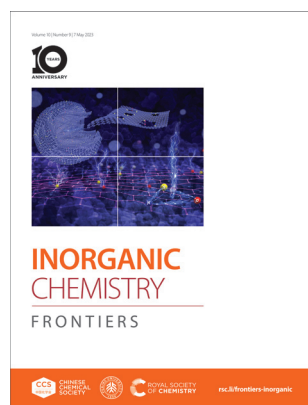


IN THIS ISSUE

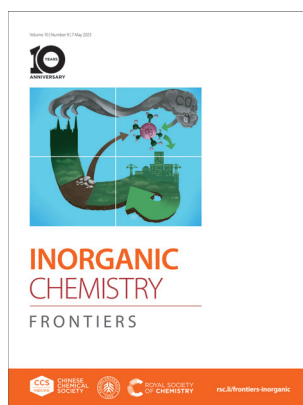
ISSN 2052-1553 CODEN ICFNAW 10(9) 2497-2830 (2023)



Cover

See Yan Meng, Dan Xiao et al., pp. 2574–2585.

Image reproduced by permission of Qian Zhao from *Inorg. Chem. Front.*, 2023, **10**, 2574.



Inside cover

See Hellen S. Santos et al., pp. 2507–2546.

Image reproduced by permission of Jasmiini Tornberg from *Inorg. Chem. Front.*, 2023, **10**, 2507.

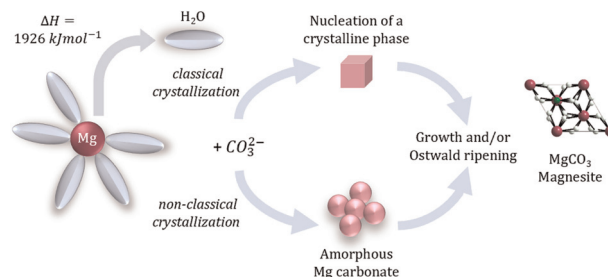
Artwork designed by Jasmiini Tornberg.

REVIEWS

2507

Mechanisms of Mg carbonates precipitation and implications for CO₂ capture and utilization/storage

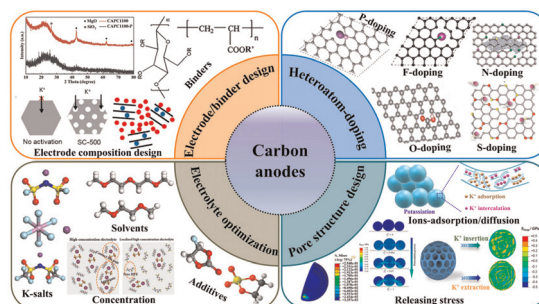
Hellen S. Santos,* Hoang Nguyen, Fabricio Venâncio, Durgaprasad Ramteke, Ron Zevenhoven and Paivo Kinnunen



2547

A comprehensive review of carbon anode materials for potassium-ion batteries based on specific optimization strategies

Fei Yuan, Yanan Li, Di Zhang, Zhaojin Li, Huan Wang, Bo Wang,* Yusheng Wu* and Yimin A. 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

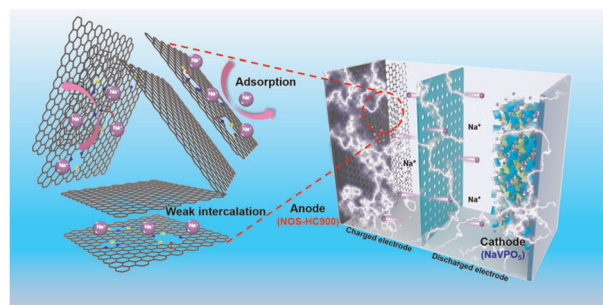


RESEARCH ARTICLES

2574

Nitrogen/oxygen/sulfur tri-doped hard carbon nanospheres derived from waste tires with high sodium and potassium anodic performances

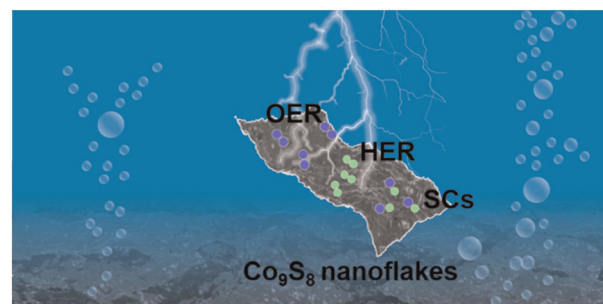
Qian Zhao, Qiaotian Zheng, Shenghu Li, Bin He, Xiulong Wu, Yujue Wang, Qingyuan Wang, Yan Meng* and Dan Xiao*



2586

Synthesis of Co₉S₈ nanoflakes by a one-step solvent-free solid-state method for multiple electrocatalytic reactions

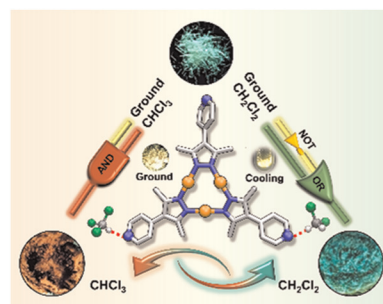
Peifeng Yu, Lingyong Zeng, Kuan Li, Chao Zhang, Kangwang Wang, Longfu Li, Ying Liang, Kai Yan and Huixia Luo*



2594

Multistimuli-responsive behavior of a phosphorescent Cu₃pyrazolate₃ complex for luminescent logic gates and encrypted information transformation

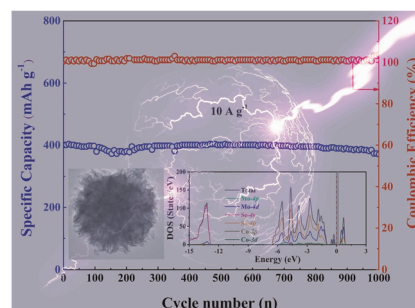
Wen-Jing Tang, Hu Yang, Su-Kao Peng, Ze-Miao Xiao, Guo-Quan Huang, Ji Zheng* and Dan Li*



2607

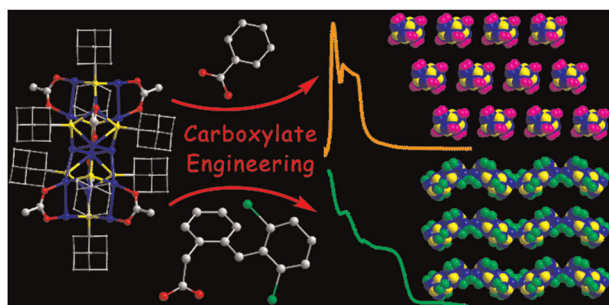
Electronic structure manipulation of MoSe₂ nanosheets with fast reaction kinetics toward long-life sodium-ion half/full batteries

Lei Zhang, Huilong Dong, Chengkui Lv, Chencheng Sun, Huaixin Wei, Xiaowei Miao, Jun Yang,* Liang Cao* and Hongbo Geng*



RESEARCH ARTICLES

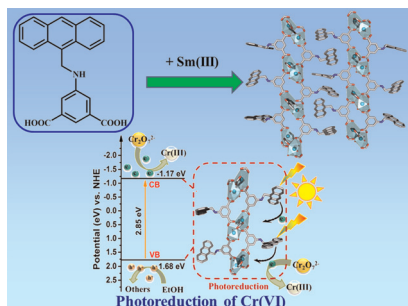
2618



Carboxylate engineering for manipulating the optical and assembly properties of copper clusters

Jing Sun, Fang Sun, Jiaqi Tang, Xiongkai Tang, Qingyuan Wu, Rong Huo, Ayisha He, Sachurilatu, Xueli Sun, Chaolumen,* Qing Tang* and Hui Shen*

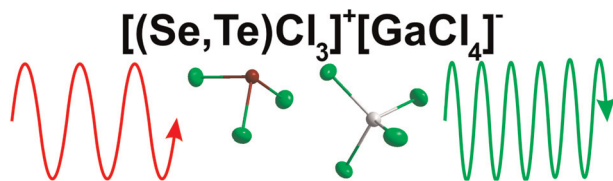
2626



Introducing anthracene and amino groups into Ln-OFs for the photoreduction of Cr(VI) without additional photosensitizers or cocatalysts

Wenxiao Guo, Shufang Wang, Hongguo Hao,* Xiangjin Kong, Hui Yan, Hongjie Zhu, Yunwu Li, Huawei Zhou, Dichang Zhong* and Fangna Dai

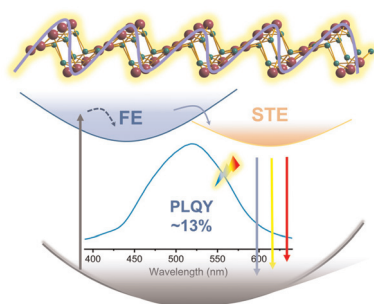
2636



Second-harmonic-generation of [(Se,Te)Cl₃]⁺[GaCl₄]⁻ with aligned ionic tetrahedra

Maxime A. Bonnin, Lkhamsuren Bayarjargal, Victor Milman, Björn Winkler* and Claus Feldmann*

2645



Stable self-trapped broadband emission from an organolead halide coordination polymer with strong layer corrugation and high chemical robustness

Ruonan Xi, Yilin Jiang, Yukong Li, Jinlin Yin and Honghan Fei*

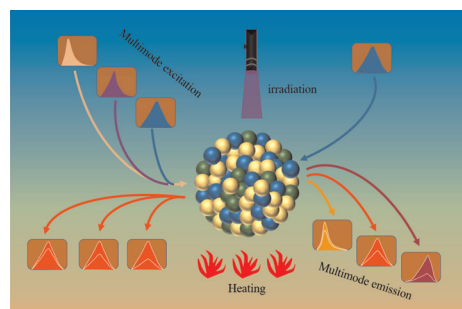


RESEARCH ARTICLES

2653

Realization of multiple luminescence manipulation in tungsten bronze oxides based on photochromism toward real-time, reversible, and fast processes

Tong Wei,* Yongchao Shi, Xiangyu Wang, Yingqiu Xu, Jiao Cui, Liwei Wu, Borui Zhang, Jiawei Wang and Yingdong Han



2665

Gadolinium-loaded LTL nanosized zeolite for efficient oxygen delivery and magnetic resonance imaging

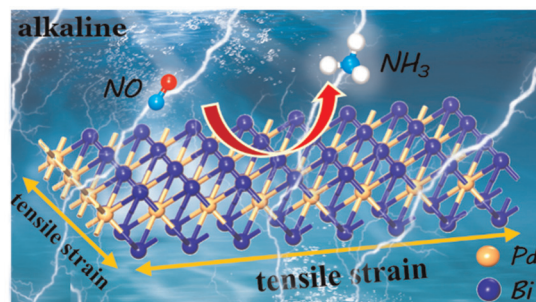
Abdallah Amedlous, Charly Hélaïne, Rémy Guillet-Nicolas, Oleg Lebedev, Samuel Valable* and Svetlana Mintova*



2677

The β -PdBi₂ monolayer for efficient electrocatalytic NO reduction to NH₃: a computational study

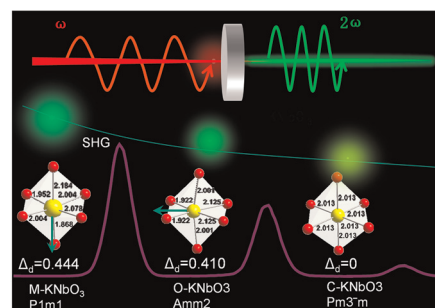
Yuting Sun, Zhongxu Wang, Yuejie Liu,* Qinghai Cai and Jingxiang Zhao*



2689

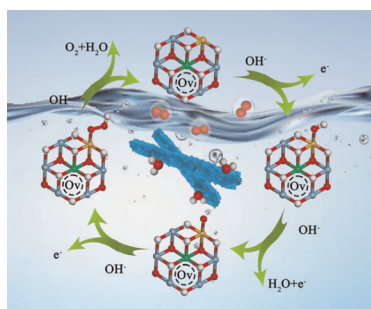
Insights into the mechanism of the symmetry dependent SHG properties in low dimensional KNbO₃ structures

Tianhui Wu, Baipeng Yin, Zhenpan Bian, Yahui Gao, Jianmin Gu* and Desong Wang*



RESEARCH ARTICLES

2697



Boosting electrocatalytic water oxidation by vanadium–iron–nickel trimetal hydroxide catalysts through interphase ionic migration method

Wei Zuo, Zhenhang Xu, Mengyu Hu, Yueying Yu, Jinyan Liu, Gongzhen Cheng* and Pingping Zhao*

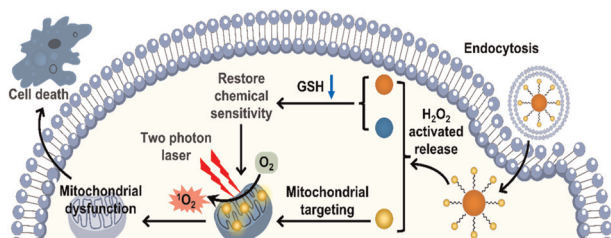
2708



Atomically isolated and unsaturated Sb sites created on Sb₂S₃ for highly selective NO electroreduction to NH₃

Kai Chen, Ying Zhang, Wenyu Du, Yali Guo and Ke Chu*

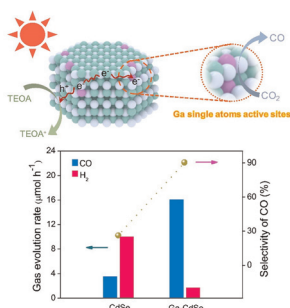
2716



Cancer cell membrane-camouflaged and H₂O₂-activatable nanocomposites for synergistic chemotherapy and two-photon photodynamic therapy against melanoma

Siyuan Gao, Fangmian Wei, Johannes Karges, Yukun Zhao,* Liangnian Ji and Hui Chao*

2731



Efficient and selective photocatalytic CO₂ reduction over Ga single atom decorated quantum dots under visible light

Li Shi,* Yingkui Yan, Ye Wang, Tingting Bo, Wei Zhou,* Xiaohui Ren and Yanshuo Li*

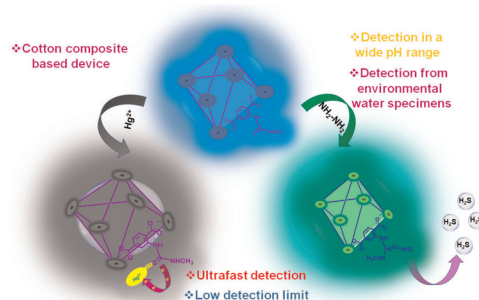


RESEARCH ARTICLES

2742

Electrophilicity modulated targeted luminescence of MOF-coated cotton composite for dual analyte detection in aqueous medium

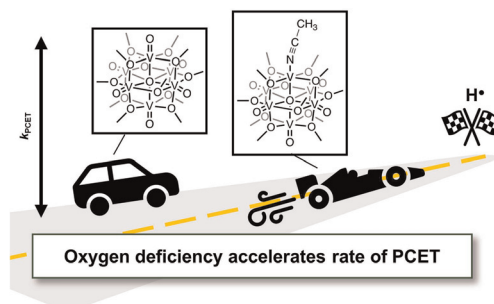
Abhijeet Rana and Shyam Biswas*



2754

Accelerated rates of proton coupled electron transfer to oxygen deficient polyoxovanadate-alkoxide clusters

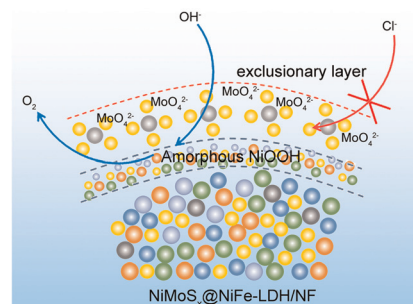
Shannon E. Cooney, Eric Schreiber, William W. Brennessel and Ellen M. Matson*



2766

Highly efficient and stable oxygen evolution from seawater enabled by a hierarchical NiMoS_x microcolumn@NiFe-layered double hydroxide nanosheet array

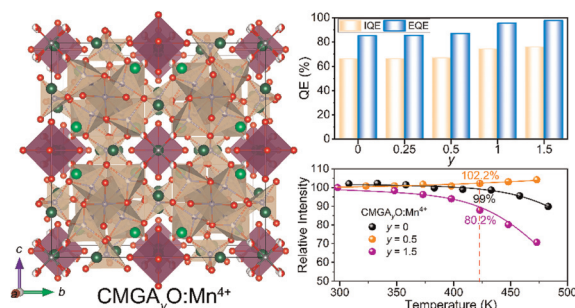
Longcheng Zhang, Ling Li, Jie Liang, Xiaoya Fan, Xun He, Jie Chen, Jun Li, Zixiao Li, Zhengwei Cai, Shengjun Sun, Dongdong Zheng, Yongsong Luo, Hong Yan, Qian Liu, Abdulmohsen Ali Alshehri, Xiaodong Guo,* Xuping Sun* and Binwu Ying*



2776

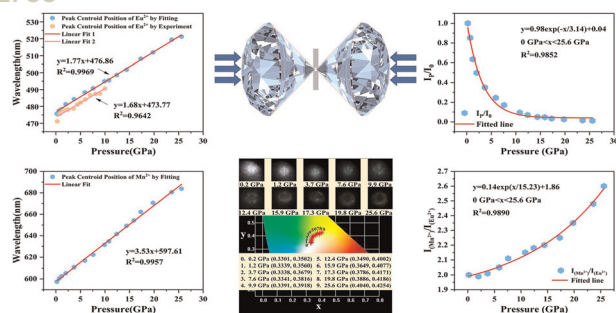
Structural confinement-induced highly efficient deep-red emission and negative thermal quenching performance in Mn⁴⁺-activated Ca₇Mg₂Ga_{6-y}Al_yO₁₈:Mn⁴⁺ phosphors

Jinmei Huang, Pengfei Jiang,* Zien Cheng, Rong Wang, Rihong Cong and Tao Yang*



RESEARCH ARTICLES

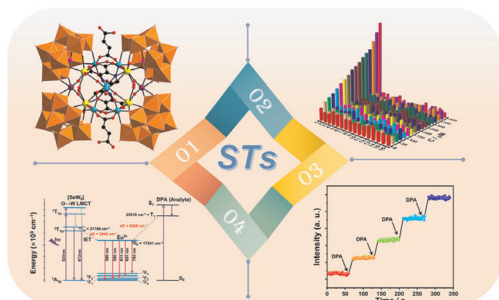
2788



Eu^{2+} and Mn^{2+} co-doped $\text{Lu}_2\text{Mg}_2\text{Al}_2\text{Si}_2\text{O}_{12}$ phosphors for high sensitivity and multi-mode optical pressure sensing

Zhibo Zheng, Yanhua Song, Baofeng Zheng, Yanxia Zhao, Qilin Wang, Xiangting Zhang, Bo Zou* and Haifeng Zou*

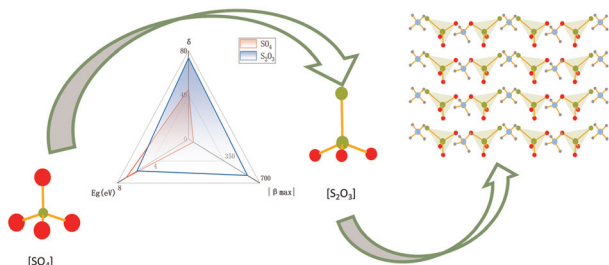
2799



Dual-ligand-functionalized dodeca-nuclear lanthanide-tungsten-cluster incorporated selenotungstates and fluorescence detection of dipicolinic acid (an anthrax biomarker)

Tiantian Gong, Sen Yang, Zixu Wang, Mengyao Li, Siyu Zhang, Jiancai Liu,* Lijuan Chen* and Junwei Zhao*

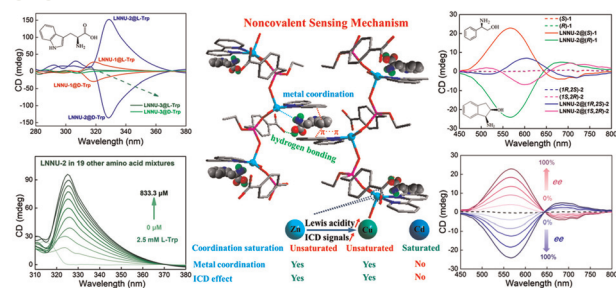
2811



Constructing ultraviolet nonlinear optical crystals with large second harmonic generation and short absorption edges by using polar tetrahedral S_2O_3 groups

Shixian Ke, Huixin Fan,* Chensheng Lin, Ning Ye and Min Luo*

2818



Noncovalent induced circular dichroism sensors based on a chiral metal-organic framework: chiral induction synthesis, quantitative enantioselective sensing and noncovalent sensing mechanism

Yanyu Zhu, Tianyang Ding, Xu Zhang, Yanan Zhou, Jiahui Yu, Xin Li, Hanwen Zheng, Zhengang Sun* and Chengqi Jiao*

