

# Journal of Materials Chemistry C

Materials for optical, magnetic and electronic devices

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## IN THIS ISSUE

ISSN 2050-7526 CODEN JMCCCX 12(6) 1911-2266 (2024)



### Cover

See Yuichi Hirai, Rémi Métivier, Clémence Allain *et al.*, pp. 1952–1957.  
Image reproduced by permission of Yuichi Hirai from *J. Mater. Chem. C*, 2024, 12, 1952.

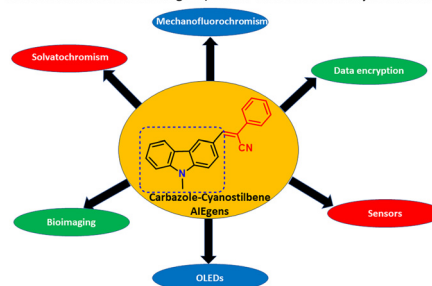
## REVIEW

1923

### Symphony of light: AIE and MFC in carbazole-based cyanostilbenes

A. Afrin and P. Chinna Ayya Swamy\*

"Molecular Brilliance: Unveiling AIE/MFC in Carbazole-Based Cyanostilbenes"

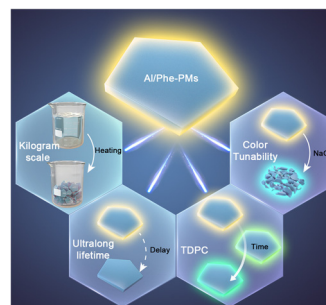


## COMMUNICATION

1945

### Achieving time-dependent and color-tunable ultralong room temperature phosphorescence through sodiation reconfiguration for dynamic 5D information encryption

Li Ya Liang, Ya Ting Gao, Shuai Chang, Jian Lv, Bin Bin Chen\* and Da Wei Li\*



# EES Catalysis

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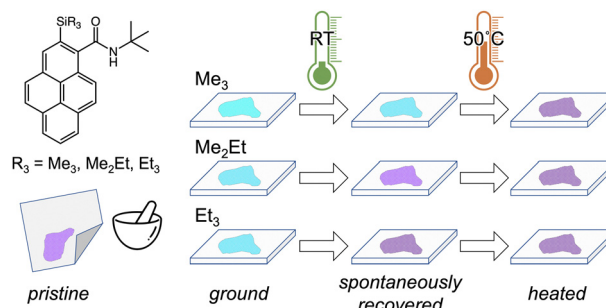
Fundamental questions  
Elemental answers



1952

### Mechanofluorochromism and self-recovery of alkylsilylpyrene-1-carboxamides

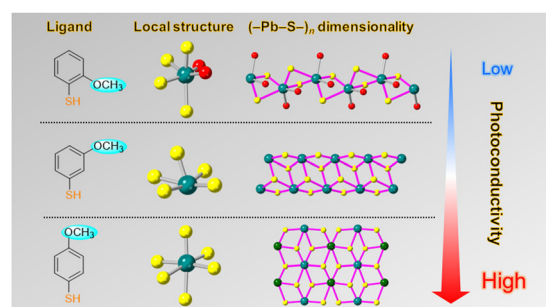
Yuichi Hirai,\* Anna Wrona-Piotrowicz, Janusz Zakrzewski, Magdalena Ciechańska, Takahito Ohmura, Takashi Takeda, Takayuki Nakanishi, Rémi Métivier\* and Clémence Allain\*



1958

### Impact of substituent position on crystal structure and photoconductivity in 1D and 2D lead(II) benzenethiolate coordination polymers

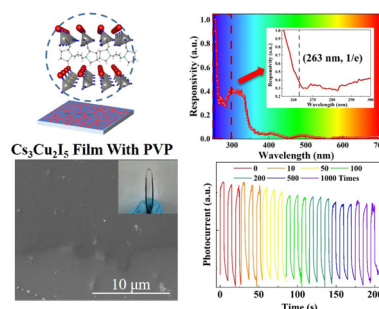
Ryohei Akiyoshi,\* Akinori Saeki, Kazuyoshi Ogasawara and Daisuke Tanaka\*



1965

### Polymer-assisted crystal growth regulation and defect passivation for high-performance flexible solar-blind photodetectors based on copper-based halides

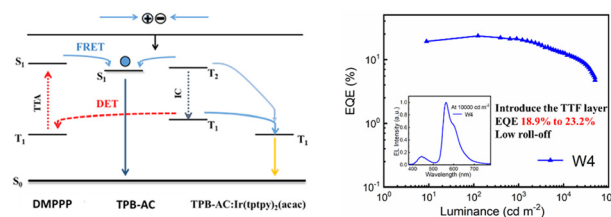
Chengjun Liu, Yuyi Zhang, Lixi Wang, Jianhua Chang, Qing Li, Xiaobing Zhang, Byung Seong Bae, Omolola Esther Fayemi, Xiaobao Xu, Jiangyong Pan,\* Jing Chen\* and Wei Lei\*



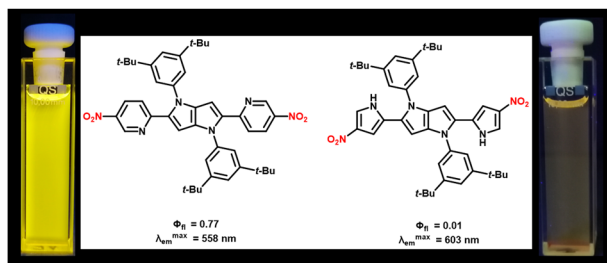
1972

### High-efficiency and low-efficiency roll-off fluorescence/phosphorescence hybrid white organic light-emitting diodes based on AIEgens with hot exciton property by strategically managing triplet excitons

Guangjian Gao, Pengbo Han, Xianfeng Qiao, Yanfeng Dai, Qian Sun, Dezhi Yang, Anjun Qin,\* Ben Zhong Tang and Dongge Ma\*



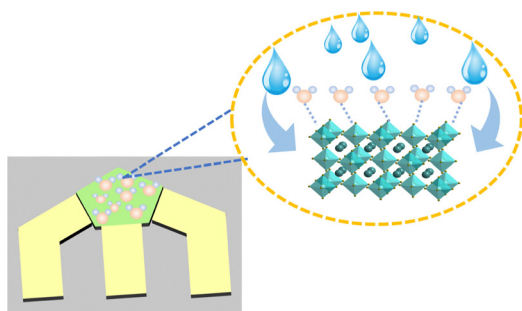
1980



### The interplay of intersystem crossing and internal conversion in quadrupolar tetraarylpyrrolo-[3,2-*b*]pyrroles

Krzysztof Górski, Damian Kusy, Shuhei Ozaki, Marzena Banasiewicz, Rashid Valiev, Smruti Ranjan Sahoo, Kenji Kamada,\* Glib Baryshnikov\* and Daniel T. Gryko\*

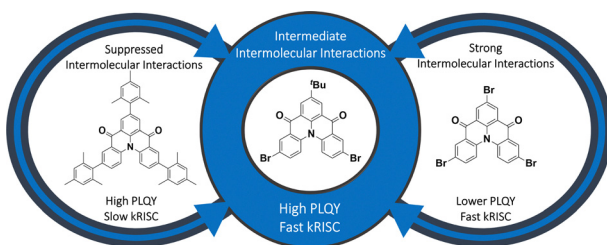
1988



### Effects of halogen elements on a humidity sensor based on a thin film bulk acoustic wave resonator incorporated with $\text{Cs}_3\text{Bi}_2\text{X}_9$ ( $\text{X} = \text{Cl}, \text{Br}, \text{I}$ ) perovskites

Lishuai Zhao, Peidong Ouyang, Xinyan Yi and Guoqiang Li\*

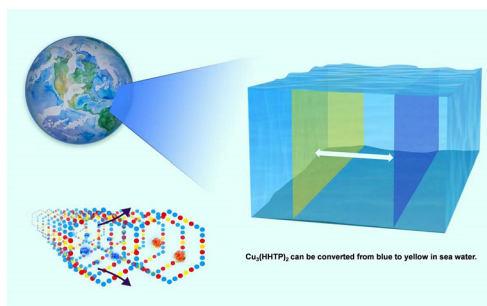
1996



### Peripheral halogen atoms in multi-resonant thermally activated delayed fluorescence emitters: the role of heavy atoms in intermolecular interactions and spin orbit coupling

Hector Miranda-Salinas, Jingxiang Wang, Andrew Danos, Tomas Matulaitis, Kleitos Stavrou,\* Andrew P. Monkman\* and Eli Zysman-Colman\*

2007



### Electrochromic electrically conductive $\text{Cu}_3(\text{HHTP})_2$ films with adaptation to diverse and low-concentration water

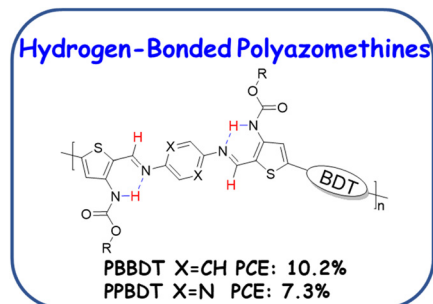
Yongsheng Liu, Xiaoyu Zhang, Ran Li, Ziqiu Lu, Xilu Wu, Chengyi Hou, Qinghong Zhang, Yaogang Li, Kerui Li\* and Hongzhi Wang\*



2016

## Hydrogen-bonded polyazomethines for efficient organic solar cells

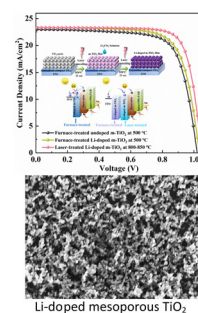
Bo Zhang, Yuanyuan Wang, Kaiwen Lin, Yinhua Zhou\* and Qing Zhang\*



2025

## Laser processing of Li-doped mesoporous TiO<sub>2</sub> for ambient-processed mesoscopic perovskite solar cells

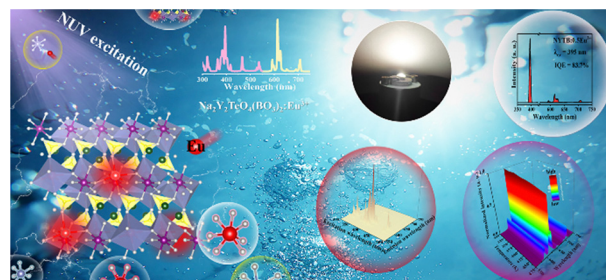
Hongbo Mo, Qian Chen,\* Dong Wang, Wei Guo, Dongxu Cheng, Yang Sha, Muhamad Z. Mokhtar, Zhenyu Jia, Janet Jacobs, Andrew G. Thomas, Lin Li, Zhu Liu\* and Richard J. Curry\*



2037

## Layered structure-induced quenching delay toward highly efficient and thermally stable red emission in Eu<sup>3+</sup>-activated borotellurate phosphors

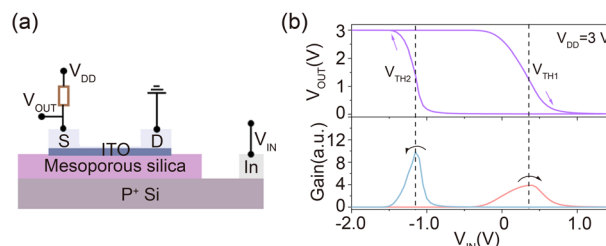
Yuefei Xiang, Hongzhi Zhang,\* JunPeng Li, Hong Li, Tongsheng Yang, Canyuan Liao, Heyun Zhao and Jing Zhu\*



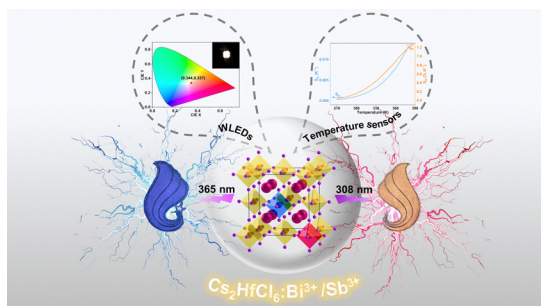
2048

## A reverse Schmitt trigger with an adjustable hysteresis window implemented by mesoporous silica electrolyte-gated transistors

Linzi Liang, Kekang Liu, Zhiyuan Luo, Zhengdong Jiang, Qichang Hu and Yanghui Liu\*



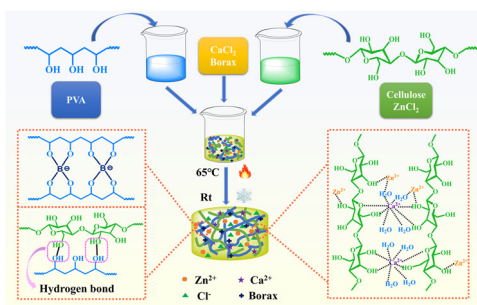
2053



### Bi<sup>3+</sup>/Sb<sup>3+</sup> co-doped Cs<sub>2</sub>HfCl<sub>6</sub> vacancy-ordered double perovskites for multifunctional optoelectronic applications

Zixuan Huang, Jinju Zheng,\* Hui Fu, Jialiang Jiang, Zilong Li, Chunhong Gu, Zhentao Du, Yang Yang, Weiyu Yang and Jialong Zhao\*

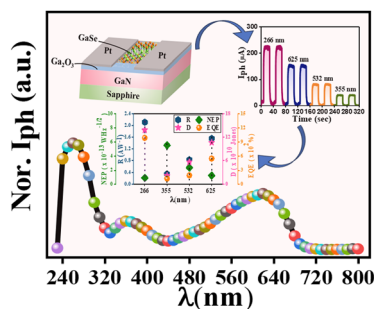
2063



### Preparation of PVA/cellulose composite hydrogel electrolytes based on zinc chloride-dissolved cellulose for flexible solid-state capacitors

Ru Zhang, Chengfeng Wu,\* Xuyan Liao, Axi Luo, Yidan Jing,\* Ningya Yu, Shengpei Su, Xiaomin Zhang,\* Jin Zhu and Guobo Deng

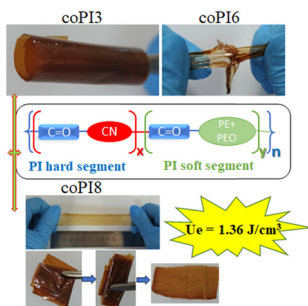
2073



### A nanoflower-like GaSe/ $\beta$ -Ga<sub>2</sub>O<sub>3</sub> based heterostructure for highly efficient self-powered broadband photodetectors

Urvashi Varshney, Anuj Sharma, Aditya Yadav, Preeti Goswami and Govind Gupta\*

2084



### Tailoring the properties of semi-aromatic copolyimides through structural manipulation towards energy-storage applications

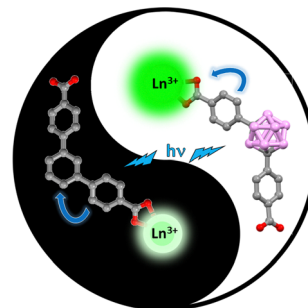
Irina Butnaru,\* Adriana-Petronela Chiriac, Mihai Asandulesa, Codrin Tugui, Iuliana Stoica and Mariana-Dana Damaceanu



2101

### Rationalizing the carborane *versus* phenyl-driven luminescence in related dicarboxylic ligands and their antenna effect for their $\text{Eu}^{3+}$ and $\text{Tb}^{3+}$ metal–organic frameworks: a combined experimental and computational study

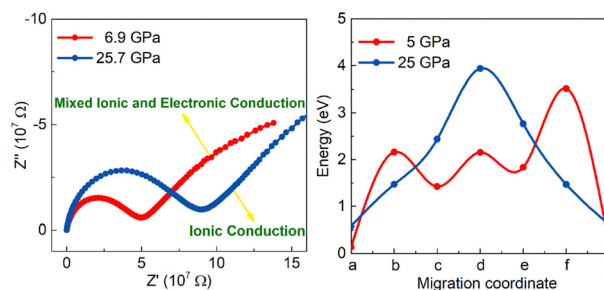
Zhen Li, Claudio Roscini, Rosario Núñez, Francisc Teixidor, Clara Viñas, Eliseo Ruiz\* and José Giner Planas\*



2110

### Pressure effects on the ionic transport properties of $\text{LiNH}_2$

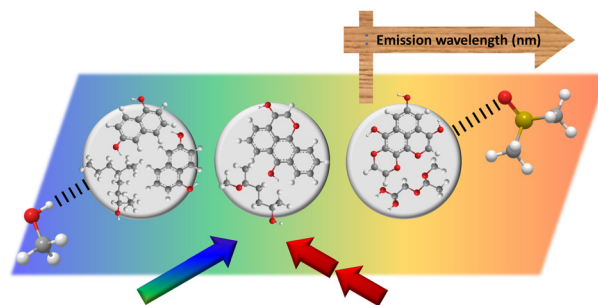
Jia Wang, Hao Liu, Li Wang, Min Cao, Xin Zhang, Chunxiao Gao and Yonghao Han\*



2117

### Revealing two chemical strategies to tune bright one- and two-photon excited fluorescence of carbon nanodots

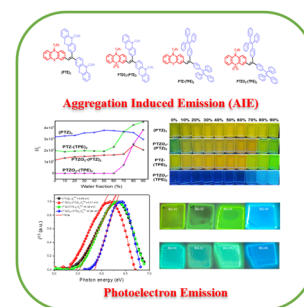
Sebastian G. Mucha, Lucyna Firlej, Filip Formalik, Jean-Louis Bantignies, Eric Anglaret, Marek Samoć and Katarzyna Matczyszyn\*



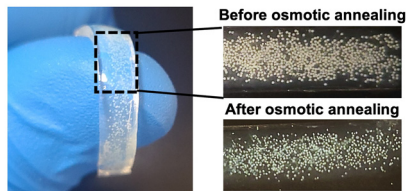
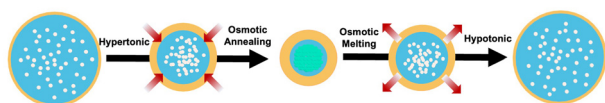
2134

### Phenothiazine and phenothiazine sulfone derivatives: AIE, HTMs for doping free fluorescent and multiple-resonance TADF OLEDs

Ramakant Gavale, Melika Ghasemi, Faizal Khan, Dmytro Volyniuk, Juozas Vidas Grazulevicius and Rajneesh Misra\*



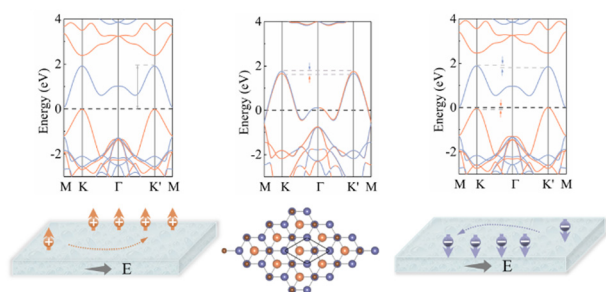
2148



### Adaptive coloration enabled by the reversible osmotic annealing of chromatophore-like microcapsules

Jae-Hyun Kim, Ji-Young Lee, Jaekyoung Kim, Zhe Gong, Daniel J. Wilson, Leila F. Deravi\* and Daeyeon Lee\*

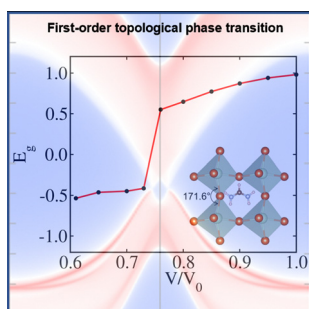
2156



### Controllable dual-polarization valley physics in the strain-engineered 2D monolayer of VC<sub>2</sub>N<sub>4</sub>

Chengan Lei, Shiyu Cao, Zelong Gong, Xinru Li, Yandong Ma, Jian Gao, Jianqiang Bi, Rajeev Ahuja and Zhao Qian\*

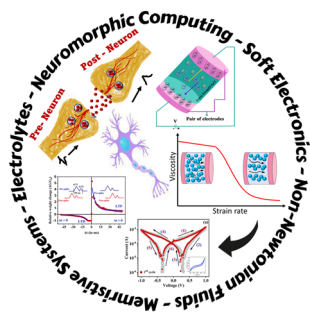
2165



### Strain-driven topological quantum phase transition in (pseudo)cubic (mixed)-Cs/MA/FA halide perovskites

Ankita Phutela,\* Sajjan Sheoran, Deepika Gill and Saswata Bhattacharya\*

2173



### Unlocking the resistive switching in Acacia Senegal-based electrolyte for neuromorphic computation

Aziz Lokhandwala, Parth Thakkar, Jeny Gosai, Suvik Oza and Ankur Solanki\*

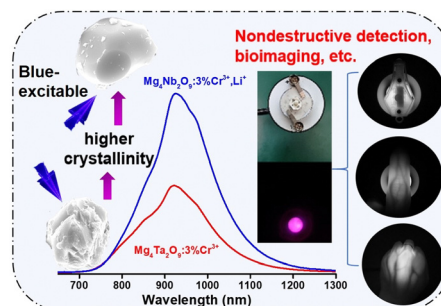




2184

## Broadband short-wave infrared $\text{Mg}_4\text{Nb}_2\text{O}_9\text{:Cr}^{3+},\text{Li}^+$ phosphor for nondestructive safety detection and biomedical imaging

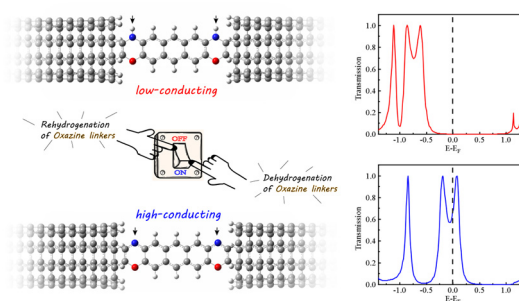
Qingyang Ding, Jincheng Wu, Dechao Yu,\* Xinxin Han, Yayun Zhou, Tiantian Shen, Yunfeng Ma,\* Songlin Zhuang and Dawei Zhang



2194

## Oxazine: an anchoring group serving as functional kernels to construct single-molecule switches

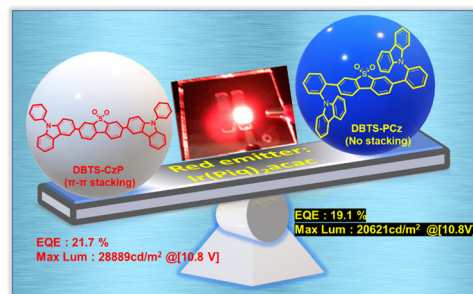
Shi Li, Yuxuan Jiang, Yudi Wang, Dongying Lin, Haoyang Pan, Yongfeng Wang, Stefano Sanvito and Shimin Hou\*



2203

## Perceiving the influence of phenyl-carbazole isomers on sulfone/thioxanthone-based D–A–D hosts: realizing efficient red-phosphorescent OLEDs

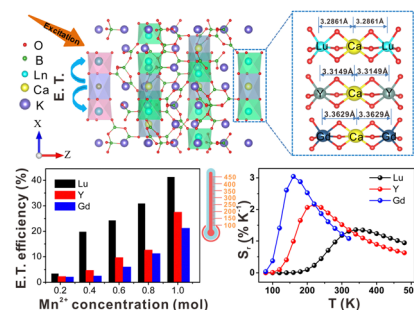
Premkumar Gnanasekaran, Yi-Ting Chen, Yun-Tzu Tseng, Kuan-Yu Su, Yu-Ting Lin, Tsz Chung Yiu, Chih-Hao Chang\* and Yuan Jay Chang\*



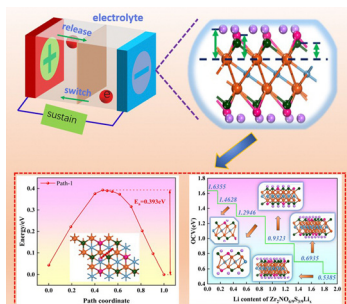
2216

## Realizing a broad-scope and high-sensitivity optical thermometer based on dual-emission centers with structure confinement effect-related energy transfer

Shixiang Huang, Liuhan Yi, Feng Zhang,\* Xiansheng Liu, Chao Li, Mengzhu Long and Yuhua Wang



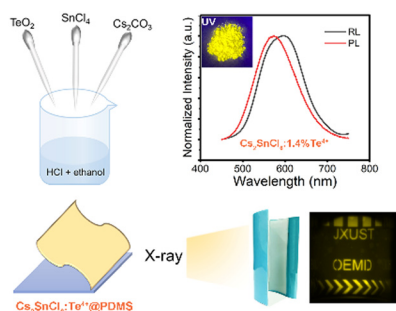
2227



### First-principles study of the effect of O and S functional groups on the lithium storage properties of $Zr_2N$ materials

Xuefeng Lu, Jupeng Qi, Junqiang Ren, Junchen Li, Hongtao Xue, Fuling Tang and Xin Guo\*

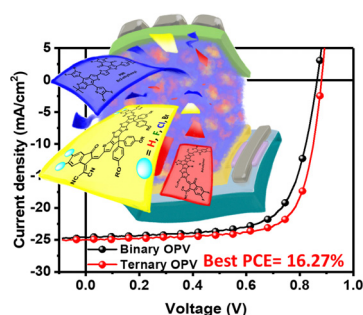
2241



### $Te^{4+}$ -doped $Cs_2SnCl_6$ scintillator for flexible and efficient X-ray imaging screens

Mengyao Wang, Xiaofei Qing, Tianyun Du, Chuanli Wu and Xiuxun Han\*

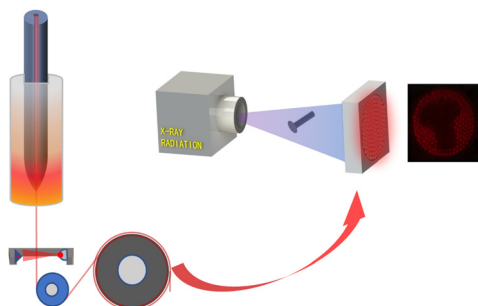
2247



### Dicyclopentadithienothiophene-based non-fullerene acceptors for ternary blend organic photovoltaics

Shakil N. Afraj, Bing-Huang Jiang, Yu-Wei Su, Chien-Hung Yang, Hui-Shan Shih, Arulmozhi Velusamy, Jen-Shyang Ni, Yamuna Ezhumalai, Ting-Yu Su, Cheng-Liang Liu, Shuhelin Yau, Chih-Ping Chen\* and Ming-Chou Chen\*

2258



### Plastic scintillation fiber with europium complexes for low-dose X-ray detection and long-distance imaging

Gang Ren, Zhouyuanhang Wang, Yan Kuai, Zhigang Cao, Feng Xu, Yu Liu, Kang Xie, Siqi Li,\* Benli Yu and Zhijia Hu\*

