

# Journal of Materials Chemistry C

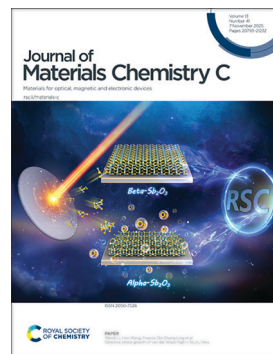
Materials for optical, magnetic and electronic devices

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## IN THIS ISSUE

ISSN 2050-7526 CODEN JMCCCX 13(41) 20793–21232 (2025)



### Cover

See Wendi Li, Hao Wang, Francis Chi-Chung Ling *et al.*, pp. 20931–20940. Image reproduced by permission of Francis Chi-Chung Ling from *J. Mater. Chem. C*, 2025, 13, 20931.

## REVIEWS

20806

### Aggregation-induced new functions: structure–property relationships in molecular crystals

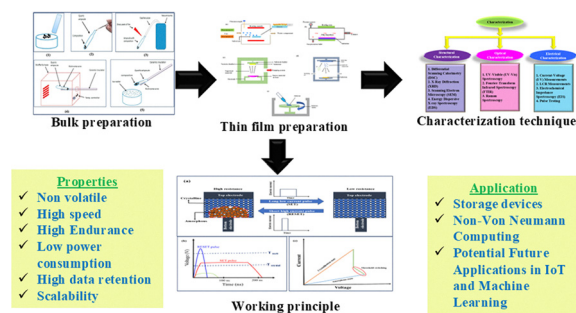
Yu Zhang, Bing Bai, Gian Albert Alfani, Zheng Zhao\* and Ben Zhong Tang\*



20825

### The physics and promise of phase change memory in non-von Neumann computing and machine learning

Akhileshwar Mishra, D. K. Dwivedi\* and Pravin Kumar Singh\*



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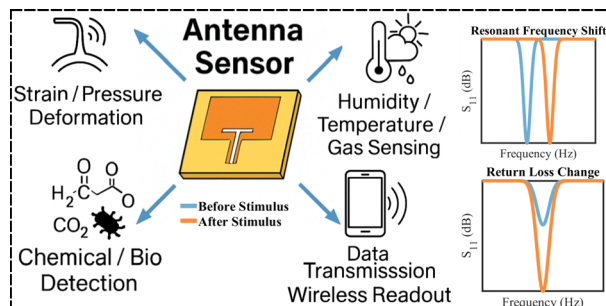
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## REVIEWS

20862

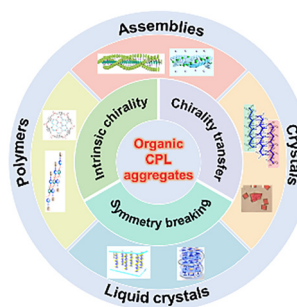
## Antenna as sensors: a mini review

Rafsan Al Shafatul Islam Subad,  
Mennatallah F. El Kashouty and Siddhartha Das\*

20880

## Organic circularly polarized luminescence materials in various aggregation states

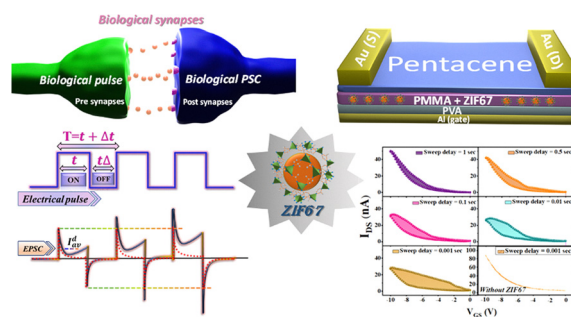
Meng Wang, Zhixuan Wang, Leijing Liu\* and Wenjing Tian\*



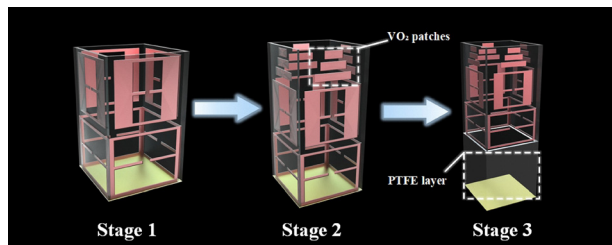
## COMMUNICATION

20921

## A MOF-embedded multifunctional dielectric layer for an energy-efficient organic memtransistor and brain-inspired computing

Sk. Shaharukh, Riya Sadhukhan, Satayender K. Sangwan,  
Dipak K. Goswami and Achintya Dhar\*

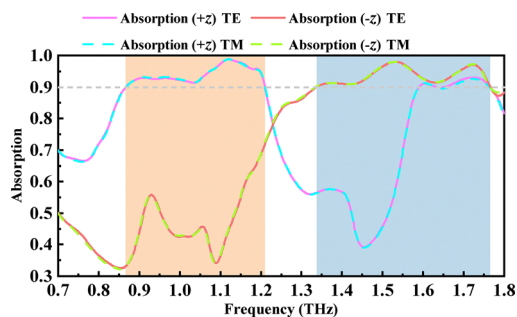
20941



### Ultra-broadband toroidal metastructure absorber based on VO<sub>2</sub> with enhanced anapole response

Jun-Jie Luo, Yu-Hang Sun, Qi Chen and Hai-Feng Zhang\*

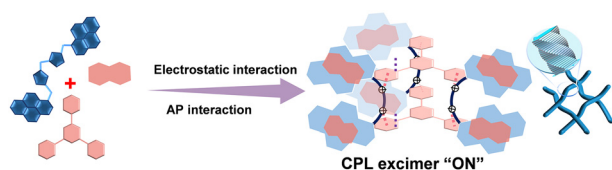
20956



### Theoretical research on an ultra-wideband Janus metastructure for bidirectional electromagnetic wave absorbing

Xuan-Zhi Shi, Si-Yuan Liao and Hai-Feng Zhang\*

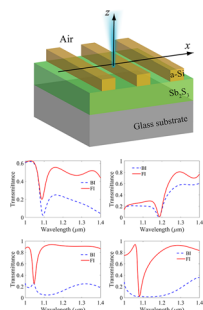
20973



### Activated circularly polarized luminescence in a chiral supramolecular template triggered by electrostatic and arene–perfluoroarene interactions

Fengqing Hu, Siao Shi, Shijie Yang, Jiayan Zhao, Dou Liu, Xinyue Zhang, Yuxiang Wang\* and Fei Li\*

20979



### Asymmetric light transmission via Sb<sub>2</sub>S<sub>3</sub>-enhanced nonreciprocal gratings on a glass substrate

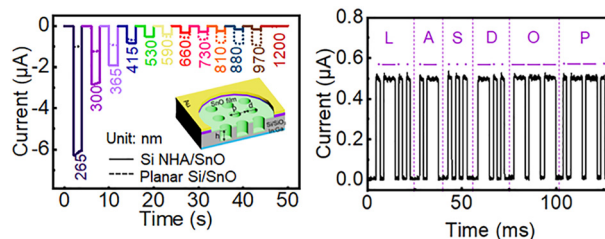
Xin Cui, Qi Fang, Jingfei Ye, Fenglin Xian and Gaige Zheng\*



20989

### Si nanohole array (Si NHA)-based type-I heterojunction for filterless self-powered ultraviolet photodetection

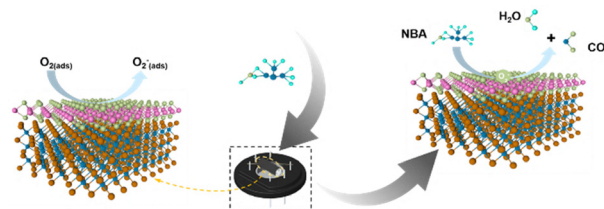
Jin-Xulong Gao, Chen-Yang Huang, Xiu-Xing Xu, Wei Shu, Feng-Xia Liang, Shi-Rong Chen, Yu-Xue Zhou, Chun-Yan Wu\* and Lin-Bao Luo



20996

### Highly sensitive detection of *n*-butanol at room temperature using a SnO<sub>2</sub>/Nb<sub>4</sub>C<sub>3</sub>T<sub>x</sub>-based sensing platform

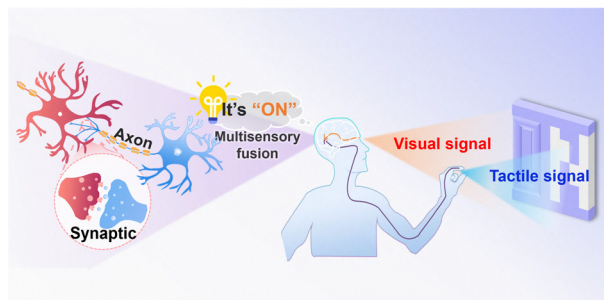
Yuanyuan Ma, Yu Yao, Ziyang Yin, Haozhe Zhuang, Lili Xie and Zhigang Zhu\*



21006

### Bioinspired multisensory fusion using a MoTe<sub>2</sub> optoelectronic memristor with oxygen plasma treatment for in-sensor reservoir computing

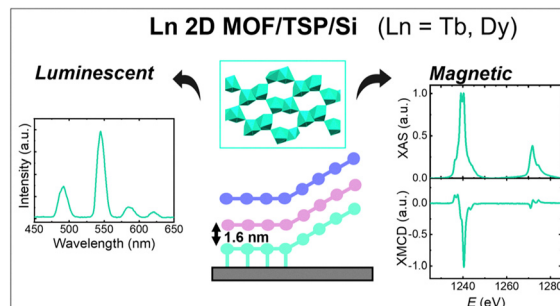
Shuang Ge, Qiang Wang, Jingyao Bian, Zhuangzhuang Li, Ye Tao,\* Meng Qi,\* Zewei Wang, Siyu Liu, Zhongqiang Wang,\* Yongxing Zhu, Ya Lin, Xiaoning Zhao, Haiyang Xu and Yichun Liu



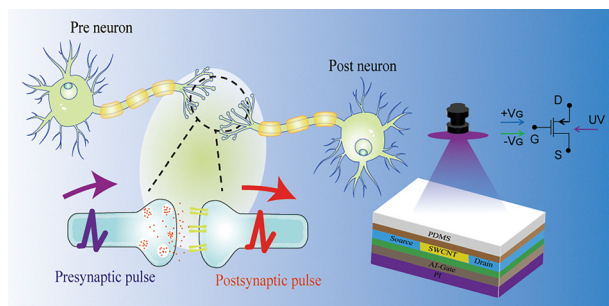
21015

### Magnetic and luminescent lanthanoid (Ln = Tb, Dy) 2D MOFs on functionalized silicon

Elena Bartolomé,\* Pablo Sevilla, Guillem Gabarró-Riera, Ana Arauzo, Juan Rubio Zuazo and E. Carolina Sañudo\*



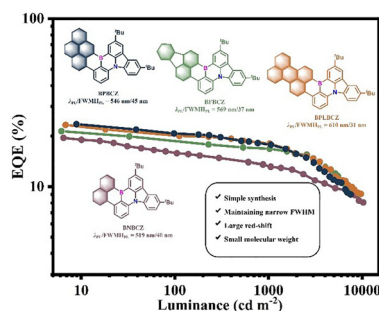
21027



## A single-walled carbon nanotube-based phototransistor for neuromorphic vision applications

Jiahao Yao, Jing Xu, Hui Li, Litao Sun, Jianwen Zhao\* and Hongxuan Guo\*

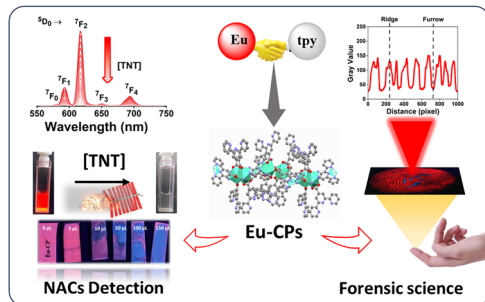
21034



## Modular construction of medium-to-long wavelength multi-resonant fluorescent emitters

Yi Wei, Jia-Qi Liang, Li Yuan, Jia-Jun Hu, Shuai Xing, Zhong-Zhong Huo, Wen-Wei Zhang\* and You-Xuan Zheng\*

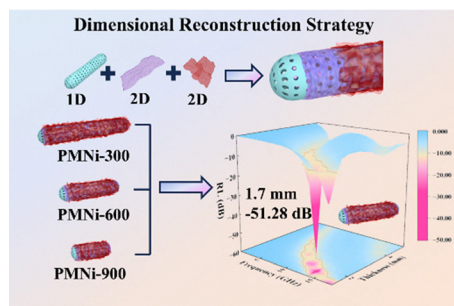
21040



## Luminescent lanthanide coordination polymers for the detection of nitro explosives and efficient identification of latent fingerprints

Nitin Shukla, Juhi Sayala, Goutam Panigrahi and Ashis K. Patra\*

21054



## Reconstructing 2D MXene into 1D length-tunable aminofunctionalized periodic mesoporous organosilica@MXene/Ni structures for enhanced microwave absorption performance

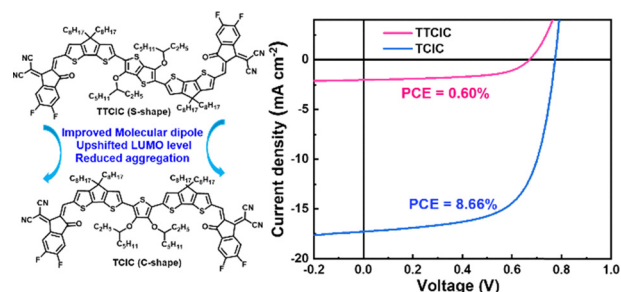
Yiran Sun, Sikai Dai, Yu Fan, Jiangyu Fang, Xingyue Zhou, Ruoqi Wang, Qixin Zhuang, Jun Qian and Peiyuan Zuo\*



21066

### The impact of axisymmetric and centrosymmetric molecular architectures in non-fused ring electron acceptors on photovoltaic performance

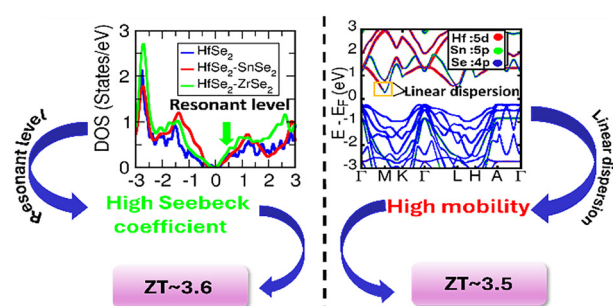
Chenxu Yu, Kun Li, Yanqi Shi, Yuan Yao, Qian Xie, Jiayu Li, Jiang-Yang Shao, Yishi Wu, Qing Liao, Cunbin An\* and Hongbing Fu\*



21075

### Role of p–p and d–p orbital interactions in the electronic structure and phonon localization driving high thermoelectric performance

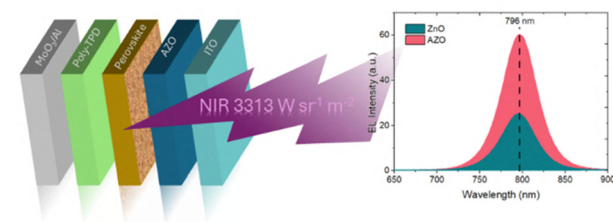
Tanu Choudhary, Shivani Vinod and Raju K. Biswas\*



21090

### Ultra-high brightness near-infrared perovskite light-emitting diodes enabled by aluminum-doped zinc oxide electron transport layers

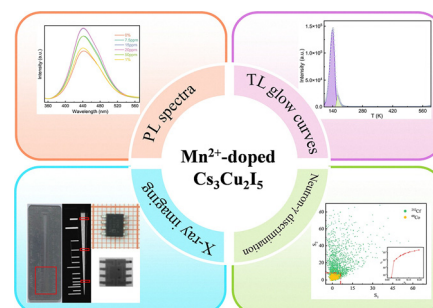
Johan Iskandar, Chih-Yi Liu, Mao-Cheng Huang, Chutipol Harnthanasak, Galing Murokinas, Yi-Sheng Chen, Didik Notosudjono, Chih-Chien Lee and Shun-Wei Liu\*



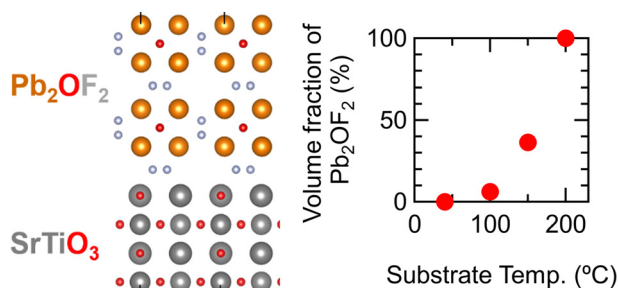
21098

### Mn<sup>2+</sup>-doped Cs<sub>3</sub>Cu<sub>2</sub>I<sub>5</sub> halides and their application in high resolution X-ray imaging and thermal neutron detection

Yuzhu Li, Jun Chen, Xunsheng Zhou, Qi Wu, Lu Yao\* and Cailin Wang\*



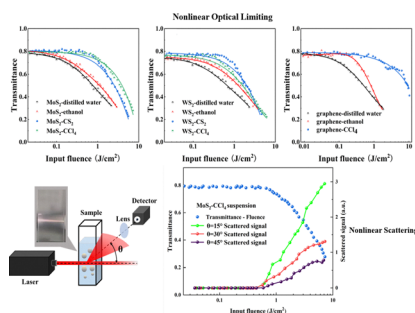
21106



### Fluoride-target-assisted growth of $\text{Pb}_2\text{O}_7$ oxyfluoride films with anion ordering and high dielectric constant

Rion Muraki, Ko Marunouchi, Weikun Zhou, Akira Chikamatsu, Hiromichi Ohta and Tsukasa Katayama\*

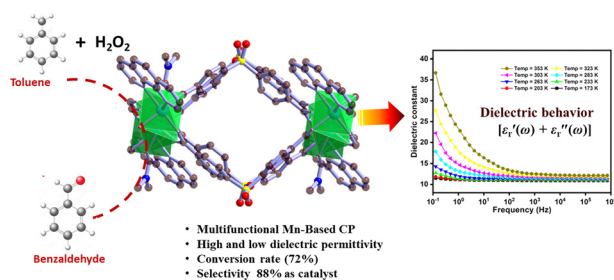
21111



### Research on nonlinear optical limiting of two-dimensional materials suspensions

Aoxiang Meng, Yuangang Lu,\* Jian Huang, Biao Dong, Chengyu Zhang and Chongjun He\*

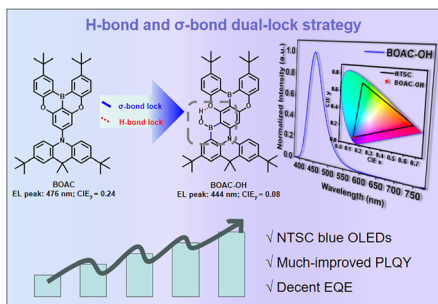
21122



### A multifunctional manganese coordination polymer with polar solvent-responsive tunable dielectric properties and selective catalysis

Balendra,\* Rahul Kalita, Mahboob Ali, Sanyukta, Sevi Murugavel and Kuntal Manna

21132



### A quasiplanar TADF emitter employing a dual-locking strategy enables efficient solution-processed deep blue OLEDs

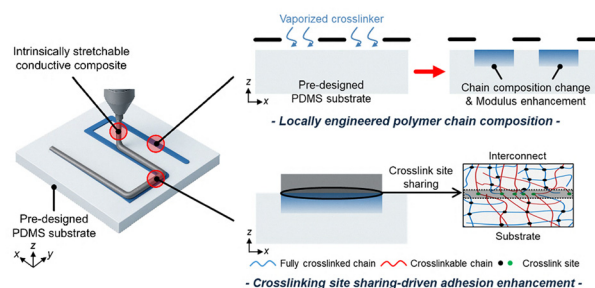
Hai-Long Zhu, Hui Wang,\* Xiao-Chun Fan, Xin Xiong, Zhang-Li Cheng, Jia Yu,\* Kai Wang\* and Xiao-Hong Zhang\*



21137

### Crosslinking site sharing-driven interface engineering to enhance adhesion between PDMS substrates and Ag–PDMS conductors

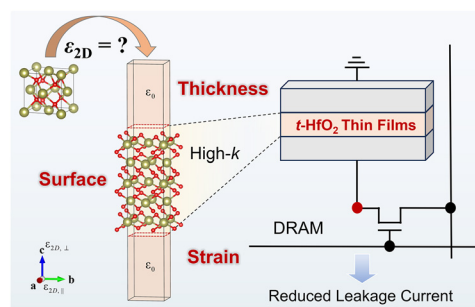
Dong Hyoun Park, Dong Won Lee, Hoon Yeub Jeong, Jun-Chan Choi\* and Seungjun Chung\*



21145

### Engineering the dielectric properties of *t*-HfO<sub>2</sub> thin films using first-principles calculations

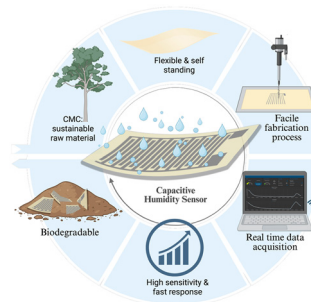
Zhe Su, Shuai Chen, Ruiling Gao, Yongchang Li, Guodong Zhao, Yingtao Yang, Mengyuan Yang, Musen Li, Hui Zhang,\* Dongdong Li\* and Wei Ren\*



21154

### A highly sensitive, biodegradable capacitive humidity sensor with aerosol jet printed electrodes on a self-standing CMC film

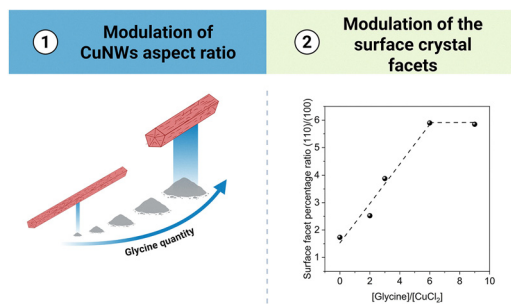
Anand Vyas,\* Sun-pui Ng and Ifrah Anum



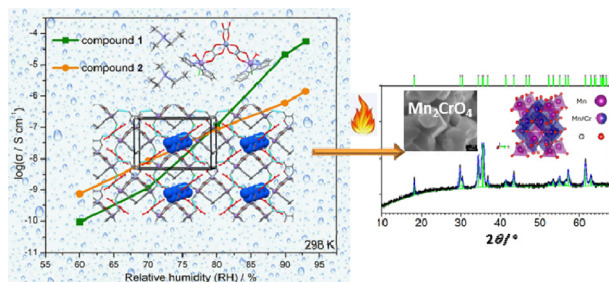
21170

### Engineering morphological features and surface steps in ultrathick penta-twinned copper nanowires

Andrea Conte, Sabrina Antonello, Marco Baron, Sara Bonacchi\* and Alessandro Aliprandi\*



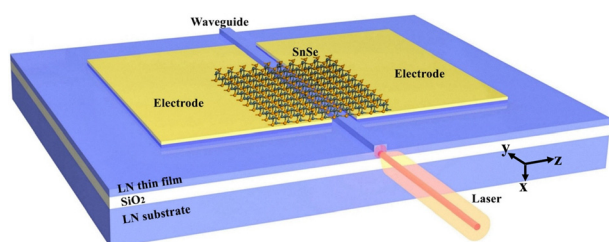
21179



### Water-assisted proton conductivity and a magnetic study of heterotrinnuclear oxalate-bridged compounds: molecular precursors for the $\text{Mn}_2\text{CrO}_4$ spinel

Ana Lozančić, Sanja Burazer, Tobias Wagner, Krešimir Molčanov, Damir Pajić, Lidija Androš Dubraja, Michael Tiemann and Marijana Jurić\*

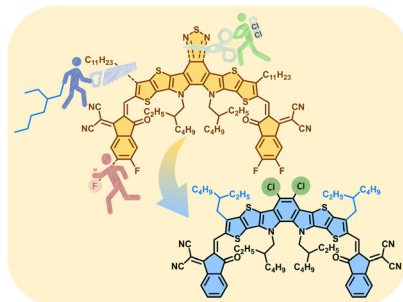
21196



### A waveguide-integrated SnSe photodetector on a lithium niobate thin film with high responsivity, fast response, and self-powered capability

Huangpu Han, Fan Yang, Qingyun Li, Shuangchen Ruan and Bingxi Xiang\*

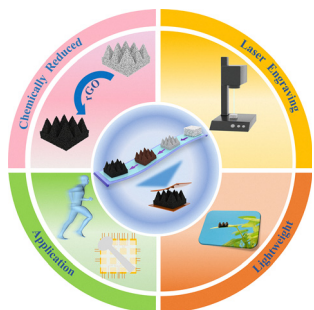
21205



### Medium bandgap A-DA'D-A type small molecule acceptors prepared using synergetic modification strategies enable high-performance organic solar cells

Yuechen Li, Yufei Gong, Xiaojun Li,\* Haozhe He, Shucheng Qin, Jinyuan Zhang, Jianqi Zhang, Fei Pan, Lei Meng and Yongfang Li

21215



### Flexible capacitive pressure sensor with chemically reduced graphene oxide on a pyramid-structured melamine sponge array by laser engraving

Kaixin Li, Tianlong Xu, Jingyu Zhou, Dawei Zhang and Bin Sheng\*



## CORRECTIONS

21227

**Correction: Local structure regulation of multiple upconversion emission selectivity in highly doped lanthanide-based core–shell nanocrystals**

Yuxuan Qiu, Songbin Liu,\* Junjie Wang, Yushuang Peng, Yutian Yu, Hongyuan Fei, Fengli Yang, Jiaqing Peng, Junjun Tan and Xinyu Ye\*

21229

**Correction: Novel 2D-ferroic nanocomposite anti-reflection screen-printed films for EMI shielding: an experimental and theoretical study**

Vaishnavi Khade, Avanish Babu Thirumalasetty, C. Krishnamoorthi, Teresa Cuberes and Madhuri Wuppulluri\*

