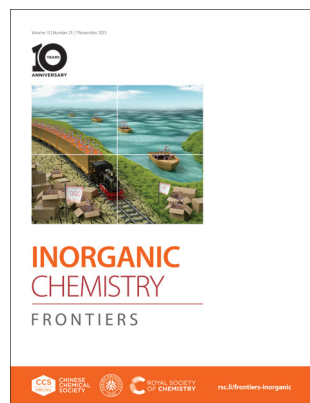


IN THIS ISSUE

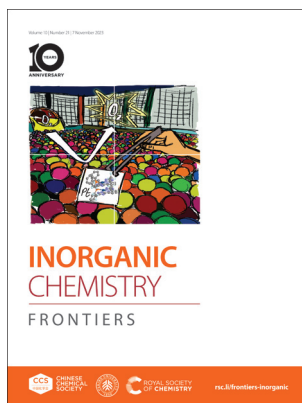
ISSN 252-1553 CODEN ICFNAW 10(21) 6119–6416 (2023)



Cover

See Huiyong Chen *et al.*, pp. 6193–6203.

Image reproduced by permission of Huiyong Chen from *Inorg. Chem. Front.*, 2023, **10**, 6193.



Inside cover

See Antonio Frontera, Laura Rodríguez *et al.*, pp. 6204–6220.

Image reproduced by permission of Andrea Pinto from *Inorg. Chem. Front.*, 2023, **10**, 6204.

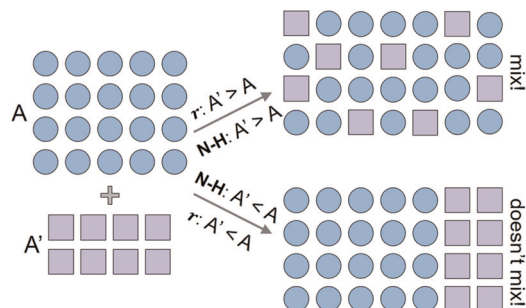
The authors would like to thank Dr. Andrea Pinto for the cover design.

HIGHLIGHT

6129

Does it mix? Insights and attempts to predict the formability of single phase mixed A-cation lead iodide perovskites

Fernando Brondani Minussi,* Rogério Marcos da Silva, Jr. and Eudes Borges Araújo

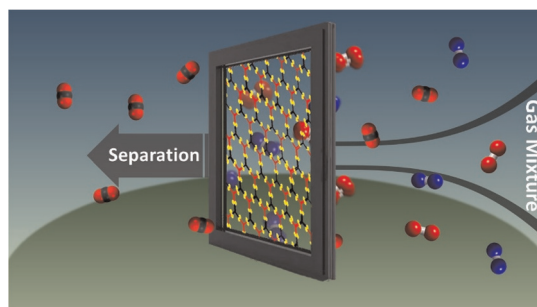


REVIEWS

6134

Recent progress in gas separation platforms based on hydrogen-bonded organic frameworks (HOFs)

Paria Soleimani Abhari, Shahin Gholizadeh, Farzaneh Rouhani,* Yu-Lin Li, Ali Morsali* and Tian-Fu Liu*



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

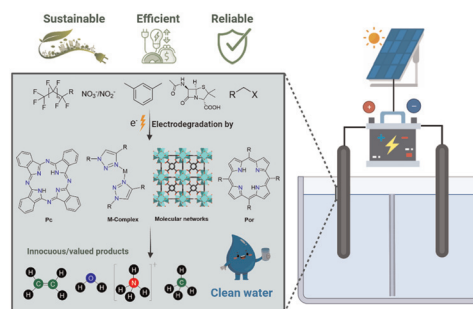


REVIEWS

6160

Molecular inspired electrocatalyst materials for environmental remediation

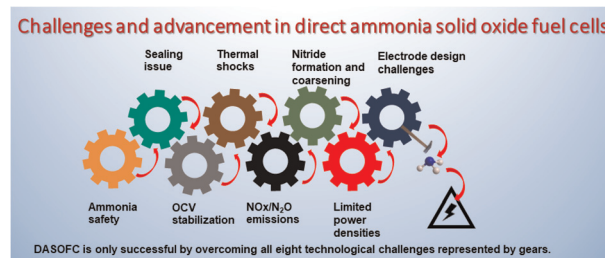
Jonathan J. Calvillo Solis, Alexandria Castillo, Sheng Yin,
Christian Sandoval-Pauker, Neidy Ocuane,
Diego Puerto-Díaz, Nasim Jafari and Dino Villagrán*



6176

Challenges and advancement in direct ammonia solid oxide fuel cells: A review

Dattatray S. Dhawale,* Saheli Biswas, Gurpreet Kaur and Sarbjit Giddey

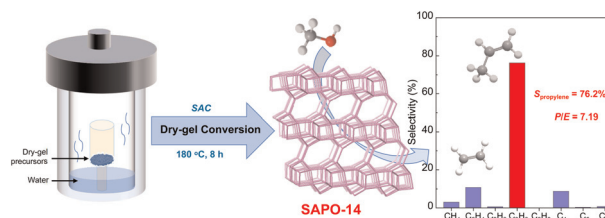


RESEARCH ARTICLES

6193

Dry-gel conversion synthesis of SAPO-14 zeolites for the selective conversion of methanol to propylene

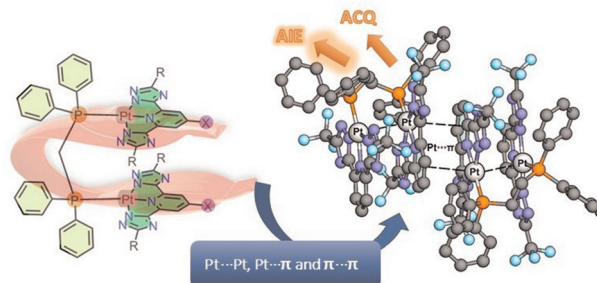
Daizong Han, Dongyuan Yang, Chenyao Bi,
Guoqing Zhang, Fei Yang, Qingqing Hao, Jianbo Zhang,
Huiyong Chen* and Xiaoxun Ma



6204

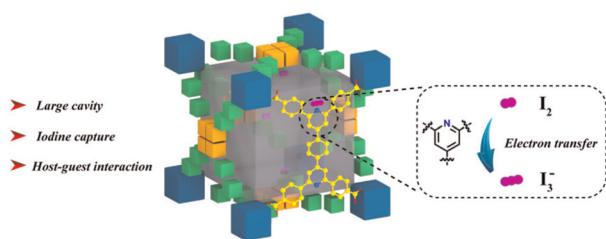
Supramolecular luminescent Pt(II) tweezers: aggregation studies and $^1\text{O}_2$ production

Guillermo Romo-Islas, Rosa M. Gomila,
Antonio Frontera* and Laura Rodríguez*



RESEARCH ARTICLES

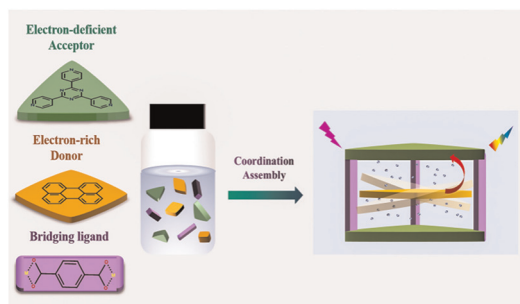
6221



Efficient iodine capture by metal–organic cubes based on hexanuclear vanadium clusters

Yang Yang, Yaomei Fu, Yiran Tian, Liang Zhao,*
Chao Qin, Xinlong Wang* and Zhongmin Su

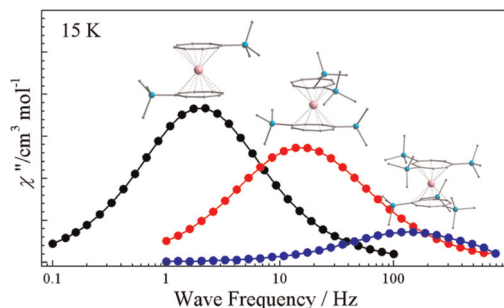
6229



Subtle structural engineering of a coordination polymer host for the fluorescence modulation of host–guest donor–acceptor systems

Hong-Xiang Nie, Bo Zhang, Yi-Ming Liu, Mei-Hui Yu
and Ze Chang*

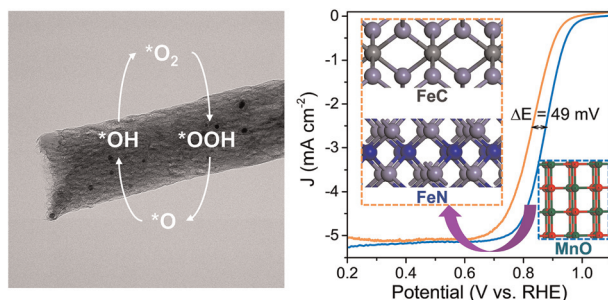
6236



A hundredfold enhancement of relaxation times among Er(III) single-molecule magnets with comparable energy barriers

Qi-Wei Chen, You-Song Ding,* Tianjiao Xue,
Xiao-Fei Zhu* and Zhiping Zheng*

6245



MnO synergizes with FeC–FeN in carbon nanofibers to boost oxygen reduction for zinc–air batteries

Shuhua Liu, Zhiran Sun, Yajie Guo, Fuxian Zheng,
Bing Nan, Wenjun Kang, Konggang Qu, Lei Wang, Rui Li,
Zongge Li,* Shenglin Xiong* and Haibo Li*

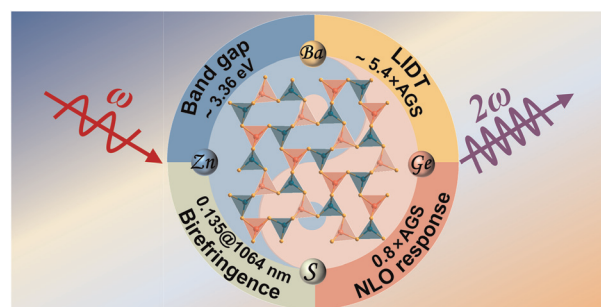


RESEARCH ARTICLES

6253

A new infrared nonlinear optical material BaZnGeS₄ with a wide band gap and large nonlinear optical response

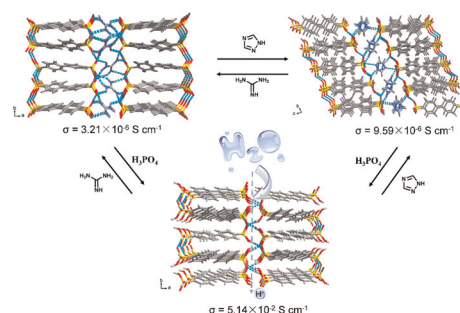
Hongshan Wang, Xueting Pan, Wang Zhao, Yu Chu* and Junjie Li*



6262

Guest-induced proton conductivity of two-dimensional layered hydrogen-bonded organic frameworks

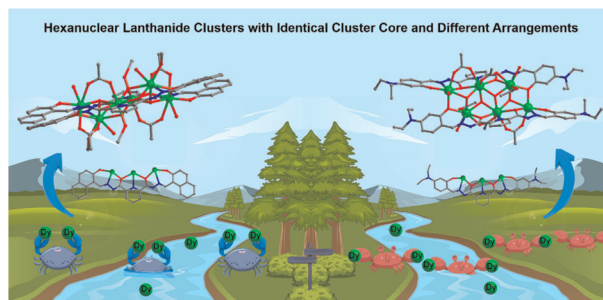
Jianjian Yang, Jianbo Yin, Qinglei Guo, Changsong Xie, Qianqian Yang, Zhihui Kong, Zixi Kang, Rongming Wang* and Daofeng Sun



6269

Highly stable and differentially arranged hexanuclear lanthanide clusters: structure, assembly mechanism, and magnetic resonance imaging

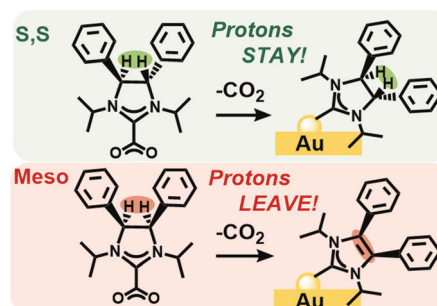
Wen-Wen Qin, Yun-Lan Li, Zhong-Hong Zhu,* Fu-Pei Liang, Qiong Hu* and Hua-Hong Zou*



6282

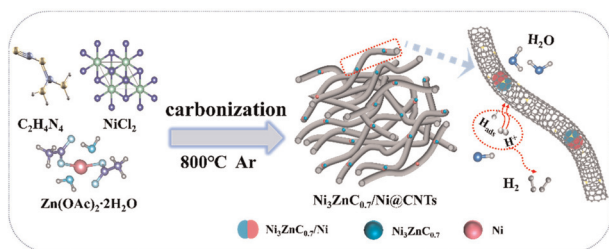
Reactivity variance between stereoisomers of saturated N-heterocyclic carbenes on gold surfaces

Gurkiran Kaur, Nathaniel L. Dominique, Gaohe Hu, Phattananawee Nalaoh, Rebekah L. Thimes, Shelby L. Strausser, Lasse Jensen,* Jon P. Camden* and David M. Jenkins*



RESEARCH ARTICLES

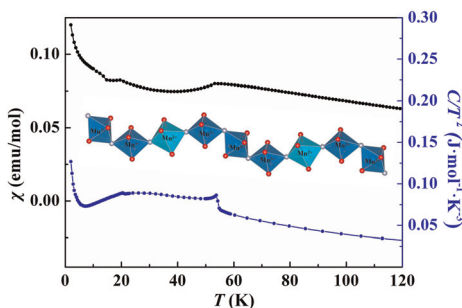
6294



Interfacial electronic engineering of a $\text{Ni}_3\text{ZnC}_{0.7}/\text{Ni}$ heterostructure embedded in N-doped carbon nanotubes for efficient alkaline electrocatalytic hydrogen evolution

Liangliang Feng,* Hongyan Yin, Lina Dai, Yonghui Zhang, Changle Fu, Liyun Cao, Yuhang Li, Dan Zhao, Yajie Xie and Jianfeng Huang*

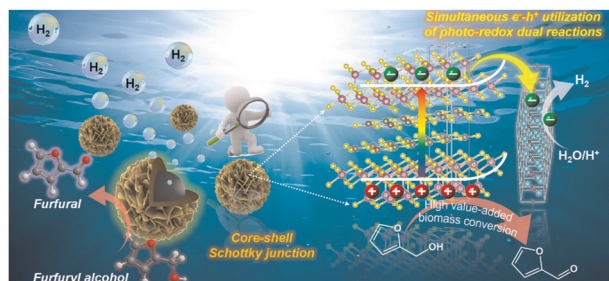
6303



A new compound $\text{Na}_5\text{Mn}_4(\text{PO}_4)_4\text{F}_4 \cdot 2\text{H}_2\text{O}$ with a rarely mixed valence spin chain showing multiple magnetic transitions

Qi Luo, Ningxia Li, Zhiying Zhao, Meiyan Cui and Zhangzhen He*

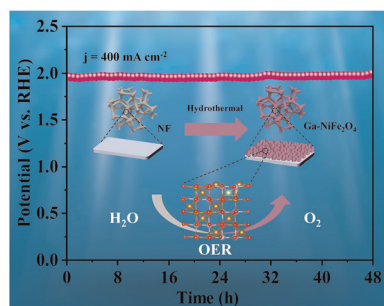
6308



A bifunctional hierarchical core-shell $\text{Mo}_2\text{C}@\text{ZnIn}_2\text{S}_4$ Schottky junction for efficient photocatalytic H_2 -evolution integrated with valuable furfural production

Jian Yang, Xiaorui Zhang, Zikang Zeng, Chuang Han and Yujun Liang*

6320



Ga-induced electronic structure engineering of NiFe_2O_4 nanosheet arrays for stable and efficient oxygen evolution

Sijie Chen, Haijun Liao, Xiaocheng Xu, Rui Wang, Zhipeng Sun* and Le Huang*

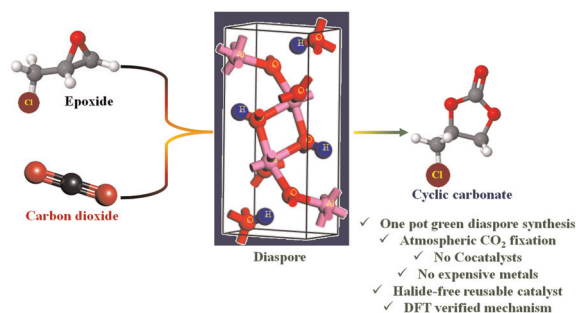


RESEARCH ARTICLES

6329

Diaspore as an efficient halide-free catalyst for the conversion of CO₂ into cyclic carbonates

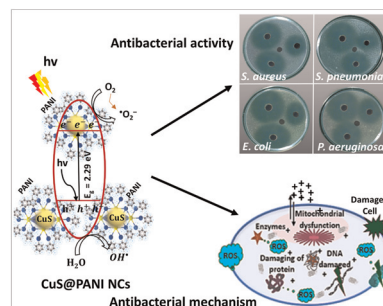
Antarip Mitra, Khushboo S. Paliwal, Sourav Ghosh, Saikat Bag, Avishek Roy, Aditi Chandrasekar* and Venkataramanan Mahalingam*



6339

Photoresponsive CuS@polyaniline nanocomposites: An excellent synthetic bactericide against several multidrug-resistant pathogenic strains

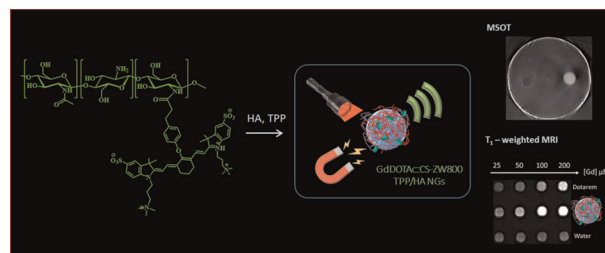
Basit Ali Shah,* Asma Sardar, Weiliang Peng, Syed Taj Ud Din, Syed Hamayoun, Shaobo Li and Bin Yuan*



6357

Multimodal nanogels combining ZW800-1 as an optical absorber and gadolinium chelates for multispectral optoacoustic tomography (MSOT) and magnetic resonance imaging (MRI)

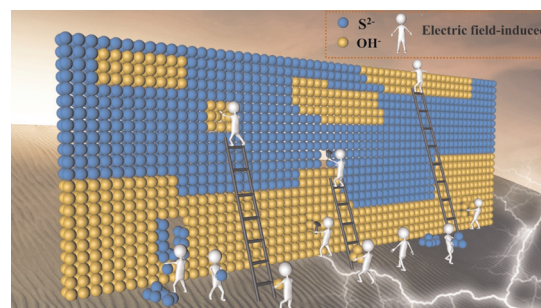
Camille Gosée, Juliette Moreau, Cyril Cadiou, Maité Callewaert, Céline Henoumont, Lionel Larbanoix, Michael Molinari, Sorina N. Voicu, Christophe Portefaix, Sophie Laurent* and Françoise Chuburu*



6369

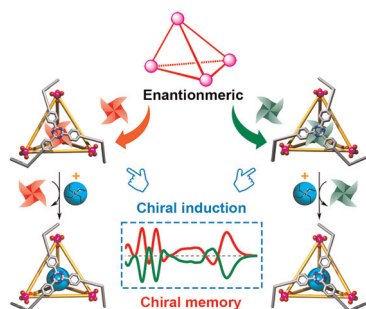
Electric field-induced ball-cactus-like CuCo₂S_x(OH)_y nano-heterostructure towards high-performance supercapacitors

Faxue Lu, Yajun Ji,* Dong Shi, Junnan Yao, Pengcheng Zhang and Shixiong Zhang



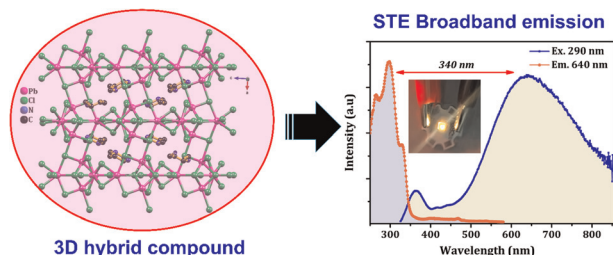
RESEARCH ARTICLES

6384

**Controllable chiral memory in an anion tetrahedral cage**

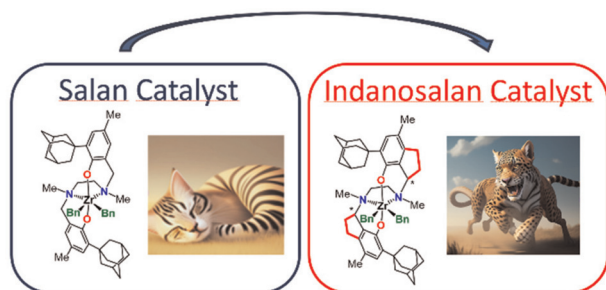
Wenyao Zhang, Jie Zhao, Dong Yang,* Boyang Li, Yang Feng, Yue Wang, Xiaoyan Zheng, Xiao-Juan Yang and Biao Wu*

6392

**A 3D lead chloride hybrid exhibits self-trapped emission and exceptional stability**

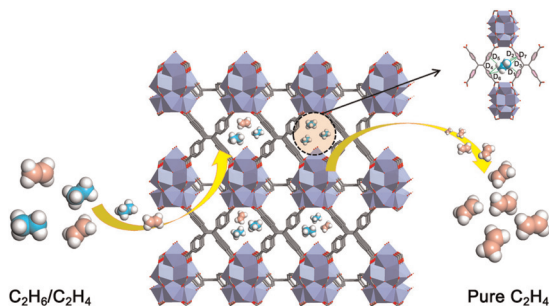
Mohamed Saber Lassoued, Qian-Cheng Luo and Yan-Zhen Zheng*

6401

**Manipulating pre-equilibria in olefin polymerization catalysis: backbone-stiffening converts a living into a highly active salan-type catalyst**

Dmitry V. Uborsky,* Mikhail I. Sharikov, Georgy P. Goryunov, Kristina M. Li, Anna Dall'Anese, Cristiano Zuccaccia,* Antonio Vittoria, Teresa Iovine, Gianluigi Galasso, Christian Ehm, Alceo Macchioni, Vincenzo Busico, Alexander Z. Voskoboynikov and Roberta Cipullo*

6407

**A highly connected metal–organic framework with a specific nonpolar nanotrap for inverse ethane/ethylene separation**

Jing-Jing Pang, Zhi-Han Ma, Qiang-Qiang Yang, Kuo Zhang, Xin Lian, Hongliang Huang,* Zhao-Quan Yao,* Baiyan Li, Jian Xu* and Xian-He Bu

