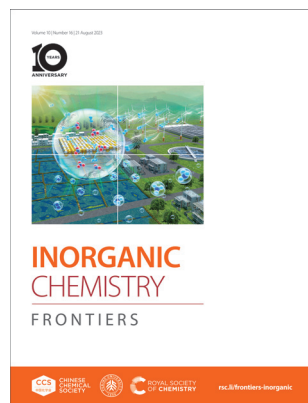


IN THIS ISSUE

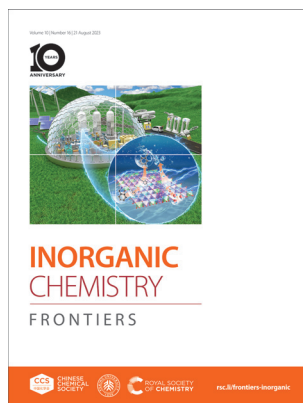
ISSN 2052-1553 CODEN ICFNAW 10(16) 4599–4890 (2023)



Cover

See Hao Li, Fei Wang *et al.*, pp. 4610–4631.

Image reproduced by permission of Hao Li from *Inorg. Chem. Front.*, 2023, **10**, 4610.



Inside cover

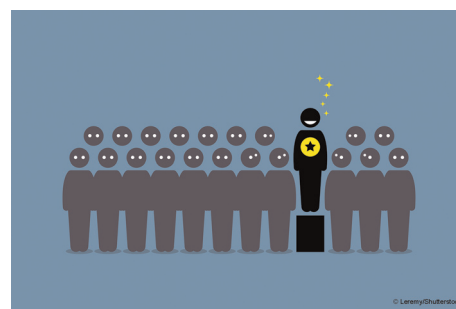
See Liang Chen, Huimin Yang, Chenjing Shang *et al.*, pp. 4695–4701.

Image reproduced by permission of Liang Chen from *Inorg. Chem. Front.*, 2023, **10**, 4695.

EDITORIAL

4609

Outstanding Reviewers for *Inorganic Chemistry Frontiers* in 2022

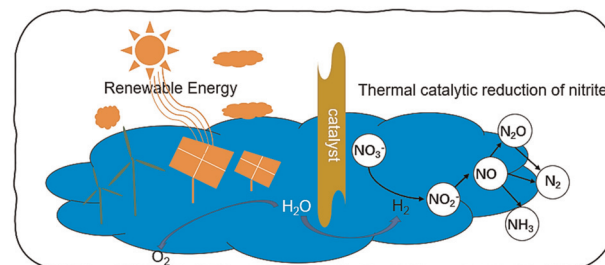


REVIEWS

4610

Opportunities and challenges in aqueous nitrate and nitrite reduction beyond electrocatalysis

Guanling Yang, Pengfei Zhou, Jinsheng Liang, Hao Li* and Fei Wang*



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

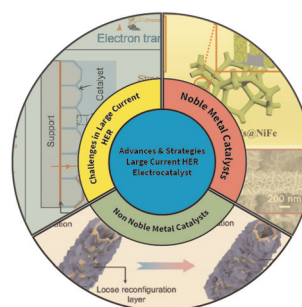


REVIEWS

4632

Recent advances and strategies of electrocatalysts for large current density industrial hydrogen evolution reaction

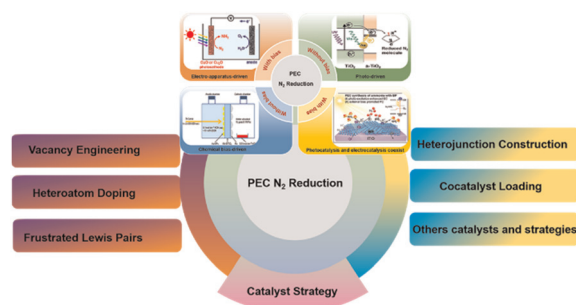
Tong Wu, Mingzi Sun, Hon Ho Wong, Cheuk Hei Chan, Lu Lu, Qiuyang Lu, Baian Chen and Bolong Huang*



4650

Recent progress in ammonia synthesis based on photoelectrocatalysis

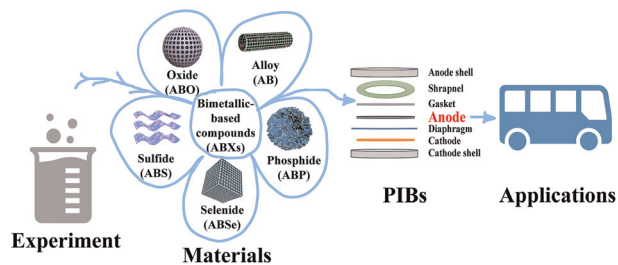
Pengyan Li, Yumin Liu, Muhammad Asim Mushtaq and Dongpeng Yan*



4668

Bimetallic-based composites for potassium-ion storage: challenges and perspectives

Ping Hu, Yulian Dong, Zhijun Wu, Qun Fu, Huaping Zhao and Yong Lei*

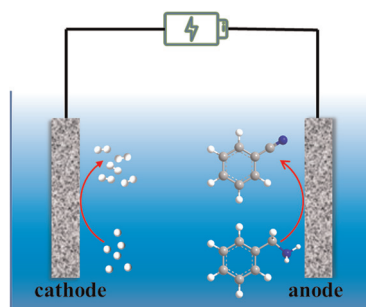


RESEARCH ARTICLES

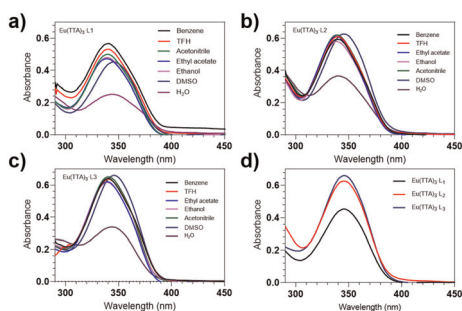
4695

V modified Ni-based layer hydroxides for the electrocatalytic upgrading of amines to nitriles

Shaoxiong Bai, Liang Chen,* Jingjing Bai, Chenghang Lv, Shoudong Xu, Ding Zhang, Haibin Meng, Chunli Guo, Huimin Yang* and Chenjing Shang*



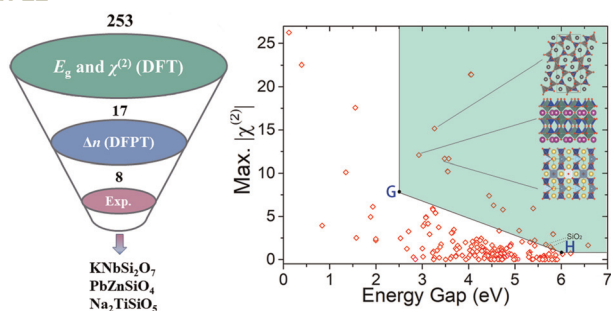
4702



Design and synthesis of RNA-responsive o-phenanthroline Eu(III) complexes as probes for STED super-resolution dual-targeted bioimaging

Hao Yuan, Tao Wang, Tong Zhu, Zihui Feng, Fei Wang, Yupeng Tian, Liulin Xiong and Xiaohe Tian*

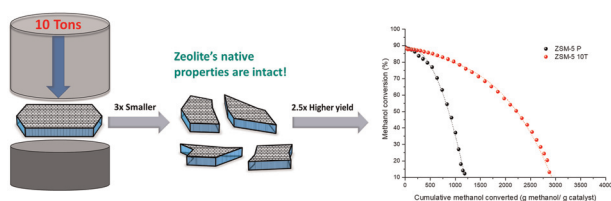
4711



Searching for silicate nonlinear optical materials by combining calculation and experiment

Jingjing Zhang, Ruqing Wei, Daqing Yang, Ying Wang and Bingbing Zhang*

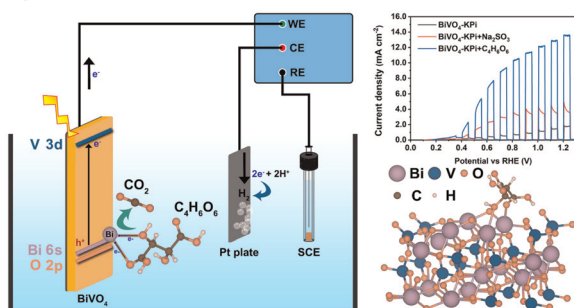
4719



Mono-directional pressure induced downsizing of zeolite crystals increases their catalytic performances

Mohammad Fahda, Louwanda Lakiss, Kamila Goldyn, Edwin Clatworthy, Marie Desmurs, Jean-Pierre Gilson, Svetlana Mintova and Valentin Valtchev*

4725



Insight into the complexation mechanism between a BiVO₄ photoanode and tartaric acid for efficient photoelectrochemical H₂ production

Zhaoqi Wang, Shuhua Wang, Xiaolei Liu,* Yayang Xu, Dujuan Dai, Shuang Zhao, Peng Wang, Zhaoke Zheng, Yuanyuan Liu, Hefeng Cheng, Ying Dai, Zeyan Wang* and Baibiao Huang*

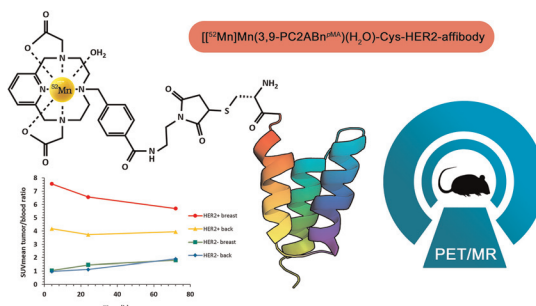


RESEARCH ARTICLES

4734

Synthesis and characterization of a novel [^{52}Mn] Mn-labelled affibody based radiotracer for HER2+ targeting

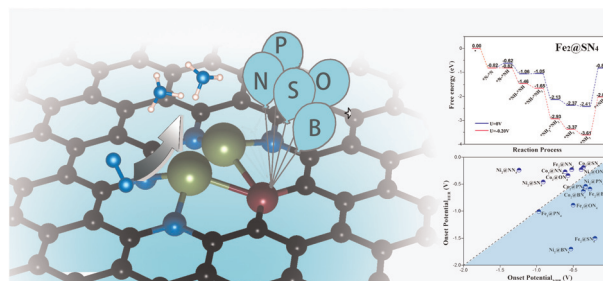
Balázs Váradi, Károly Brezovcsik, Zoltán Garda, Enikő Madarasi, Horea Szedlacsek, Rodica-Aura Badea, Andrei-Mihai Vasilescu, Adina-Gabriela Puiu, Aura Elena Ionescu, Livia-Elena Sima, Cristian V. A. Munteanu, Simona Călăraș, Adrienn Vágner, Dezső Szikra, Ngô Minh Toàn, Tibor Nagy, Zoltán Szűcs,* Stefan Szedlacsek,* Gábor Nagy* and Gyula Tircsó*



4746

Synergetic effect between non-metals and dual metal catalysts for nitrogen reduction reaction

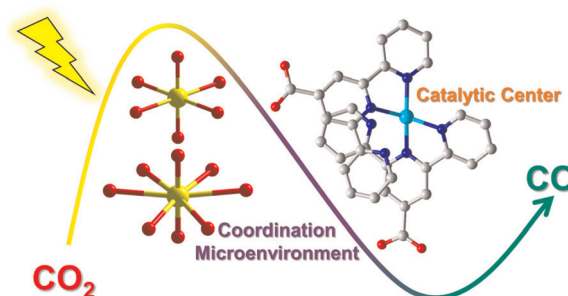
Ji Zhang, Weisong Yang and Chenghua Sun*



4754

Modulating the coordination microenvironment of uranyl compounds to enhance photocatalytic CO₂ reduction

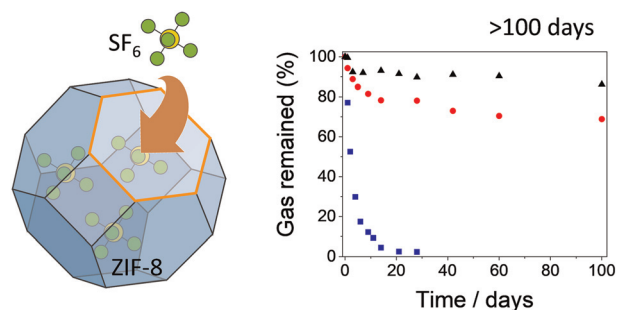
Zhi-Wei Huang, Shu-Wen An,* Kong-Qiu Hu,* Xiao-Bo Li, Zhi-Ni Bin, Zhi-Heng Zhou, Lei Mei, Zhi-Jun Guo, Wang-Suo Wu, Zhi-Fang Chai and Wei-Qun Shi*



4763

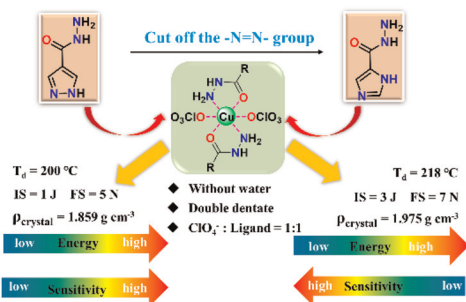
MOFs for long-term gas storage: exploiting kinetic trapping in ZIF-8 for on-demand and stimuli-controlled gas release

Karsten Heinz, Sven M. J. Rogge, Andreas Kalytta-Mewes, Dirk Volkmer and Hana Bunzen*



RESEARCH ARTICLES

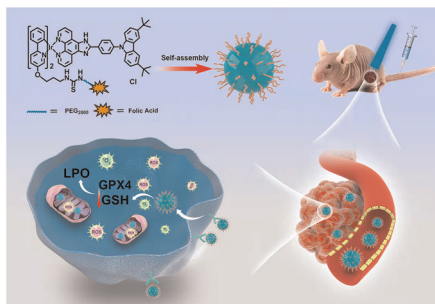
4773



Regulation of stability and detonation performance: preparation of coordination compounds by using isomeric ligands

Tingwei Wang, Chao Zhang, Zujia Lu, Baolong Kuang, Zhiming Xie, Zhenxin Yi, Yan Li and Jianguo Zhang*

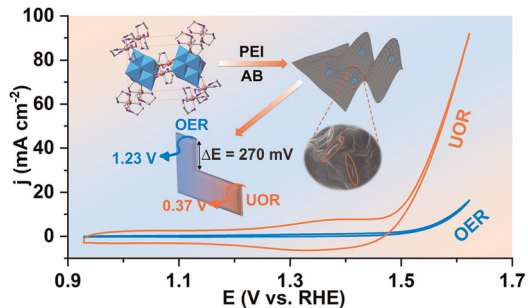
4780



Folate-targeted iridium complexes amplify photodynamic therapy efficacy through ferroptosis

Xiangdong He, Lai Wei, Jun Chen, Shuwang Ge, Martha Kandawa-Shultz, Guoqiang Shao* and Yihong Wang*

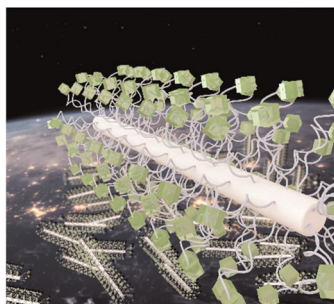
4789



An organic–inorganic hybrid polyoxoniobate decorated by a Co(III)-amine complex for electrocatalytic urea splitting

Da-Huan Li, Nian Shi, Yong-Jiang Wang, Ping-Wei Cai, Yan-Qiong Sun* and Shou-Tian Zheng*

4797



Amino-bridged attapulgite@perovskite nanocomposites: the role of bridge linkage in their optical properties and stabilities

Lei Qiu, Mengyu Guan, Wei Wang, Maxim S. Molokeev, Sergey P. Polyutov, Zhigao Dai* and Guogang Li*

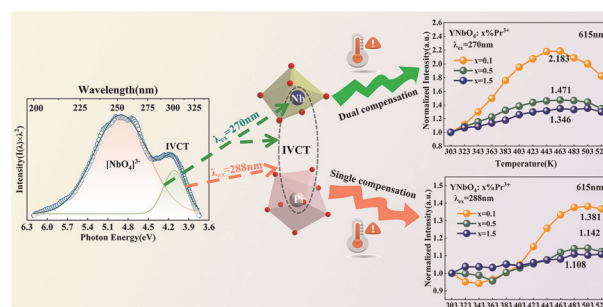


RESEARCH ARTICLES

4808

Design of anti-thermal quenching Pr³⁺-doped niobate phosphors based on a charge transfer and intervalence charge transfer band excitation-driven strategy

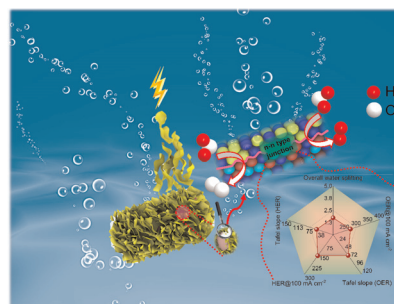
Chunwei Yang, Ning Guo,* Song Qu, Qincan Ma, Jianxia Liu, Shunyi Chen and Ruizhuo Ouyang



4819

Constructing an n-n junction between CoFe-LDH and NiCoP as bifunctional electrocatalysts for efficient overall water splitting

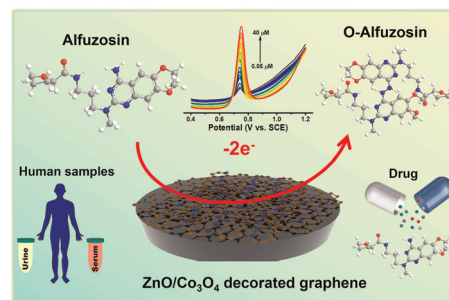
Mengyuan Qin, Guiyuan Ma, Wenxue Tan, Zunhao Fan and Xing Xin*



4829

An ultra-sensitive electrochemical sensor based on MOF-derived ZnO/Co₃O₄ decorated on graphene for low-level monitoring of the α₁-AR antagonist alfuzosin in tablets and human samples

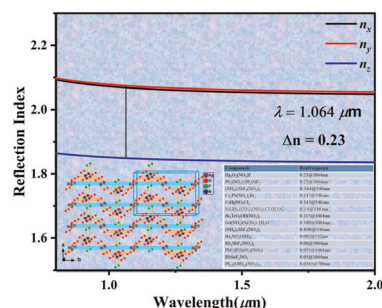
Gajapaneni Venkata Prasad, Venkatachalam Vinothkumar, Seung Joo Jang and Tae Hyun Kim*



4845

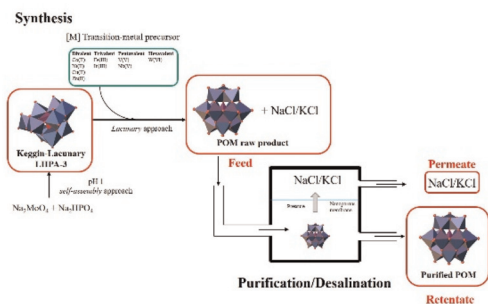
Hg₃O₂(NO₃)F: a mercury nitrate oxyfluoride with an unprecedented [(Hg₃O₂F)⁺]_∞ cationic framework and excellent optical anisotropy

Yi-Lei Lv, Lei Huai, Yu-Long Wei, Liang Ma, Yue-Qi Wei, Wenlong Liu and Ru-Ling Tang*



RESEARCH ARTICLES

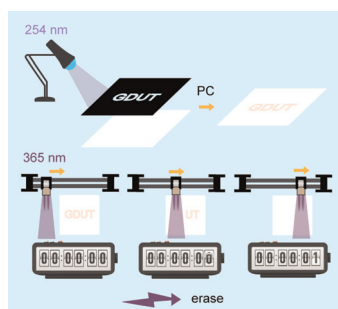
4854



Study on the incorporation of various elements into the Keggin lacunary-type phosphomolybdate [PMo₉O₃₄]⁹⁻ and subsequent purification of the polyoxometalates by nanofiltration

Jan-Christian Raabe, Tobias Esser, Froze Jameel, Matthias Stein, Jakob Albert and Maximilian J. Poller*

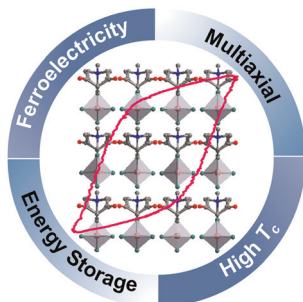
4869



Bi³⁺/Sm³⁺ co-doped LiTaO₃ photochromic perovskites: an ultrafast erasable optical information storage medium

Ruiting Zhang, Yahong Jin,* Yanmei Li,* Haoyi Wu and Yihua Hu*

4881



A multifunctional molecular ferroelectric with a high Curie temperature and electrical–thermal double-switch coexistence: (C₈H₁₄NO)[FeCl₄]

Fang-Xin Wang, Yun-Zhi Tang,* Yu-Hui Tan,* Yi-Ran Zhao, Jia-Ying Wang, Yu-Kong Li, Hao Zhang, Ting-Ting Ying and Ming-Yang Wan

