

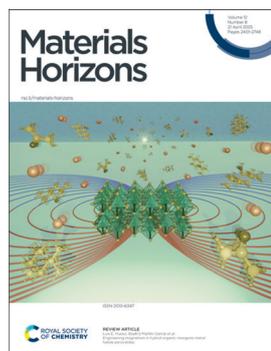
# Materials Horizons

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## IN THIS ISSUE

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### Cover

See Luis E. Hueso, Beatriz Martín-García *et al.*, pp. 2414–2435. Image reproduced by permission of Yaiza Asensio, Beatriz Martín-García, Luis E. Hueso from *Mater. Horiz.*, 2025, 12, 2414.



### Inside cover

See Rodrigo E. Palacios, Miryam Criado-Gonzalez *et al.*, pp. 2524–2534. Image reproduced by permission of Miryam Criado-González from *Mater. Horiz.*, 2025, 12, 2524.

## EDITORIAL

2412

**Materials Horizons Emerging Investigator Series:**  
Dr Xiao Liu, South China Normal University, China

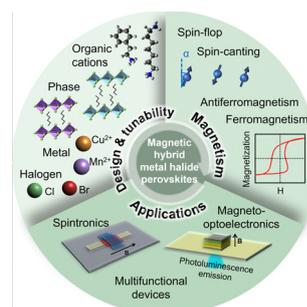


## REVIEWS

2414

**Engineering magnetism in hybrid organic–inorganic metal halide perovskites**

Yaiza Asensio, Lucía Olano-Vegas, Samuele Mattioni, Marco Gobbi, Fèlix Casanova, Luis E. Hueso\* and Beatriz Martín-García\*



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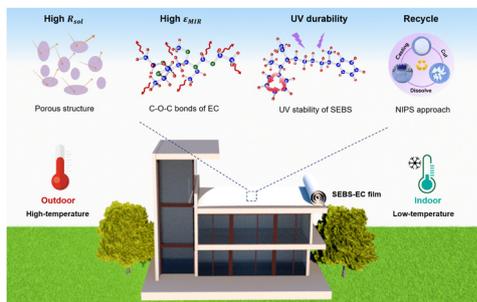


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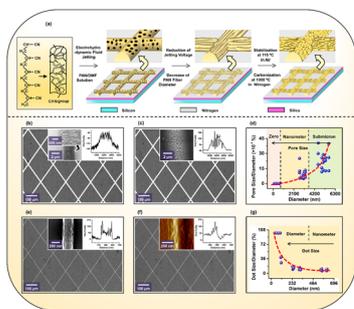
2535



### Ultraviolet durable and recyclable radiative cooling covering for efficient building energy saving

Shanshan Song, Congyu Hou, An Yang, Lishi Wei, Hongzhi Liu, Di Xie and Yongming Song\*

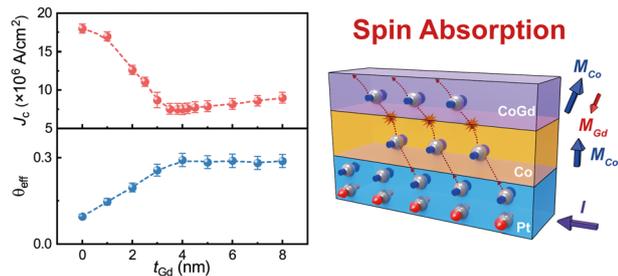
2545



### Carbon-dot growth on nanoconvex carbon wires for outstanding optical properties

Jufeng Deng,\* Chong Liu\* and Marc Madou\*

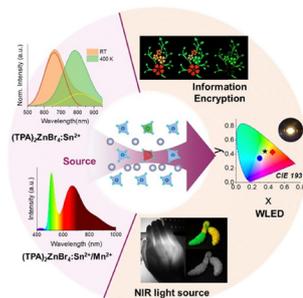
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### High spin-orbit torque efficiency induced by engineering spin absorption for fully electric-driven magnetization switching

Pengwei Dou, Jingyan Zhang,\* Tao Zhu, Peng Kang, Xiao Deng, Yuanbo Wang, Quangao Qiu, Liangyu Feng, Jinhu Hu, Jianxin Shen, Xiao Wang, He Huang, Xinqi Zheng, Shiming Zhou, Baogen Shen and Shouguo Wang\*

2564



### Multifunctional applications enabled by tunable multi-emission and ultra-broadband VIS-NIR luminescence via energy transfer in Sn<sup>2+</sup>/Mn<sup>2+</sup>-doped lead-free Zn-based metal halides

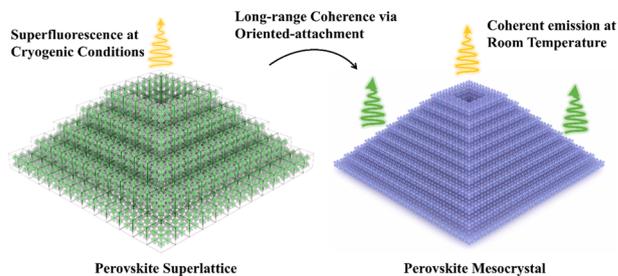
Yongqi Yang, Bao Ke,\* Chengzhi Yang, Yang Xue, Kaihuang Huang, Xintong Lu and Bingsuo Zou\*



2577

### Pyramid-shaped quantum dot superlattice exhibiting tunable room-temperature coherent emission *via* oriented attachment

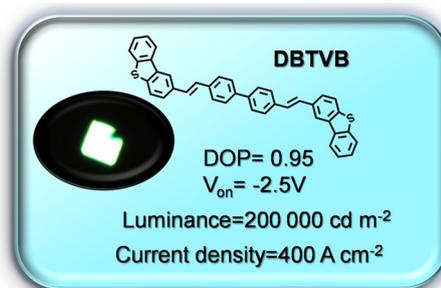
Zheng Liu, Xiya Chen, Ruizhao Yao, Lihui Li, Huanteng Luo, Guangcan Li\* and Xiao Liu\*



2587

### Highly polarized single-crystal organic light-emitting devices with low turn-on voltage and high brightness

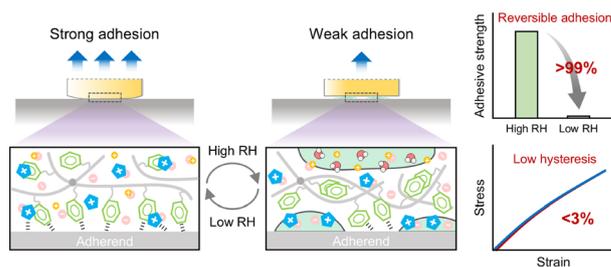
Aijia Pang, Fan Yin, Jianbo De, Cunbin An, Bo Liao,\* Chunling Gu,\* Qing Liao\* and Hongbing Fu\*



2592

### Moisture-responsive ultralow-hysteresis polymer ionogels for adhesion-switchable strain sensing

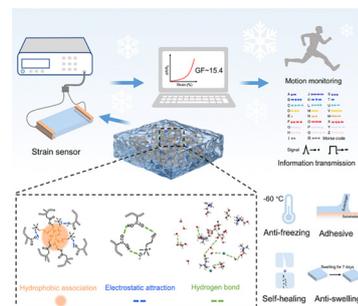
Yichen Zhou, Xing Zhang, Ying Zheng, Junfeng Liu, Yongzhong Bao, Guorong Shan, Chengtao Yu\* and Pengju Pan\*



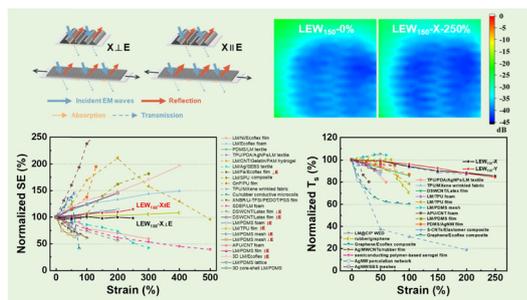
2604

### Environmentally tolerant multifunctional eutectogel for highly sensitive wearable sensors

Zhengen Wei, Lianghao Jia, Jinyu Yu, Hanrui Xu, Xing Guo, Tao Xiang\* and Shaobing Zhou



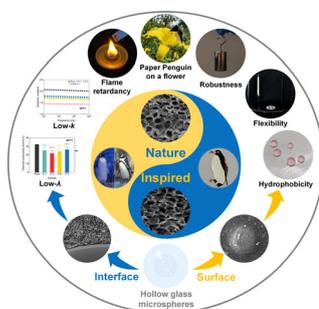
2619



### Stretchable wrinkle-structured liquid metal sandwich films enable strain-insensitive electromagnetic shielding and Joule heating

Yiming Ren, Jiali Chen, Jiaheng Yao, Liqiang Shang, Wenge Zheng and Bin Shen\*

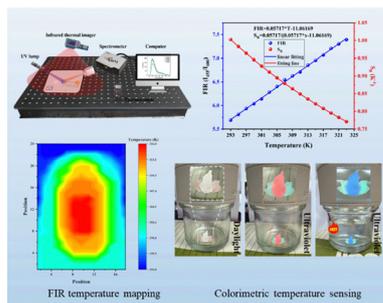
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### Penguin feather-inspired flexible aerogel composite films featuring ultra-low thermal conductivity and dielectric constant

Rui Yang, Kexing Yu, Xiang Yu,\* Wenqi Zhang, Kaixuan Sun, Fangcheng Lv, Yunpeng Liu and Sidi Fan\*

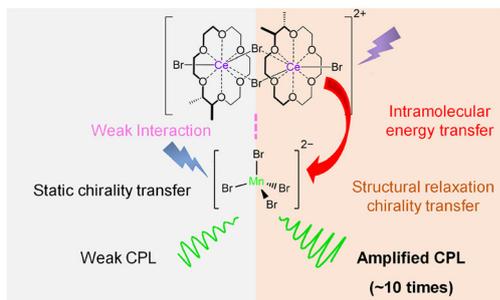
2641



### Highly sensitive temperature sensors based on the fluorescence intensity ratio of dual-emissive lead-free metal halides

Jianhui Zhao, Yunsong Di, Yuhang Sheng, Jiaxin Sui, Xingru Yang, Yi Zhang, Ying Wang, Haoyu Wang, Xiaowei Zhang, Liyan Yu, Zhihui Chen and Zhixing Gan\*

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### Structural relaxation chirality transfer enhanced circularly polarized luminescence in heteronuclear $Ce^{III}-Mn^{II}$ complexes

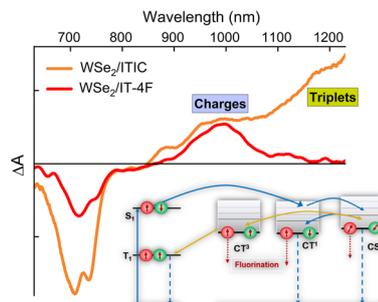
Huanyu Liu, Gang Yu, Peihao Huo, Ruoyao Guo, Yujia Li, Hao Qi, Jiayin Zheng, Tong Jin, Zifeng Zhao, Zuqiang Bian and Zhiwei Liu\*



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### Mitigating triplet loss in 2D WSe<sub>2</sub>/non-fullerene heterostructures using halogenated acceptors

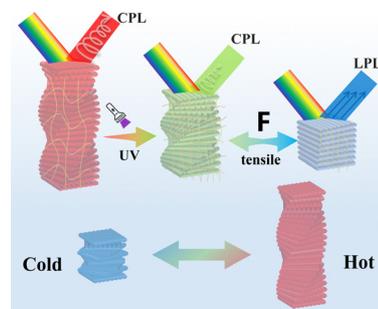
Sreelakshmi Chandrabose,\* Ana M. Valencia, Meysam Raoufi, Nisreen Alshehri, Tracey M. Clarke, Frédéric Laquai, Caterina Cocchi and Dieter Neher\*



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### Mechanical and thermal responsive chiral photonic cellulose hydrogels for dynamic anti-counterfeiting and optical skin

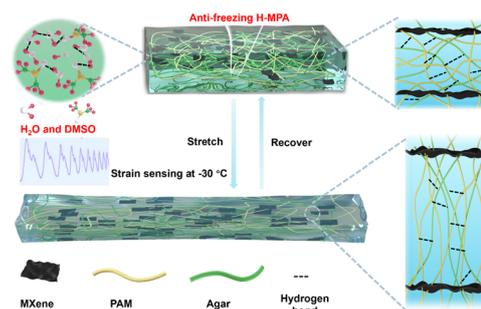
Baoqi Li, Mingcong Xu,\* Bang An, Wenye Sun, Rui Teng, Sha Luo, Chunhui Ma, Zhijun Chen, Jian Li, Wei Li\* and Shouxin Liu\*



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### Anti-freezing conductive hydrogels with exceptional mechanical properties and stable sensing performance at -30 °C

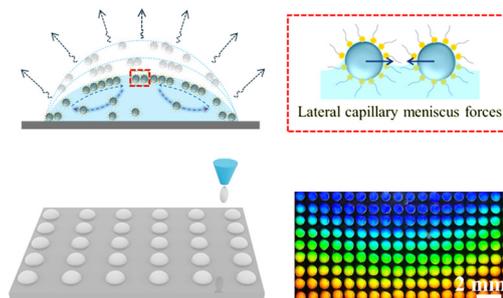
Yunfei Yu, Shuo Wang, Huitao Yu, Xiaojian Liao and Wei Feng\*



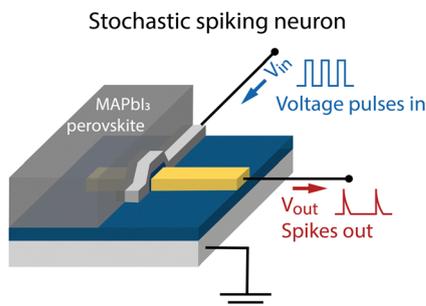
2689

### Surfactant-based interface capture towards the development of 2D-printed photonic structures

Appurva Tiwari, Seong Jae Lee and Ashish Kumar Thokchom\*



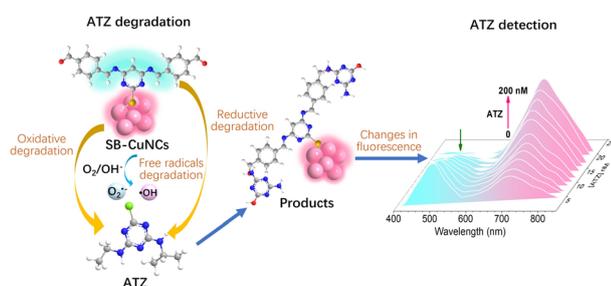
2701



## Integrated artificial neurons from metal halide perovskites

Jeroen J. de Boer and Bruno Ehrler\*

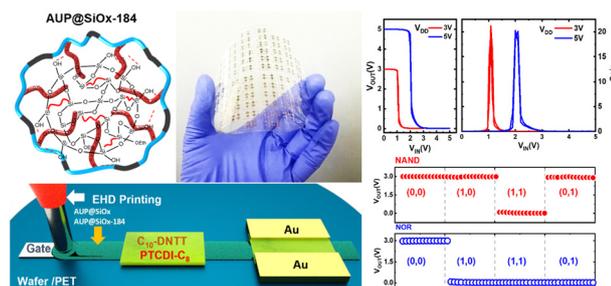
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## A Schiff-base-modified Cu nanocluster with redox dual-catalytic sites and fluorescence sensing for the degradation and detection of atrazine

Li Wang and Yang Chen\*

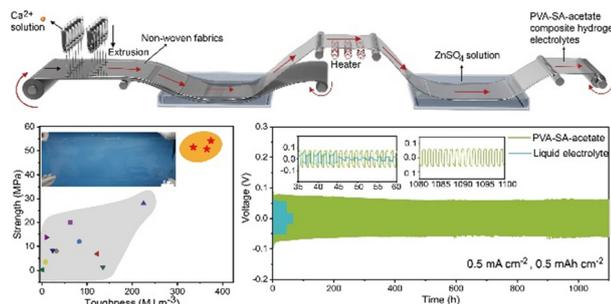
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## High-*k* organic–inorganic hybrid dielectric material for flexible thin-film transistors and printed logic circuits

Rixuan Wang, Hong Nhung Le, Cheolmin Jung, Hyeok-jin Kwon, Zhijun Li, Hyungdo Kim, Zhi Hong Zhang,\* Juyoung Kim,\* Se Hyun Kim\* and Xiaowu Tang\*

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## Mass production of robust hydrogel electrolytes for high-performance zinc-ion batteries

Linlin Ma, Xiaojing Liu, Jihao Fan, Xiaodong Yu, Longsheng Cao\* and Chuangqi Zhao\*



## CORRECTION

2745

**Correction: Self-generating electricity system driven by aqueous humor flow and trabecular meshwork contraction motion activated BKCa for glaucoma intraocular pressure treatment**

Ruiqi Wang, Haiying Wei,\* Yuying Shi, Cao Wang, Zhenqiang Yu, Yijian Zhang, Yifan Lai, Jingwei Chen, Guangfu Wang and Weiming Tian\*

