

Journal of Materials Chemistry C

Materials for optical, magnetic and electronic devices

rsc.li/materials-c

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

IN THIS ISSUE

ISSN 2050-7526 CODEN JMCCCC 12(39) 15797–16240 (2024)



Cover

See Jinhyeong Kwon,
Hyeunseok Choi *et al.*,
pp. 15895–15902.

Image reproduced
by permission of
Jinhyeong Kwon from
J. Mater. Chem. C,
2024, 12, 15895.

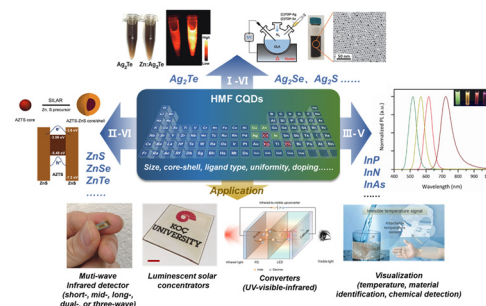
Artwork created by
Bioartlab using Blender
(www.blender.org).

REVIEWS

15811

Heavy metal-free colloidal quantum dots: preparation and application in infrared photodetectors

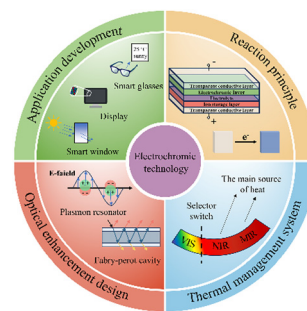
Xuegang Zhang, Ge Mu,* Yongzhe Zhang, Yijian Jiang
and Yinzhou Yan*



15833

Advances in the visualization and thermal management of electrochromic materials

Lei Zhang, Ye Liu, Guoqiang Wang, Yubo Kuang,
Xiaoqian Xiang, Xing Chen, Qianqian Cai,
Kaixin Wang and Xiaojun Lv*



**GOLD
OPEN
ACCESS**

EES Solar

**Exceptional research on solar
energy and photovoltaics**



Part of the EES family

**Join
in**

Publish with us

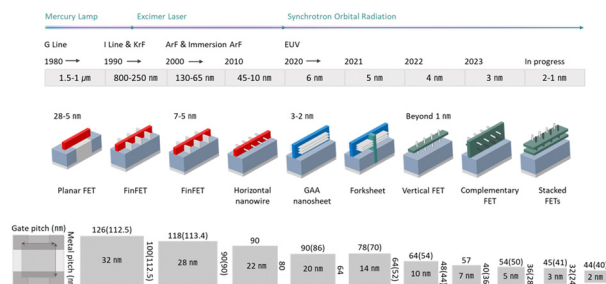
rsc.li/EESolar

REVIEWS

15855

Recent progress of inorganic photoresists for next-generation EUV lithography

Yeo Kyung Kang, Sun Jin Lee, Sunghun Eom, Byeong Geun Kim, Chan-Cuk Hwang* and Myung-Gil Kim*

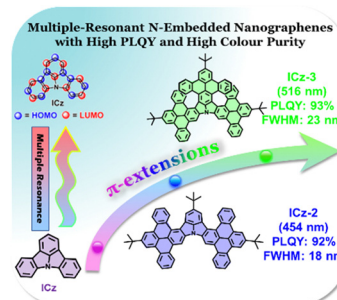


COMMUNICATION

15888

Multiple-resonant nitrogen embedded nanographenes with high photoluminescence efficiency and high colour purity

Hao Luo, Jinbei Wei, Mingqiang Mai, Xuan Zeng, Weifeng Zhang, Xuyang Wei, Dongdong Zhang,* Lian Duan and Gui Yu*



PAPERS

15895

Development of low-temperature SnO₂-Au gas sensors for H₂S detection in food freshness monitoring

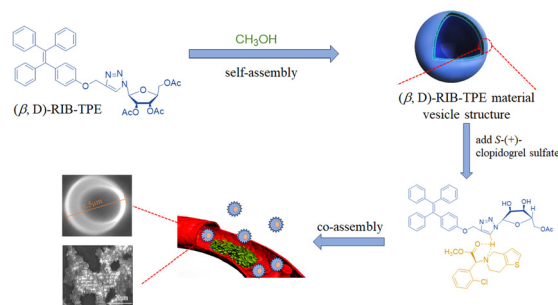
Kee-Ryung Park, Jinhyeong Kwon* and Hyeunseok Choi*



15903

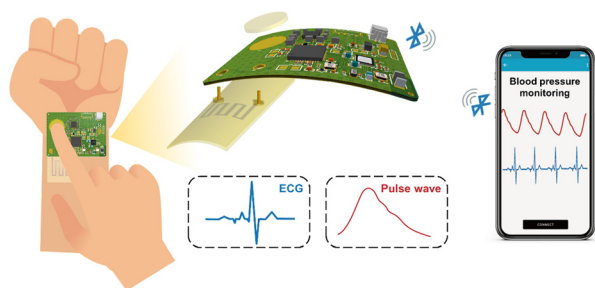
Chiral self-assembled (β,D)-RIB-TPE micron vesicles with AIE characteristics used as targeting-drug carriers

Mengyuan Niu, Yuliang Yang, Yue Sun, Yu Hu, Kaiyue Song and Xiaoxia Sun*



PAPERS

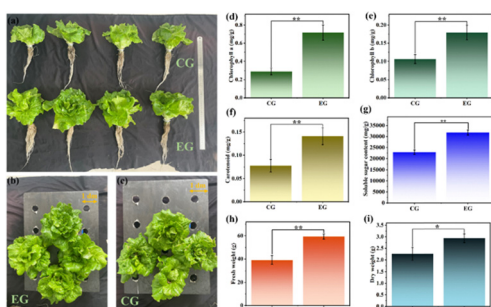
15915



A dual-mode wearable sensor with electrophysiological and pressure sensing for cuffless blood pressure monitoring

Nan Jiang, Gangsheng Chen, Fan Zhou, Biao Ma,*
Chao Zhao* and Hong Liu*

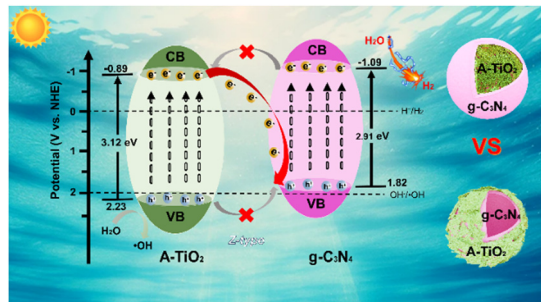
15924



Thermal stability enhancement of an Mn^{4+} -activated germanate phosphor by a cationic non-equivalent substitution strategy

Huancheng Wu, Bohua Zhang, Xikun Zou,
Maxim S. Molokeev, Xuejie Zhang, Ziyi Wang,
Xiaoyu Shuang and Haoran Zhang*

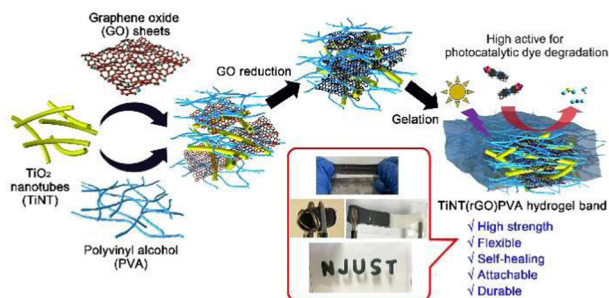
15934



Configuration-dependent hollow heterostructures for highly efficient photocatalytic hydrogen evolution

Yingqiang Li, Tao Zhang, Yifan Liu, Chao Liu,
Jingwen Sun, Jianfei Che,* Pan Xiong* and Junwu Zhu

15946



An attachable, self-healing and durable $\text{TiO}_2/\text{rGO}/\text{PVA}$ photocatalytic hydrogel band for dye degradation

Fancang Meng, Wenhao Wang, Yang Zeng, Zhiyuan Gao,
Jiajing Li, Hongbing Jia and Qingmin Ji*

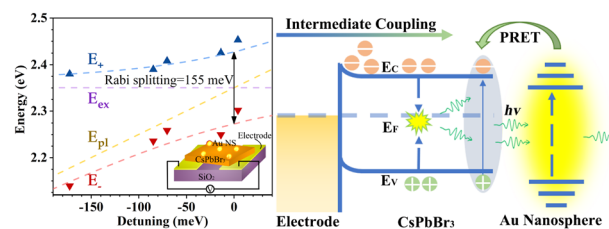


PAPERS

15955

Colossal photodetection enhancement *via* plasmon–exciton synergy in ultra-smooth CsPbBr₃ microplates

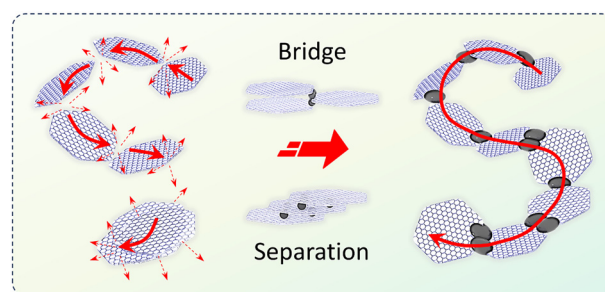
Zhaozhi Guan, Hua Mi, Zairan Liu, Yan Tian, Haojian Lin, Huanjun Chen,* Shaozhi Deng* and Fei Liu*



15965

Enhanced thermal conductivity of polymeric composites with BN@C hybrid fillers

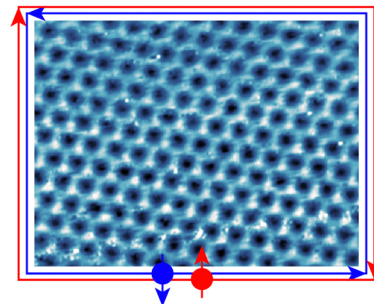
Xuang Bai, Yuhang Meng, Fanyu Zhou, Cong Ge, Dandan Sun, Dehong Yang, Xiangfen Jiang,* Pengcheng Dai* and Xuebin Wang*



15975

Tunability of topological edge states in germanene at room temperature

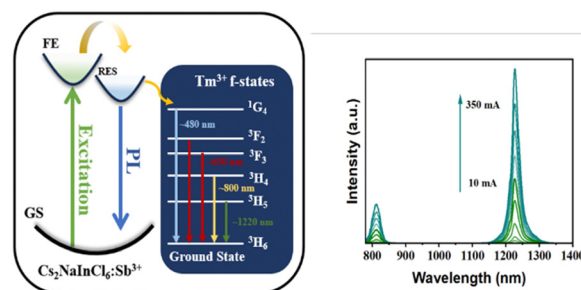
Dennis J. Klaassen, Ilias Boutis, Carolien Castenmiller and Pantelis Bampoulis*



15981

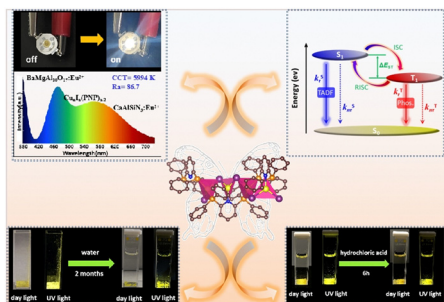
Investigating energy transfer in lanthanide-doped double perovskites exhibiting visible and near-infrared emission

Jueran Cao, Baoling Tang, Tianrui Li, Mingkai Wei, Xuejie Zhang, Mingtao Zheng, Bin Dong, Xinming Li, Yan Cong,* Maxim S. Molokeev and Bingfu Lei*



PAPERS

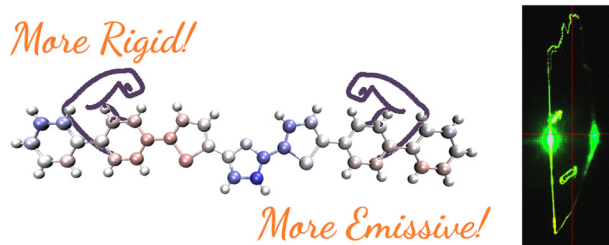
15987



A super-stable Cu(I)-based polymer exhibiting thermally activated delayed fluorescence and water/acid-resistant properties

Yue Wu,* Xin Zhang, Xiao-Meng Zhen, Yan Yang, Bo Zhang* and Jun Li*

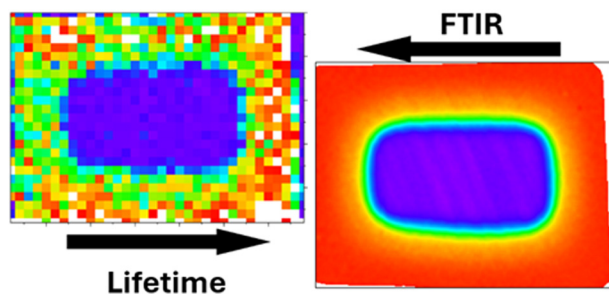
15995



Optoelectronic characteristics of furan substituted thiophene/phenylene co-oligomer single crystals for organic lasing

Periyasamy Angamuthu Praveen,* Thangavel Kanagasekaran,* Chaoyan Ma, Masahiro Terada, Tienan Jin, Yusuke Wakabayashi and Hidekazu Shimotani*

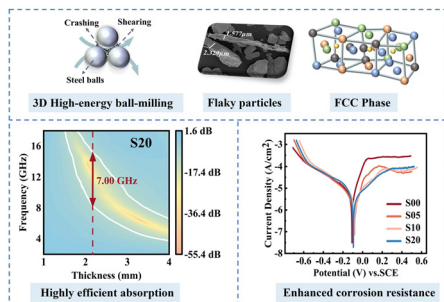
16004



Resolving and imaging ultra-low H concentrations in partially protonated Mg:α-Al₂O₃ using FRET and the luminescence lifetime of Cr³⁺

Daniel C. Jones,* Michael C. Jollands,* Shiyun Jin, Sebastian S. Stewart-Barry, Matthew W. Dale and Ben L. Green

16015



Sulfur-dissolved high-entropy alloys with ultrawide-bandwidth electromagnetic-wave absorption properties synthesized via a mechanochemical process

Jiawen Hu, Linwen Jiang,* Hang Liu, Jiawei Jin, Lei Jia, Anhua Wu and Xiaofeng Zhang*

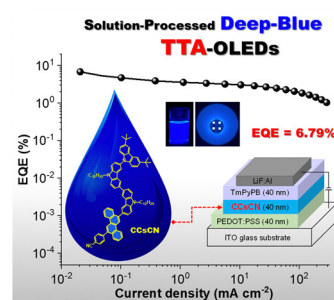


PAPERS

16025

High-efficiency solution-processed triplet–triplet annihilation organic light-emitting diodes using oligocarbazole- and benzonitrile-modified polyaromatic blue fluorescent emitters

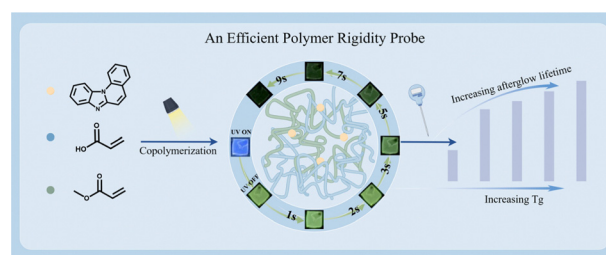
Ruttapol Malatong, Thidarat Loythaworn, Suangsiri Arunlimsawat, Pongsakorn Chasing, Pattarawadee Therdkatanyuphong, Wijitra Waengdongbung, Taweesak Sudyoadsuk and Vinich Promarak*



16035

A polymer rigidity probe based on ultralong organic room temperature phosphorescence of a new skeleton benzo[4,5]imidazo[1,2-a]pyridine

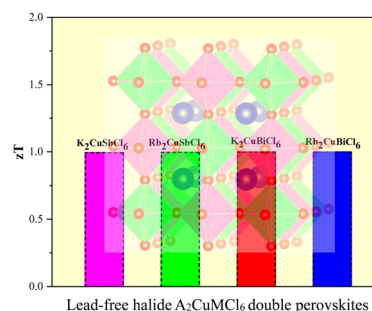
Jiaxin Ma, Jingjuan Bai, Lin Han, Xingda Zhang, Yiran Liu, Lijuan Bu, Zewei Li, Mingxing Chen, Zhimin Ma and Zhiyong Ma*



16045

Eco-friendly lead-free halide double perovskites A₂CuMCl₆ (A = K, Rb; M = Sb, Bi): stability, thermoelectric, and optoelectronic advancements through theoretical insights

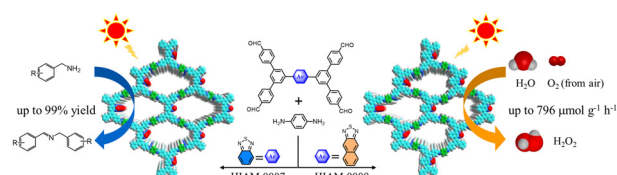
Mudasir Younis Sofi, Mohd. Shahid Khan and M. Ajmal Khan*



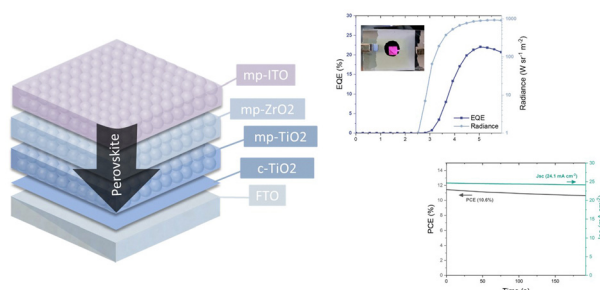
16059

Linker engineering of benzothiadiazole and its derivative-based covalent organic frameworks for efficient photocatalytic oxidative amine coupling and hydrogen peroxide generation

Chao-Qin Han, Jia-Xin Guo, Lei Wang, Shuai Sun, Jie Lv, Xiaokang Sun, Hanlin Hu, Xiaoxi Huang and Xiao-Yuan Liu*



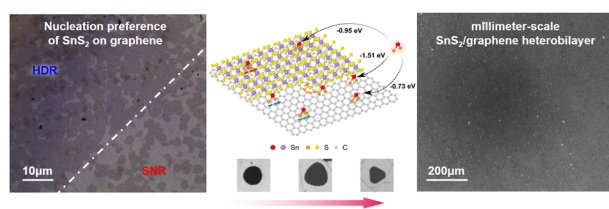
16067



Mesoscopic fully printable perovskite light-emitting diodes in the near infra-red region

Maayan Sohmer-Tal and Lioz Etgar*

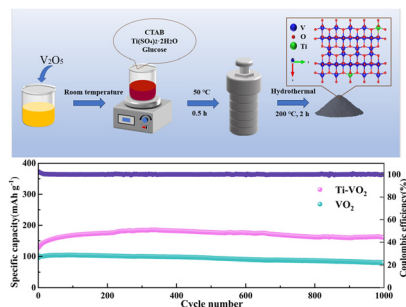
16076



Nucleation preference and lateral growth of monolayer tin disulfide on graphene

Gaoxiang Lin, Huimin Gao, Yimei Fang, Chenyi Huang, Junjie Huang, Jie Lu, Xinrui Cao, Yufeng Zhang,* Xueao Zhang, Shunqing Wu, Weiwei Cai* and Yinghui Zhou*

16084



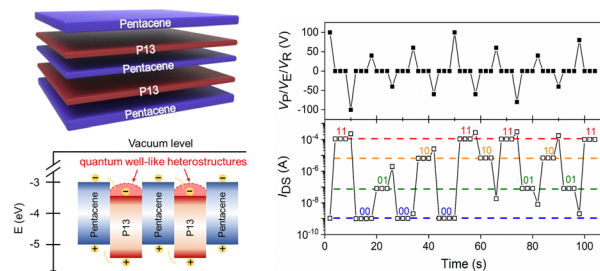
Enhancing the stability of zinc-ion batteries with titanium-doped VO₂ cathode materials

Shuling Liu,* Wenhao Zhang, Jiale Guo, Zixiang Zhou, Yue Wang and Yulu Yang

16092

Five-layer heterostructures OFET

Multilevel data storage



High-performance multilevel nonvolatile organic field-effect transistor memory based on multilayer organic semiconductor heterostructures

Yangzhou Qian, Jiayu Li, Wen Li,* Ziyi Song, Hao Yu, Ziyi Feng, Wei Shi,* Wei Huang and Mingdong Yi*

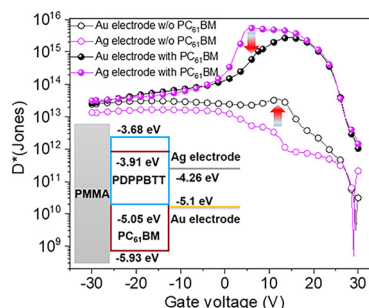


PAPERS

16100

Weakened charge trapping at the electrode/active layer interface in a bulk heterojunction-based organic phototransistor for quick photomultiplication

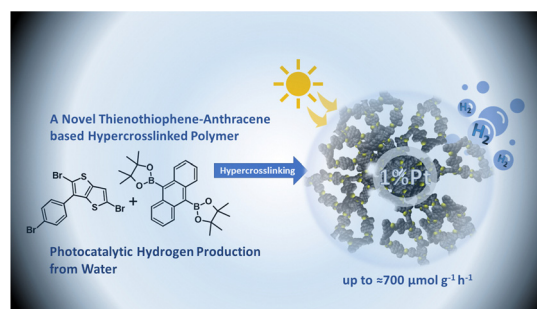
Chaoran Liu, Shicheng Xiong, Di Sun, Zengqi Xie and Linlin Liu*



16108

A thienothiophene and anthracene based functional hyperbranched polymer: synthesis, photophysical properties and photocatalytic studies

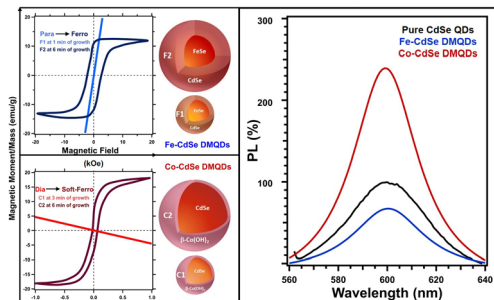
Recep Isci, Hakan Bildirir,* Dilara Gunturkun, Miguel Gomez-Mendoza, Marta Liras, Víctor A. de la Peña O'Shea and Turan Ozturk*



16120

The interplay between magnetism and structure in Co/Fe-CdSe diluted magnetic quantum dots

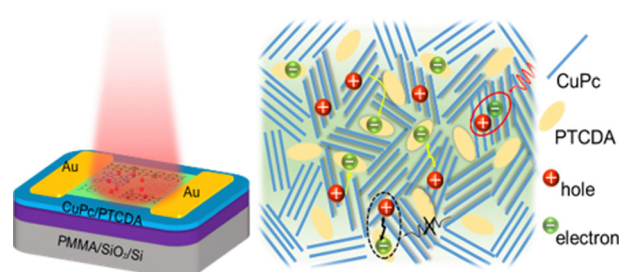
Fatma Ibraheem, Esraa Gabrouny, Shaimaa Nadi, Manal A. Mahdy, Iman A. Mahdy, J. Enrique Ortega, Celia Rogero, Martina Corso* and Afaf El-Sayed*



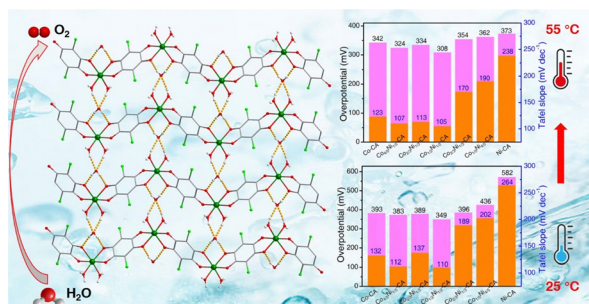
16131

Enhanced near-infrared detection in organic phototransistors via optimized donor-acceptor single crystals

Fengzhe Ling, Yanxun Zhang, Qianqian Du,* Xialian Zheng, Qing Liu, Wenjun Wang* and Shuchao Qin*



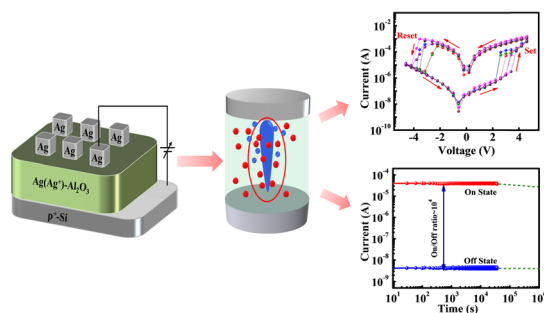
16138



CoNi-bimetallic coordination polymers as catalyst for boosting oxygen evolution reaction activity

Jia Du,* Xueguo Liu, Meng Guo, Bingke Li, Hongyong Ye and Lixuan Chen

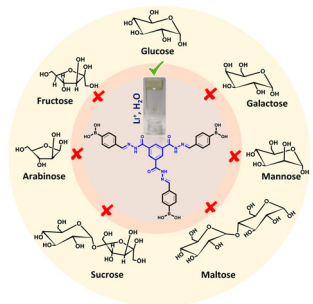
16145



Fabrication of a high performance memristor device by metallization of Ag⁺ inside a solution processed Li₅AlO₄ thin film

Subarna Pramanik, Rajarshi Chakraborty, Sobhan Hazra, Utkarsh Pandey and Bhola Nath Pal*

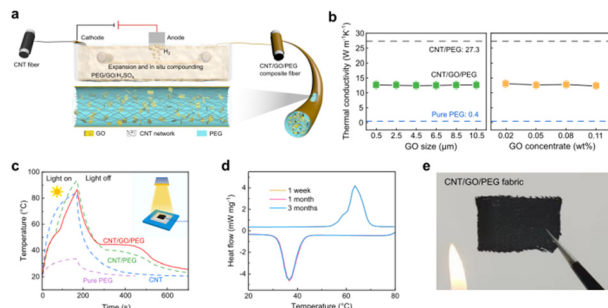
16156



D-(+)-Glucose triggered selective hydrometallogelation in a C₃-symmetric gelator

Moupia Mukherjee, Yeeshu Kumar, Abul Kalam and Mrigendra Dubey*

16163



Carbon nanotube graphene multilevel network based phase change fibers and their energy storage properties

Xiaoyu Yang, Jingna Zhao,* Tanqian Liao, Wenya Li, Yongyi Zhang, Chengyong Xu, Xiaohua Zhang* and Qingwen Li

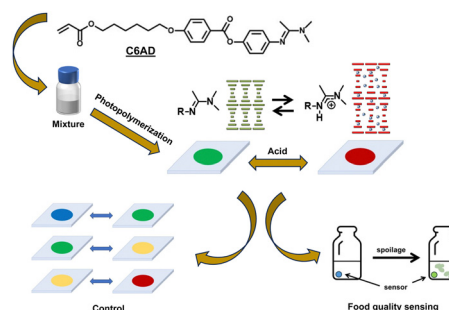


PAPERS

16174

Incorporating amidine groups into photonic cholesteric polymer networks for food quality sensing

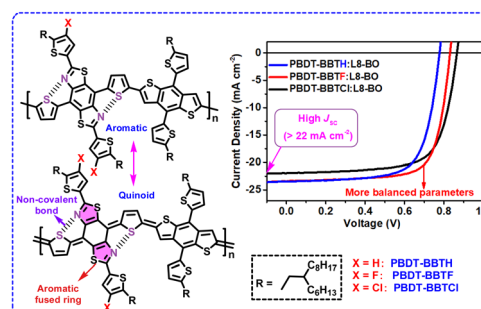
Tao Zhou, Zhijian Mai, Zhiwen Zeng, Yancong Feng, Guofu Zhou,* Yao Wang* and Laurens T. de Haan*



16184

Benzobisthiazole unit in 4,8-connection mode to build D–A polymer donors achieving high short-circuit current density for organic solar cells

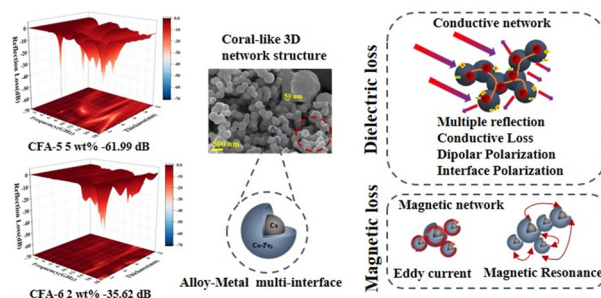
Chun Wang, Yajing Zhang, Heng Liu, Cheng Zhong,* Xinhui Lu, Xiaowei Zhan* and Xingguo Chen*



16195

Enhanced microwave absorption of coral-like Co@Co₇Fe₃ at ultralow filler loading

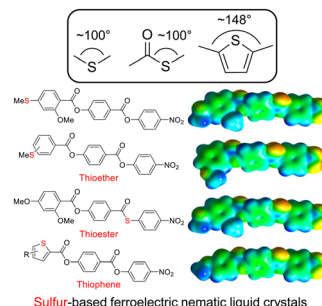
Yue Yu, Hanzhang Bei, Huiqiu Huang, Lian Wu, Yifang Zhao, Guoqiang Yin* and Hao Pang*



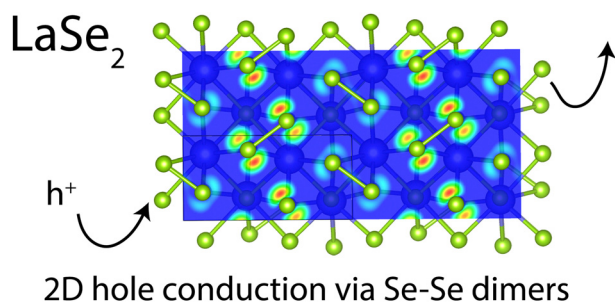
16206

Sulfur-based ferroelectric nematic liquid crystals

Yuki Arakawa,* Qiong Ning, Subramani Karthick and Satoshi Aya*



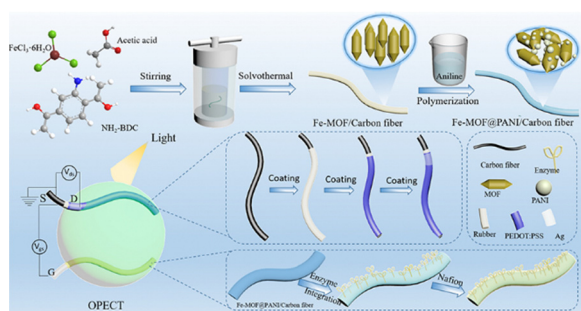
16218



Assessing the electronic and optical properties of lanthanum diselenide: a computational study

Lanjing Huo and Christopher N. Savory*

16229



An organic photoelectrochemical transistor based on the Fe-MOF@PANI/carbon fiber for uric acid detection

Yuedan Wang, Yang Tao, Panpan Hao, Changhui Li, Mufang Li, Yan Tan* and Dong Wang*

