

IN THIS ISSUE

ISSN 1144-0546 CODEN NJCHES 47(32) 14989-15392 (2023)



Cover

See Xinrui Miao, Xiaohong Cheng *et al.*, pp. 15014-15020. Image reproduced by permission of Xinrui Miao from *New J. Chem.*, 2023, 47, 15014.

EDITORIAL

15003

50th anniversary of ICCST: celebrating ICCST at its 15th edition

Jamal Rafique,* Eder J Lenardão* and Antonio L. Braga*

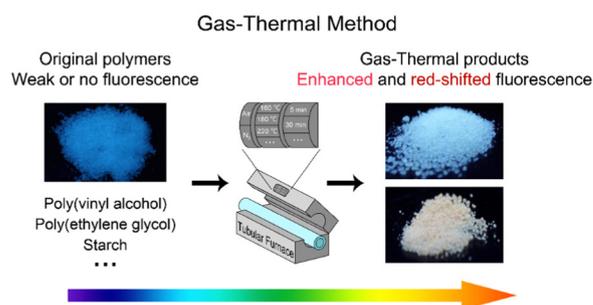


COMMUNICATIONS

15005

A gas-thermal method as a universal and convenient strategy for preparing non-traditional luminescent polymers with enhanced and red-shifted fluorescence

Yaxin Zhao, Wendi Xie, Junwen Deng, Deyu Liu, Haiqi Liu, Tianqi Li and Huiliang Wang*



Editorial Staff**Executive Editor**

Sally Howells-Wyllie

Deputy Editor

Mike Andrews

Development Editors

Michelle Canning, Emily Cuffin-Munday

Assistant Editor

Eva Balentova

Editorial Production Manager

Susannah Davies

Publishing Editors

Debora Giovannelli, Helen Lunn, Samuel Oldknow, Kate Tustain

Editorial Assistant

Daphne Houston

Publishing Assistant

Huw Hedges

Publisher

Jeanne Andres

For queries about submitted articles please contact Susannah Davies, Editorial Production Manager in the first instance. E-mail njc@rsc.org
For pre-submission queries please contact Sally Howells-Wyllie (RSC), Executive Editor. E-mail njc-rsc@rsc.org

New Journal of Chemistry (electronic: ISSN 1369-9261) is published 48 times a year by the Centre National de la Recherche Scientifique (CNRS), 3 rue Michel-Ange, 75794 Paris cedex 16, France, and the Royal Society of Chemistry (RSC), 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 the Royal Society of Chemistry 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: £2306; US\$3880. 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

NJC

New Journal of Chemistry

A journal for new directions in chemistry

rsc.li/njc

NJC solicits innovative and cutting-edge reports of high quality and broad appeal that have a strong chemical component. Cross-disciplinary papers are welcome.

NJC contains reports of original research (Communications, Papers) as well as reviews (Focuses, Perspectives).

Editorial Board**Editor-in-chief**

Jean-François Gérard, INSA Lyon, University of Lyon, France

Associate Editors

Annie Castonguay, INRS (University of Quebec), Canada

Alexander J. Andre Cobb, Kings College London, UK

Vera R. L. Constantino, University of São Paulo, Brazil

Debbie Crans, Colorado State University, USA

Catharine Esterhuysen, University of Stellenbosch, South Africa

David Farrusseng, IRCELYON, France

Yannick Guari, Université Montpellier, France

Suman L. Jain, CSIR Indian Institute of Petroleum, India

Peter Junk, James Cook University, Australia

Hee-Je Kim, Pusan National University, Korea

Dai-Wen Pang, Wuhan University, China

Karine Philpott, LCC, France

Luca Prodi, University of Bologna, Italy

Maarten Roeflaers, Katholieke Universiteit

Leuven, Belgium

Edina Rosta, University College London, UK

Akhila K. Sahoo, University of Hyderabad, India

Jianji Wang, Henan Normal University, China

Gregory Welch, University of Calgary, Canada

Kazunari Yoshizawa, Kyushu University, Japan

Jinghua Yu, University of Jinan, China

Consulting Editor

Odile Eisenstein, Université Montpellier, France

Advisory Board

David Aitken, Université Paris-Sud, France

Martyn Coles, Victoria University, New Zealand

Qiang Cui, Boston University, USA

Marijana Daković, University of Zagreb, Croatia

Parthasarathi Das, Indian Institute of

Technology (ISM) Dhanbad, India

Pablo Andres Denis, Universidad de la

República Facultad de Química, Uruguay

R. Dario Falcone, Consejo Nacional de

Investigaciones Científicas y Técnicas, Argentina

Dinorah Gambino, University of the Republic

(Uruguay), Uruguay

Yulia G. Gorbunova, Russian Academy of

Sciences, Russia

Barnaby Greenland, University of Sussex, UK

Delia Haynes, Stellenbosch University, South

Africa

Hendrik Heinz, University of Colorado

Boulder, USA

Mir Wais Hosseini, Université de Strasbourg, France

Takashi Kato, University of Tokyo, Japan

Vladimir Kouznetsov, Universidad Industrial

de Santander, Columbia

Eder Joao Lenardo, Universidade Federal de

Pelotas, Brazil

Benoit Lessard, University of Ottawa, Canada

Mi Hee Lim, KAIST, Korea

Paul Low, University of Western Australia,

Australia

Jean-Pierre Majoral, University of Toulouse,

France

Tebello Nyokong, Rhodes University, South

Africa

David Reinhoudt, University of Twente, The

Netherlands

Marie-Cristine Scherrmann, Université Paris-

Saclay, France

Jonathan W. Steed, Durham University, UK

Consiglia Tedesco, University of Salerno, Italy

William Tiznado, Universidad Andres Bello,

Chile

Hai-Yan Xie, Beijing Institute of Technology,

China

Lin Xu, East China Normal University, China

Yi-Jun Xu, Fuzhou University, China

Vivian Yam, University of Hong Kong, PR

China

Edwin Yeow, Nanyang Technological

University, Singapore

David Zargarian, Université de Montréal,

Canada

Yuming Zhao, Memorial University of

Newfoundland, Canada

Founding Editor

Lionel Salem

Information for Authors

Full details on how to submit material for publication in New Journal of Chemistry 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/njc

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 with permission from the Centre National de la Recherche Scientifique (CNRS) and the Royal Society of Chemistry.

This journal is © The Royal Society of Chemistry and the Centre National de la Recherche Scientifique 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

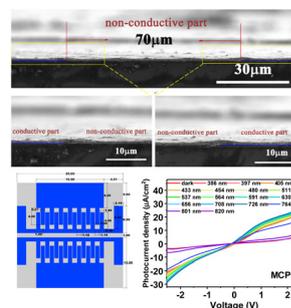


COMMUNICATIONS

15010

An efficient low-cost and facile ITO interdigital micro-photodetector based on mixed cationic perovskites for screening new optoelectronic materials

Mengqing Li, Wenhuan Cao, Xiangfei Min, Wenhui Li, Xueze Wang, Huidan Gao, Huawei Zhou,* Jie Yin and Xianxi Zhang*

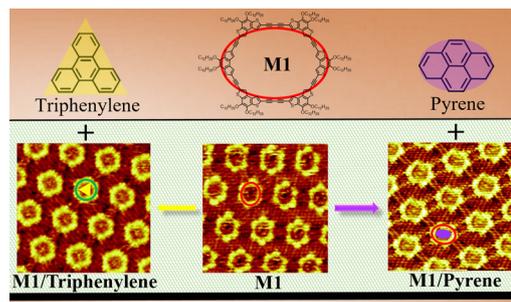


PAPERS

15014

Shape-responsive adsorption of an oval macrocycle co-deposited with guest molecules

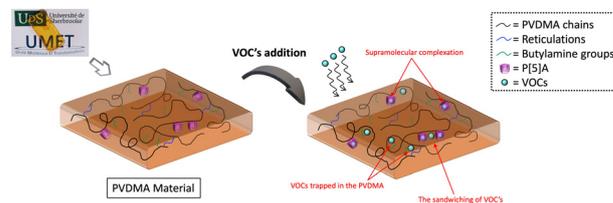
Yi Wang, Qingqing Han, Songyao Zhang, Deling Zhang, Xinrui Miao,* Xiaohong Cheng* and Wenli Deng



15021

Pillar[5]arenes-based high- T_g thermosets for the capture of volatile organic compounds

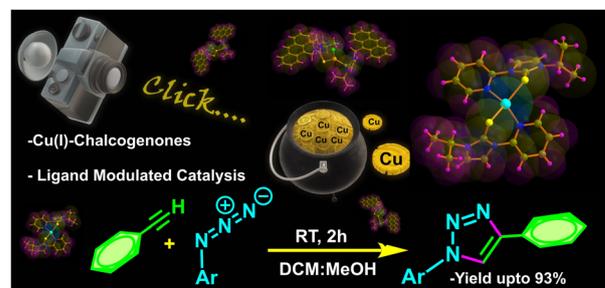
Solenne Ritaine, Valentin Ternel, Patrice Woisel, Jerome P. Claverie* and Jonathan Potier*



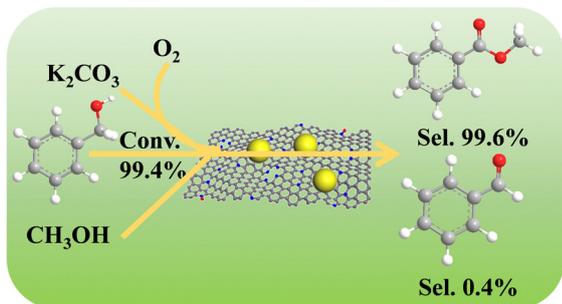
15027

Highly active higher coordinated copper(I)-N-heterocyclic chalcogenone catalysed click chemistry

Suman Mandal, Dinesh Harijan, Gopendra Muduli, Kalaivanan Subramaniyam, Aravind Kumar Rengan* and Ganesan Prabusankar*



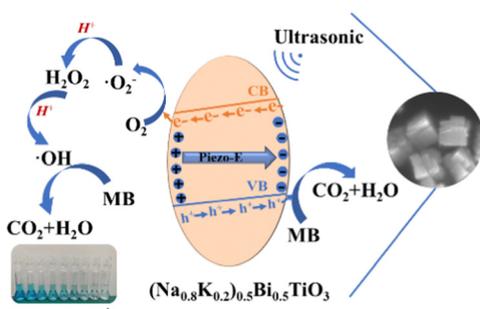
15036



Atomically dispersed cobalt–nitrogen–carbon catalysts for efficient oxidative esterification of aromatic alcohols

Fengwei Zhang,* Peihao Liu, Jingjing Li, Hefang Guo, Han Zhang, Zehui Zhang* and Zhengping Dong*

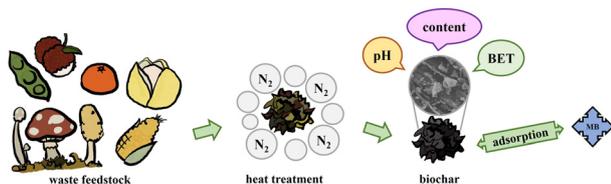
15047



Solvothermal synthesis of $(\text{Na}_{0.8}\text{K}_{0.2})_{0.5}\text{Bi}_{0.5}\text{TiO}_3$ piezoelectric catalyst with morphotropic-phase-boundary structure for efficient dye degradation

Ning Xie, Li Jiang, Yuanwen Hou, Hongquan Fu,* Juan Zhang, Hejun Gao* and Yunwen Liao*

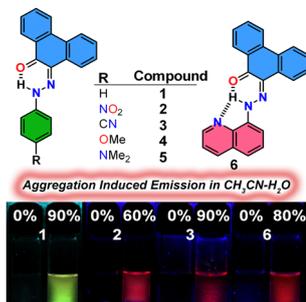
15057



Type-effects of multiple waste-sourced biochar feedstocks on methylene blue adsorption

Zhaolian Han, Qiushi Jiang, Yifeng Pei, Chunli Zhao, Jinying Li, Hao Dong and Zhiqiang Cheng*

15066



The effect of substituents on the aggregation-induced emission of 9,10-phenanthraquinone-hydrazone

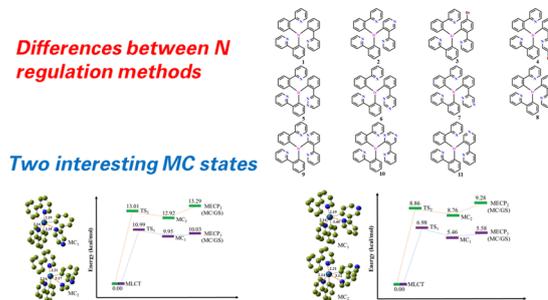
Naveen Kumar M, Deikrisha Lyngdoh Lyngkhoi, Sudhakar Gaikwad, Debabrata Samanta, Snehadrinarayan Khatua* and Susnata Pramanik*



15076

Regulation of internal reorganization energy to change the non-radiative channel in the Ir(III) complex: the role of N atoms

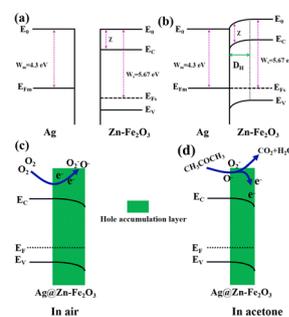
Lingkai Tang, Jiaxing Gao, Yafei Luo, Yan Cheng, Ling Liu, Dan Zheng, Li Liang, Jianping Hu and Ting Luo*



15089

The co-enhanced effect of Zn-doping and Ag-loading on the selectivity of a p-type Fe₂O₃ toward acetone

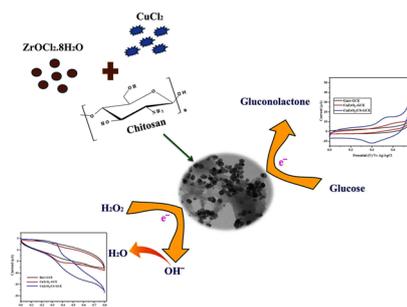
Qixuan Qin, Na Liu, Yan Zhang, Weiwei Bu, Zhijie Zhou, Changhua Hu and Xiaohong Chuai*



15099

A facile synthesis of CuZrO₂ nanoparticle functionalized chitosan for capable and stable non-enzymatic electrochemical detection of glucose and H₂O₂

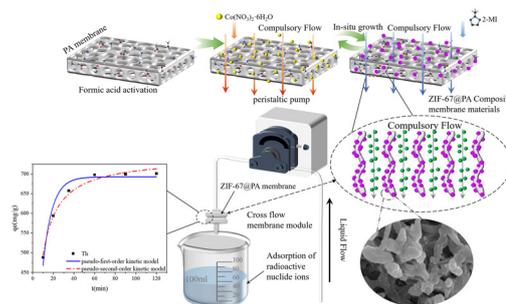
Ramesh Madhaiyan, Sankar Chinnusamy,* Umamatheswari Seeman* and Jayavel Ramasamy



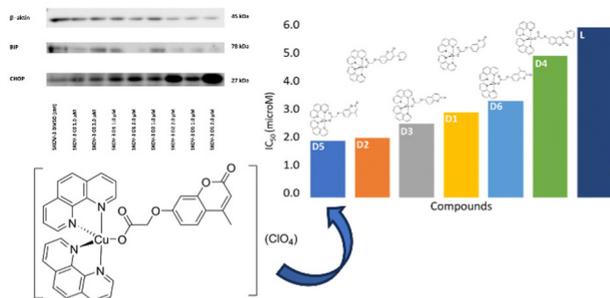
15111

ZIF-67@PA membranes based on deep permeation for rapid removal of a radionuclide: Th(IV)

Yaling Tang, Chunyan Chen,* Jian Zhou,* Qian Liu, Guoqing Xiao, Chunlin Chen, Yuheng Liu, Wanxin Chen and Shuyi Shang



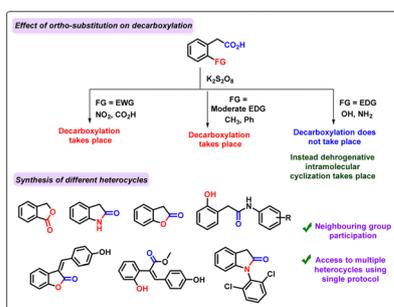
15125



Ternary copper(II) complexes of 1,10-phenanthroline and coumarin-based oxylacetates as pro-apoptotic UPR CHOP inducers

Sebastiano Masuri, Maria Grazia Cabiddu, Lukáš Moráň, Tereza Vesselá, Martin Bartosik, Josef Havel, Francesca Meloni, Enzo Cadoni, Petr Vaňhara and Tiziana Pivetta*

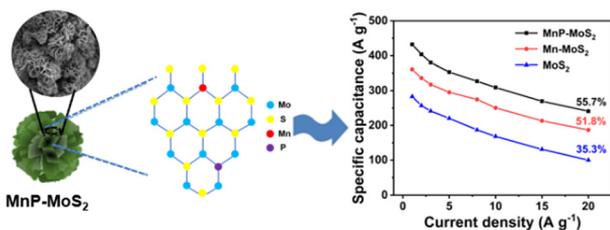
15137



Effect of *ortho*-substitution on persulfate-mediated decarboxylation and functionalization of arylacetic acids

Joydev K. Laha,* Upma Gulati and Saima

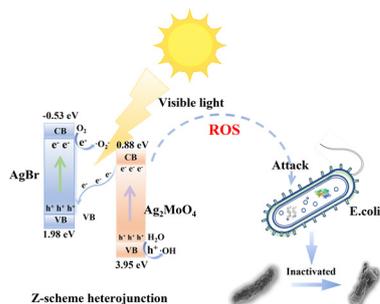
15143



Flower-like manganese and phosphorus co-doped MoS₂ with high 1T phase content as a supercapacitor electrode material

Yunan Li,* Xiaotian Wang, Jiayin Meng, Meng Song, Mingli Jiao, Qi Qin* and Liwei Mi*

15151



Construction of a AgBr-Ag₂MoO₄ heterojunction and its photocatalytic sterilization activity

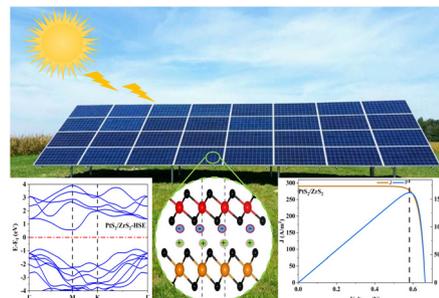
Qin Rao, Xiao Xian, Huaxiang Lin,* Rusheng Yuan, Zizhong Zhang, Jinlin Long and Qun Lin*



15162

Solar energy harvesting by a PtS₂/ZrS₂ van der Waals heterostructure

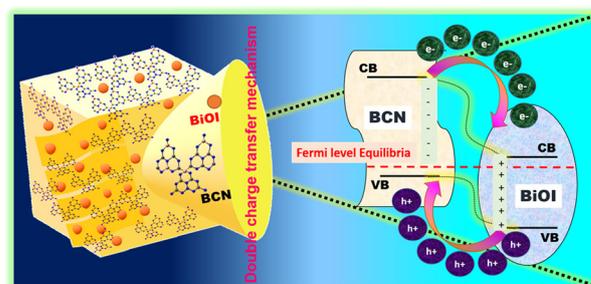
P. R. Parmar, S. J. Khengar, Disha Mehta, Yogesh Sonvane and P. B. Thakor*



15175

Double charge transfer mechanistic insights into the tailoring of BiOI nanoplates and boron-doped graphitic carbon nitride: a 2D/2D anchored p-n heterojunction nanocatalyst for improved photodegradation

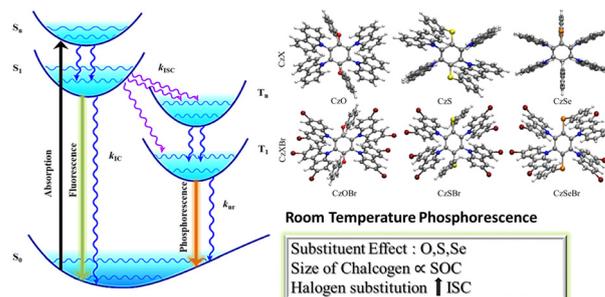
Pragnyashree Aparajita, Shubhalaxmi Choudhury, Ugrabadi Sahoo, Samarjit Pattnayak, Sandip Padhiari, Manamohan Tripathy and Garudadhvaj Hota*



15193

Theoretical insights into the room temperature phosphorescence properties in star-shaped carbazole-based molecules

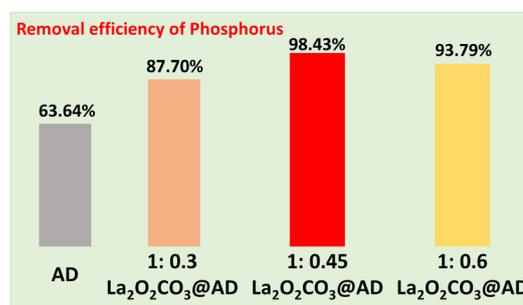
Naga Pranava Sree Kothoori, Pandiyan Sivasakthi and Pralok K. Samanta*



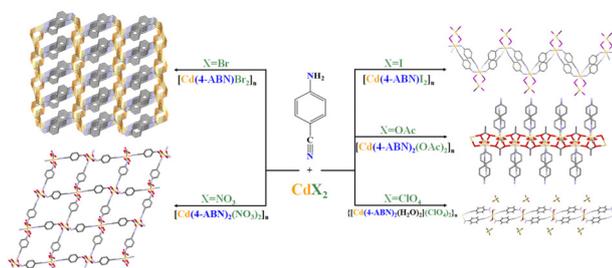
15201

Efficient removal of phosphate through adsorption by acidified diatomite loaded with La₂O₂CO₃

Rui Tian, Shu Yang, Ziyin Han, Ye Sun, Yexi Wang, Chen Wu, Qi Zhang, Jinyan Liu, Xulin Lu* and Zhiwei Zhang*



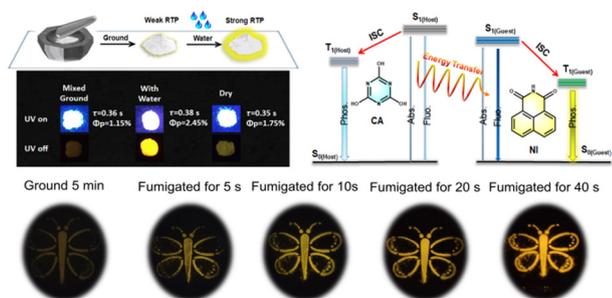
15209



Anion-induced structural diversity in cadmium coordination polymers of 4-aminobenzonitrile: a structural and DFT study

Behrouz Notash,* Ommolbanin Barzegar Tilenoie and S. Shahab Naghavi

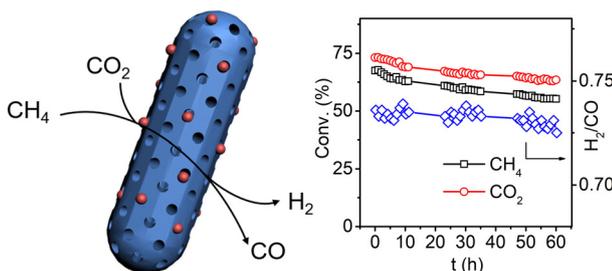
15219



Organic room temperature phosphorescence enhancement by grinding and adding water for humidity detection and anti-counterfeiting printing

Changli Zhang, Lingyun Lou, Yuzhan Li, Chengxiang Li, Dong Wang, Hui Cao, Wanli He and Zhou Yang*

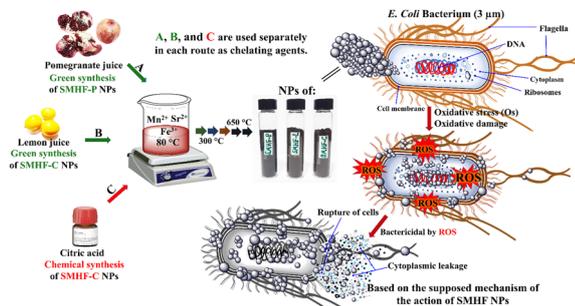
15226



Highly dispersed Ni nanoparticles supported by porous Al_2O_3 rods for catalytic dry reforming of methane

KeFa Sheng* and Kai Cui

15236



Green synthesis of M-type manganese-substituted strontium hexaferrite $\text{SrMn}_x\text{Fe}_{12-x}\text{O}_{19}$ nanoparticles with intrinsic antibacterial activity against human pathogenic bacteria

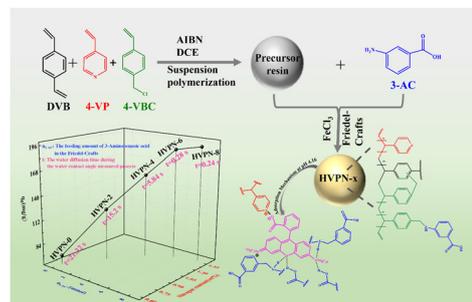
Rebaz F. Hamarawf, Dyari I. Tofiq* and Khalid M. Omer*



15250

Adsorption of Rhodamine B from aqueous solutions using polarity-tunable hyper-cross-linked resins

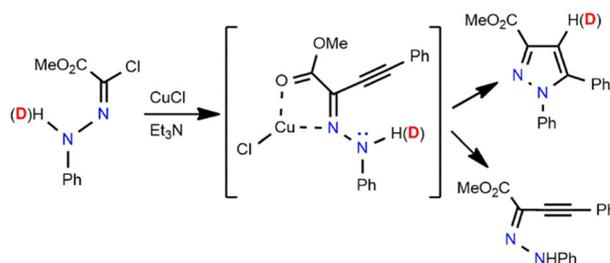
Xiaofeng You, Lin Han and Qing Liu*



15261

Mechanistic insights of the copper(i)-catalysed reaction between chlorohydrazone and terminal alkynes

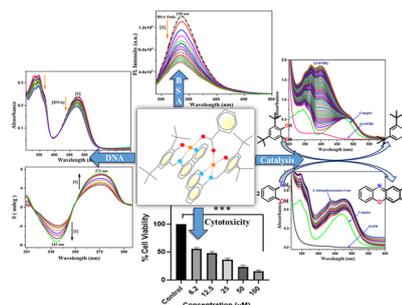
Alessandro Ponti, Alessandra Silvani and Giorgio Molteni*



15267

Synthesis of a new benzoate bridged NNO tethered copper(ii) complex: exploration of its bio, catalytic and anticancer activities

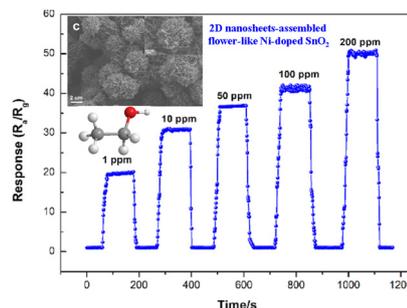
Subrata Mandal, Rahul Naskar, Rimi Mukherjee, Apurba Sau Mondal, Akash Das, Nabendu Murmu and Tapan K. Mondal*



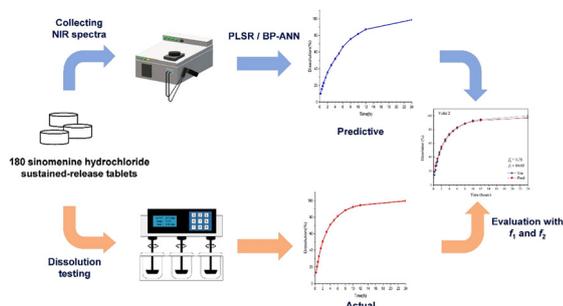
15283

Construction of flower-like hierarchical Ni-doped SnO₂ nanosheets and their gas sensing properties for ethanol

Wei Xiao, Zhao Jin, Wei Yang and Shantang Liu*



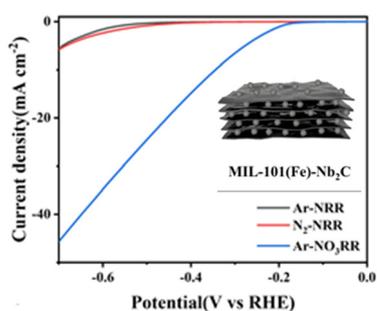
15291



Prediction of dissolution profiles of sinomenine hydrochloride sustained-release tablets part I: using near-infrared spectra as predictors

Wenlong Li, Long Wang, Xi Wang, Guangpu Fang, Qiang Zhang, Ping Qiu and Pengfei Tu*

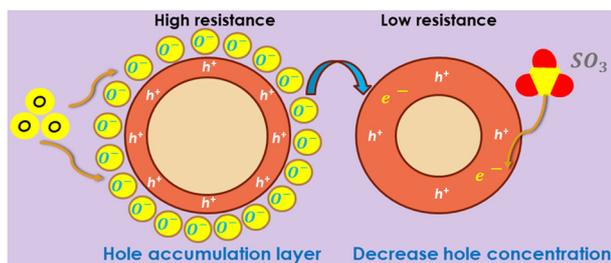
15302



MIL-101(Fe)@Nb₂C MXene for efficient electrocatalytic ammonia production: an experimental and theoretical study

Haiding Zhu, Sensen Xue, Fang Zhao, Qianqian Hua, Zhuangzhuang Liang, Xuefeng Ren, Liguo Gao, Tingli Ma and Anmin Liu*

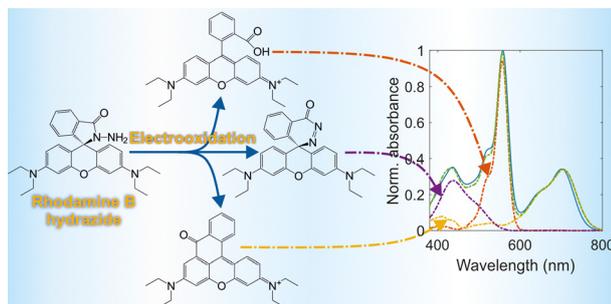
15309



Ni-doped Al₂O₃ sensor for effective SO₃ gas adsorption and sensing

V. Manikandan,* G. Ayyannan, Iulian Petrila, Rajaram S. Mane, Kamil Sobczak, J. Chandrasekaran, Robert D. Crapnell and Craig E. Banks

15318



Electrooxidation of rhodamine B hydrazide

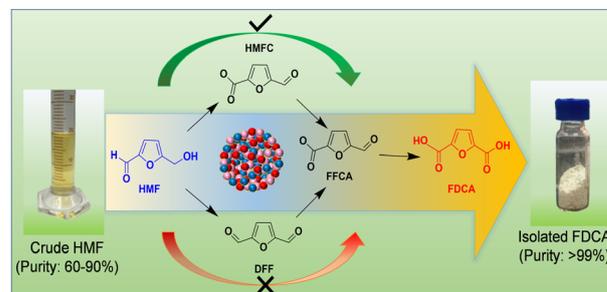
Nikita Belko,* Hanna Maltanova, Anatol Lugovski, Sviatlana Fatykhava, Polina Shabunya, Anastasiya Tabolich, Michael Samtsov and Sergey Poznyak



15325

Industry-oriented method for the aqueous phase oxidation of crude 5-hydroxymethyl furfural (HMF) to 2,5-furandicarboxylic acid (FDCA)

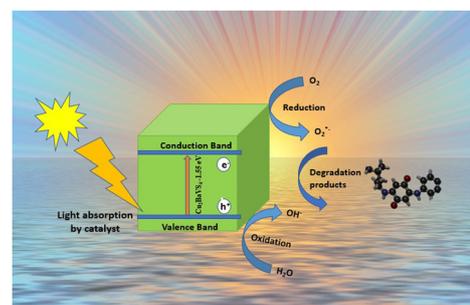
Priya Lokhande, Kalyani Sonone and Paresh L. Dhepe*



15336

Construction of chalcogenide Cu_2BaVS_4 nanograins from nanocubes *via* solvothermal synthesis for photoelectrochemical hydrogen/oxygen evolution in alkaline media and dye degradation applications

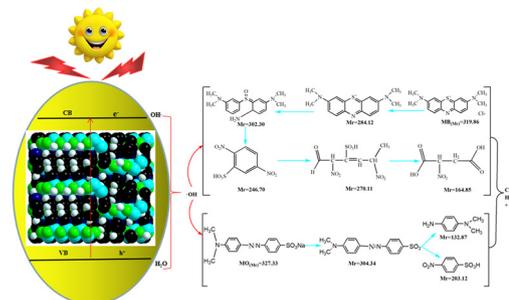
Sidra Aslam, Muhammad Awais, Nimra Usman and Muhammad Safdar*



15348

Efficient photocatalytic performance and the mechanism of copper(I) metal-organic framework nanosheets

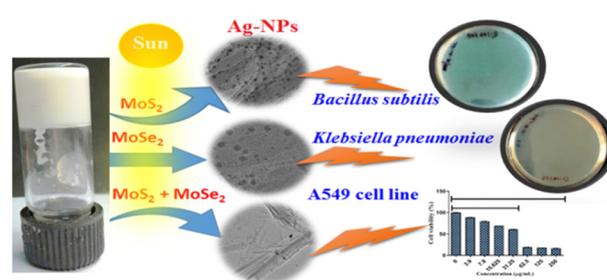
Shaolong Yang, Yuhuan Chen, Shixiong Li* and Huijun Chen*



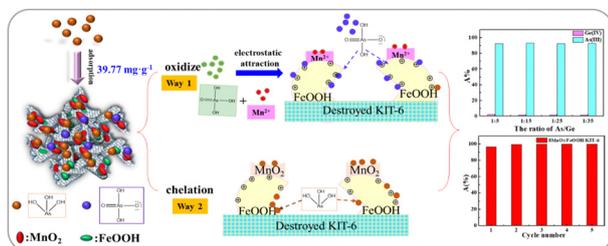
15357

MoS_2 and MoSe_2 2D nanosheets-based supramolecular nanostructure scaffold-capped Ag-NPs: exploring their morphological, anti-bacterial, and anticancer properties

Gerald Lepcha, Rajib Sahu, Santanu Majumdar, Saikat Banerjee, Arpita Bhowmick, Samya Sen, Bholanath Panda, Debasis Dhak, Keka Sarkar and Biswajit Dey*



15366



Adsorbent nanoarchitectonics of $m\text{MnO}_2/n\text{FeOOH}/\text{KIT-6}$ for As(III) adsorption from wastewater

Ying Xiong, Haolin Cong, Xingkun Qi, Yumei Zhao, Dandan Wang, Junshuo Cui, Weijun Shan and Haibiao Yu*

15378



Tetrahydroisoquinoline based 5-nitro-2-furoic acid derivatives: a promising new approach for anti-tubercular agents

Adinarayana Nandikolla, Yogesh Mahadu Khetmalis, Guruvelli Padma Vijaya Sangeetha, Ala Chandu, Swati, Muthyala Murali Krishna Kumar, Vivek Sharma, Sankaranarayanan Murugesan and Kondapalli Venkata Gowri Chandra Sekhar*

