the Royal Society of Chemistry, should be sent to RSC Order Department, Royal Society of Chemistry, Thomas Graham House, Science Park, Milton Road, Cambridge, CB4 0WF, UK Tel +44 (0)1223 432398; E-mail orders@rsc.org

2023 Annual (electronic) subscription price: £2,182; US\$3,492. Customers in Canada will be subject to a surcharge to cover GST. Customers in the EU subscribing to the electronic version only will be charged VAT.

If you take an institutional subscription to any Royal Society of Chemistry journal you are entitled to free, site-wide web access to that journal. You can arrange access via Internet Protocol (IP) address at www.rsc.org/ip

Customers should make payments by cheque in sterling payable on a UK clearing bank or in US dollars payable on a US clearing bank.

Whilst this material has been produced with all due care, the Royal Society of Chemistry cannot be held responsible or liable for its accuracy and completeness, nor for any consequences arising from any errors or the use of the information contained in this publication. The publication of advertisements does not constitute any endorsement by the Royal Society of Chemistry or Authors of any products advertised. The views and opinions advanced by contributors do not necessarily reflect those of the Royal Society of Chemistry which shall not be liable for any resulting loss or damage arising as a result of reliance upon this material. The Royal Society of Chemistry is a charity, registered in England and Wales, Number 207890, and a company incorporated in England by Royal Charter (Registered No. RC000524), registered office: Burlington House, Piccadilly, London W1J 0BA, UK, Telephone: +44 (0) 207 4378 6556.

Advertisement sales:

Tel +44 (0) 1223 432246; Fax +44 (0) 1223 426017;

E-mail advertising@rsc.org

For marketing opportunities relating to this journal, contact marketing@rsc.org

INORGANIC CHEMISTRY

FRONTIERS

An international, high quality journal for interdisciplinary research between inorganic chemistry and related subjects.



CHINESE
CHEMICAL
SOCIETY



rsc.li/frontiers-inorganic

Published in collaboration with the Chinese Chemical Society and College of Chemistry and Molecular Engineering, Peking University

Editorial Board

Editor-in-Chief

Song Gao, Peking University, Sun Yat-sen University, China

Associate Editors

Jun Chen, Nankai University, China
Paula Diaconescu, University of California, Los Angeles, USA
Svetlana Mintova, Université de Caen, France
Justin J. Wilson, Cornell University, USA
Teppei Yamada, The University of Tokyo, Japan
Zhiping Zheng, Southern University of Science and Technology, China

Members

Hiroshi Kitagawa, Kyoto University, Japan
Yu Tang, Lanzhou University, China
Xianran Xing, University of Science and Technology Beijing, China
Nanfeng Zheng, Xiamen University, China

Advisory Board

Christopher J. Chang, University of California, Berkeley, USA
Chi-Ming Che, University of Hong Kong, China
Ling Chen, Beijing Normal University, China
Xiaoming Chen, Sun Yat-Sen University, China
Eugenio Coronado, University of Valencia, Spain
Yi Cui, Stanford University, USA
Patrick Gámez, University of Barcelona, Spain
Hairong Guan, University of Cincinnati, USA
Andy Hor, University of Hong Kong, China
Zhaomin Hou, RIKEN, Japan
Xile Hu, École Polytechnique Fédérale de Lausanne, Switzerland
Mercouri Kanatzidis, Northwestern University,

USA
Jaqueline L. Kiplinger, Los Alamos National Laboratory, USA
Yadong Li, Tsinghua University, China
Wenbin Lin, University of Chicago, USA
Yi Lu, University of Texas at Austin, USA
P. S. Mukherjee, Indian Institute of Science, India
Wonwoo Nam, Ewha Womans University, Korea
Hiroshi Nishihara, University of Tokyo, Japan
Hiroki Oshio, University of Tsukuba, Japan
Oleg Ozerov, Texas A&M University, USA
Manfred Scheer, University of Regensburg, Germany

Baolian Su, University of Namur, Belgium
Jean Pascal Sutter, Laboratory of Coordination Chemistry, CNRS, France
Richard Winpenny, University of Manchester, UK
Yi Xie, University of Science and Technology of China, China
Zuwei Xie, The Chinese University of Hong Kong, China
Chunhua Yan, Peking University, China
Hong-Cai Joe Zhou, Texas A&M University, USA
Xiaodong Zou, Stockholm University, Sweden
Qichun Zhang, City University of Hong Kong, China

Information for Authors

Full details on how to submit material for publication in Inorganic Chemistry Frontiers are given in the Instructions for Authors (available from <http://www.rsc.org/authors>). Submissions should be made via the journal's homepage: rsc.li/frontiers-inorganic

Authors may reproduce/republish portions of their published contribution without seeking permission from the Royal Society of Chemistry, provided that any such republication is accompanied by an acknowledgement in the form: (Original Citation)-Reproduced by permission of the Royal Society of Chemistry.

This journal is © the Partner Organisations 2023.

Apart from fair dealing for the purposes of research or private study for non-commercial purposes, or criticism or review, as permitted under the Copyright, Designs and Patents Act 1988 and the Copyright and Related Rights Regulation 2003, this publication may only be reproduced, stored or transmitted, in any form or by any means, with the prior permission in writing of the Publishers or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency in the UK. US copyright law is applicable to users in the USA.

Registered charity number: 207890

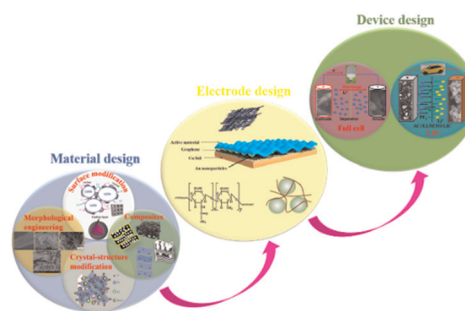


REVIEWS

4943

Li₂ZnTi₃O₈ anode: design from material to electrode and devices

Huanhuan Liu, Xue Zhang, Haoran Xu, Wenzhao Ma, Lijuan Wang,* Zhaohui Meng* and Fei Wang*

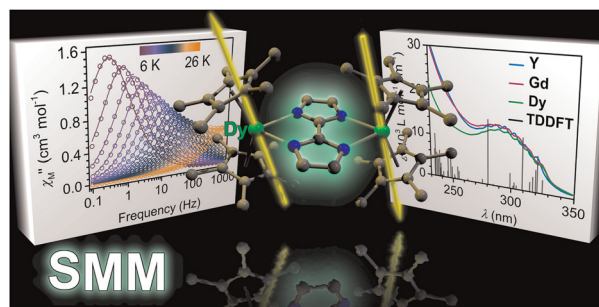


RESEARCH ARTICLES

4981

From unprecedented 2,2'-bisimidazole-bridged rare earth organometallics to magnetic hysteresis in the dysprosium congener

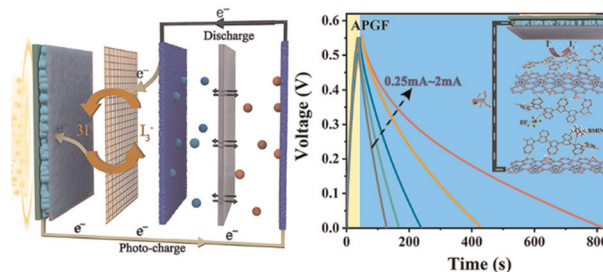
Florian Benner and Selvan Demir*



4993

Compatible and high-efficiency quasi-solid-state integrated photocapacitor based on the synergism of PEDOT/RGO electrode and gel electrolyte to improve the carrier migration

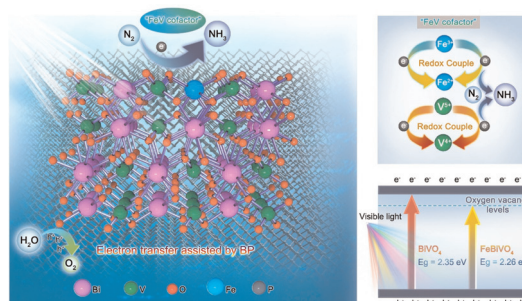
Yuanduo Qu, Siqi Liao, Liangyi Wu, Junkai Wang, Lianfeng Duan,* Xia He and Fushen Lu*



5004

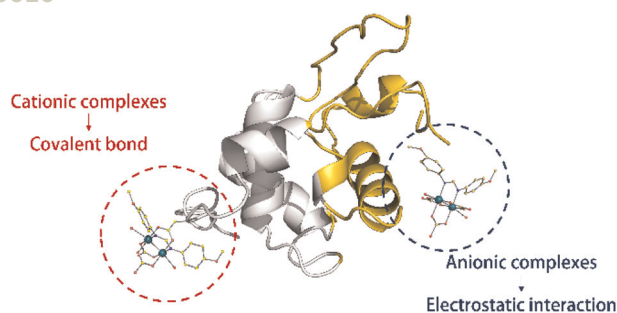
"FeV-cofactor"-inspired bionic Fe-doped BiVO₄ photocatalyst decorated with few-layer 2D black phosphorus for efficient nitrogen reduction

Hongda Li, Shuai Jian, Boran Tao, Guoxiao Xu, Baosheng Liu, Shaonan Gu,* Guofu Wang* and Haixin Chang*



RESEARCH ARTICLES

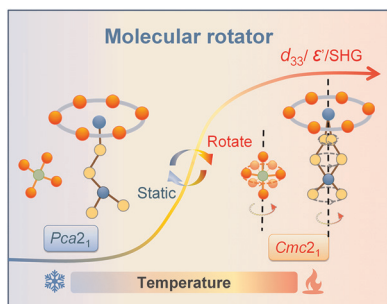
5016



Charge effect in protein metalation reactions by diruthenium complexes

Aarón Terán, Giarita Ferraro, Ana E. Sánchez-Peláez, Santiago Herrero* and Antonello Merlino*

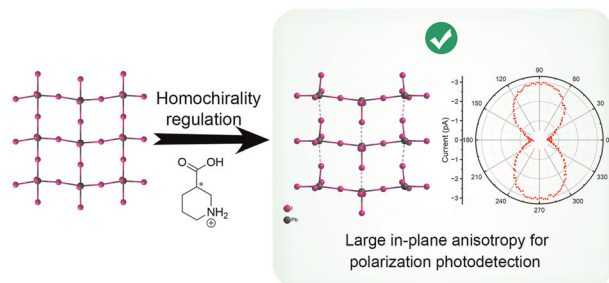
5026



Remarkable enhancement of optical and electric properties by temperature-controlled solid-phase molecular motion

Meng-Meng Lun, Chang-Yuan Su, Qiang-Qiang Jia, Zhi-Xu Zhang, Jie Li, Hai-Feng Lu,* Yi Zhang* and Da-Wei Fu*

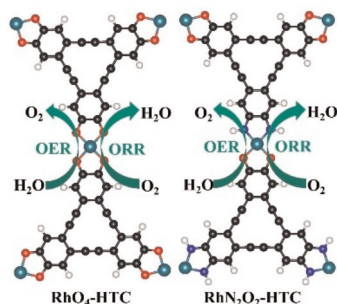
5035



Large in-plane anisotropic 2D perovskites toward highly linear polarized light responses

Bei-Dou Liang, Chang-Chun Fan, Cheng-Dong Liu, Tong-Yu Ju, Chao-Yang Chai,* Xiang-Bin Han* and Wen Zhang*

5044



Two-dimensional conductive metal–organic frameworks as efficient electrocatalysts for oxygen evolution and reduction reactions

Yanan Zhou, Li Sheng, Lanlan Chen, Qiquan Luo, Wenhui Zhao,* Wenhua Zhang* and Jinlong Yang*

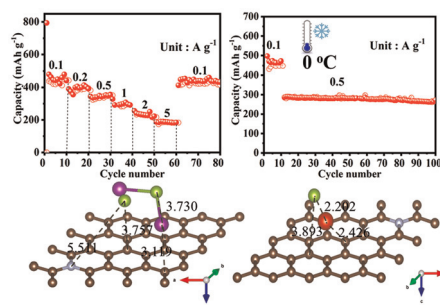


RESEARCH ARTICLES

5053

Rational construction of VSe₂ encapsulated in seleniumized polyacrylonitrile toward a high-rate capacity and wide temperature tolerance for potassium-ion batteries

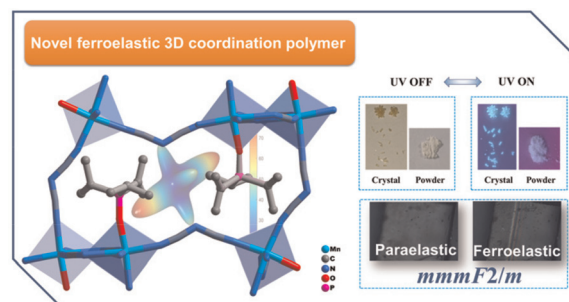
Lihong Xu, Jiefeng Ye, Wenti Guo, Tingjie Chen, Xiaochuan Chen,* Qingrong Qian, Jianmin Zhang,* Mingdeng Wei, Xiangfang Peng* and Lingxing Zeng*



5064

A three-dimensional Mn(II) coordination polymer with ferroelasticity obtained by introducing coligands to form novel networks

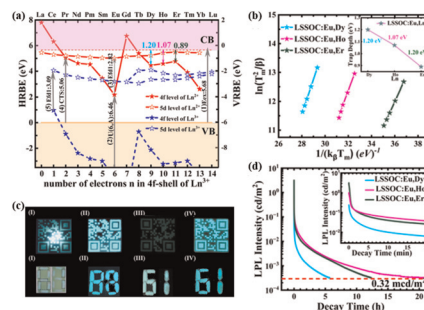
Ke Xu, Zining Zhou, Jintao Men, Qingjie Zhou and Qiong Ye*



5071

Co-doped long persistent luminescence materials LiSr₃SiO₄Cl₃:Eu²⁺, Ln³⁺ (Ln = Dy, Ho, Er): construction and verification of VRBE and HRBE scheme and their multifunctional applications

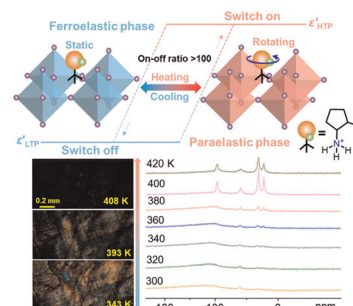
Yuanying Lin, Chengzhuo Ming, Zhenbin Wang, Bin Yu, Yuzhu Yang and Weisheng Liu*



5082

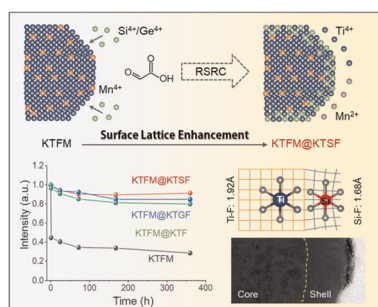
Fast rotating dipole array inducing large dielectric response in a Ruddlesden–Popper hybrid perovskite ferroelastic

Wang Luo, Na Wang, Hua-Kai Li, Ze-Jiang Xu, Yan Feng, Xiao-bin Fu,* Chao Shi,* Heng-Yun Ye and Le-Ping Miao*



RESEARCH ARTICLES

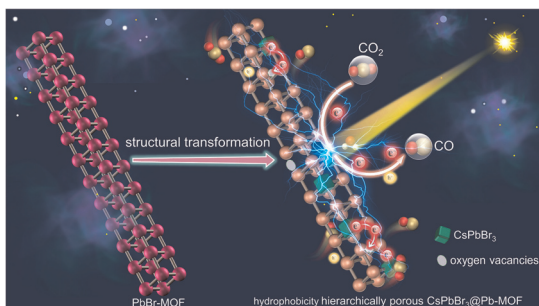
5089



Surface lattice enhancement of red-emitting fluorides enabled by embedding small cations

Pingping Wan, Chen Yang, Aolin Wang, Liping Yu, Shixun Lian and Wenli Zhou*

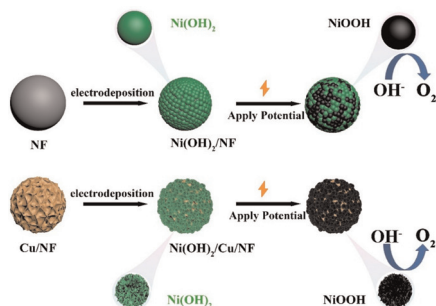
5098



Oxygen vacancies confined in hierarchically porous CsPbBr₃@Pb-MOF through *in situ* structural transformation for promoting photocatalytic CO₂ reduction

Yangwen Hou, Man Dong, Jingting He, Jing Sun, Chunyi Sun,* Xiao Li, Xinlong Wang and Zhongmin Su*

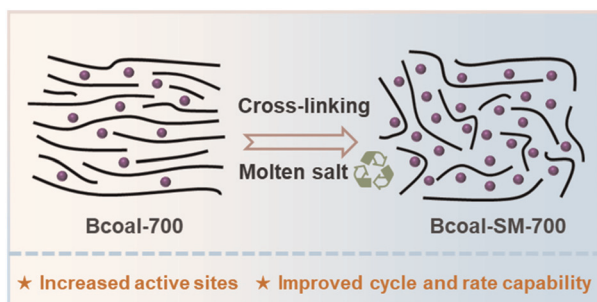
5111



A copper interface promotes the transformation of nickel hydroxide into high-valent nickel for an efficient oxygen evolution reaction

Junjun Zhang, Fengchen Zhou, Aiming Huang, Yong Wang, Wei Chu* and Wen Luo*

5117



Molten salt assisted fabrication of coal-based carbon anode materials for efficient Na ion storage

Wei Zhang, Ning Sun,* He Chen, Razium Ali Soomro and Bin Xu*

★ Increased active sites ★ Improved cycle and rate capability

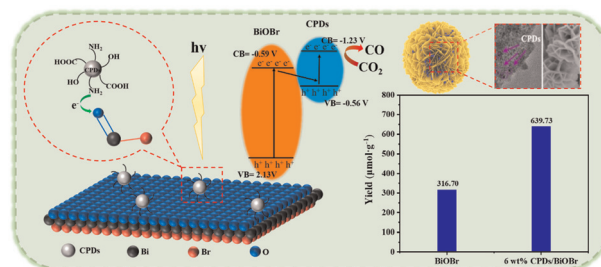


RESEARCH ARTICLES

5127

Up-conversion effect boosted the photocatalytic CO₂ reduction activity of Z-scheme CPDs/BiOBr heterojunction

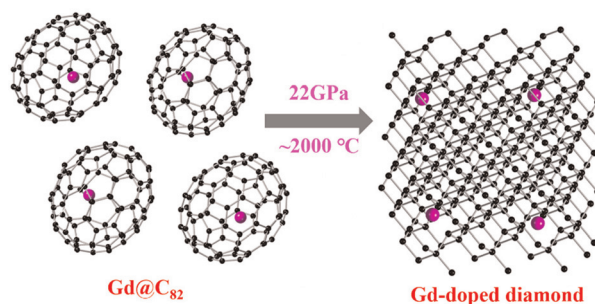
Jing Xie,* Xiaojing Zhang, Zhenjiang Lu, Jindou Hu, Aize Hao, Yue Feng and Yali Cao*



5136

Gd-doped diamond synthesized using Gd@C₈₂ under high pressure and high temperature

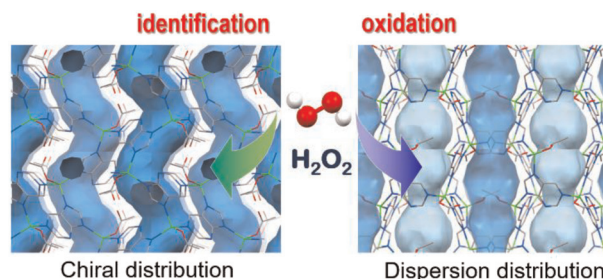
Shuhang Liu, Jun Han, Rongli Cui, Xin Yang, Yunfan Fei, Xingyu Tang, Yida Wang, Yajie Wang, Yongjin Chen, Jiajia Feng, Haiyan Zheng, Kuo Li* and Xiaoyang Liu*



5144

Recognition, detection and host-guest chemistry of hydrogen peroxide in a fluorescent metal-organic framework with chiral helical channels

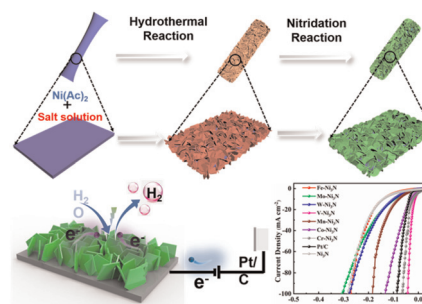
Hong Cai,* Jie-Wen Wu, Xiao-Jun Cai, Zhou Lu, Ya-Liang Lai, Jing-Xuan Sun, Zhuo-Li Yuan, Yang-Ying Huang, Jing-Wen Cai, Wen Lu, Yi-Hong Lu, Hui-Ying Zhang and Dan Li*



5152

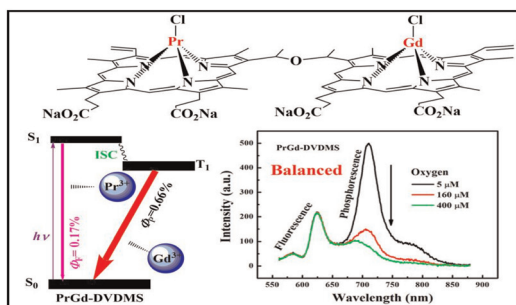
Formulating a heterolytic cleavage process of water on Ni₃N nanosheets through single transition metal doping for ultra-efficient alkaline hydrogen evolution

Wansen Ma, Meng Wang, Chaowen Tan, Jiancheng Wang, Yanan Dai, Liwen Hu, Xuwei Lv, Qian Li and Jie Dang*



RESEARCH ARTICLES

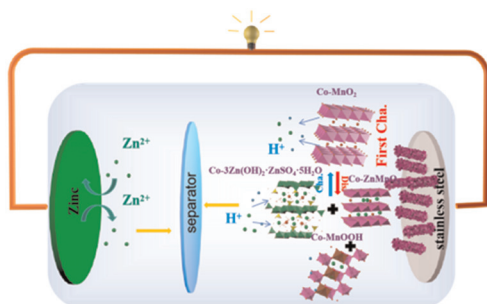
5161



Balancing the phosphorescence and fluorescence of a double-ring porphyrin using different lanthanides for ratiometric oxygen sensing

Huimin Zhao,* Qingqing Wang, Shumin Wang, Junyue Yin, Huibin Wang, Wenhao Shao, Zixin Yao, Jianting Yao and Lixin Zang*

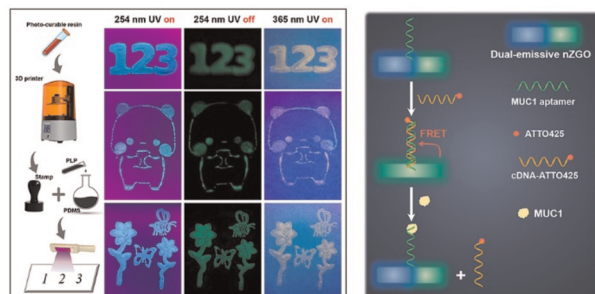
5167



Cobalt-doped δ -MnO₂/CNT composites as cathode material for aqueous zinc-ion batteries

ShuLing Liu,* Jie Wang, ZiXiang Zhou, Ying Li, Wei Zhang and Chao Wang

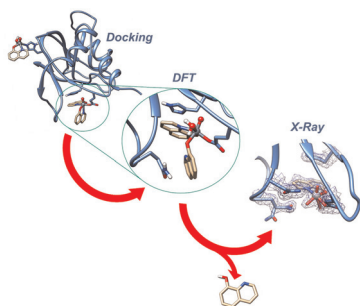
5178



Dual-emissive persistent luminescent phosphors for multi-mode anti-counterfeiting and ratiometric luminescent aptasensors

Peng Lin, Junpeng Shi,* Lin Liu, Yile Kang, Liang Song, Maochun Hong* and Yun Zhang*

5186



Interaction of V^{IV}O-8-hydroxyquinoline species with RNase A: the effect of metal ligands in the protein adduct stabilization

Giarita Ferraro, Luigi Vitale, Giuseppe Sciortino, Federico Pisanu, Eugenio Garribba* and Antonello Merlino*

