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Materials Horizons

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ISSN 2051–6347 CODEN MHAOAL 12(8) 2401–2748 (2025)

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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.

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

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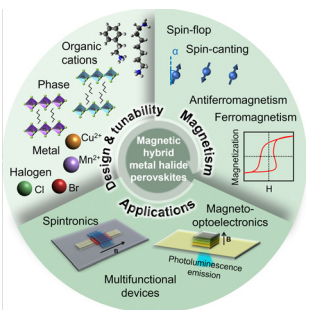
Engineering magnetism in hybrid organic–inorganic metal halide perovskites

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



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REVIEWS

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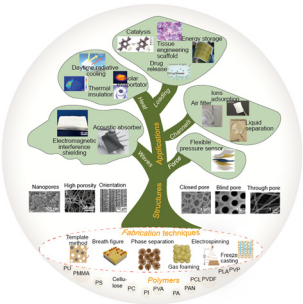
Porous polymers: structure, fabrication and application

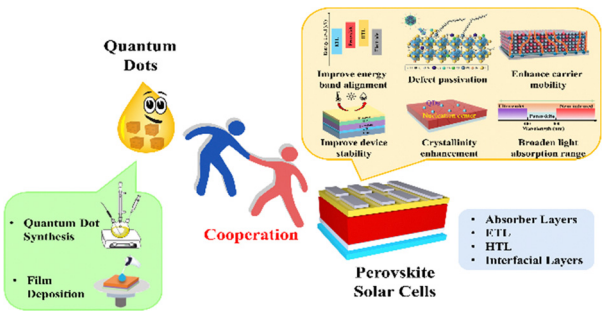
Qingxian Liu,* Jinkui Xiong, Wengui Lin, Jinlong Liu, Yongbiao Wan, Chuan Fei Guo, Quan Wang* and Zhiguang Liu*



2467

Application of advanced quantum dots in perovskite solar cells: synthesis, characterization, mechanism, and performance enhancement

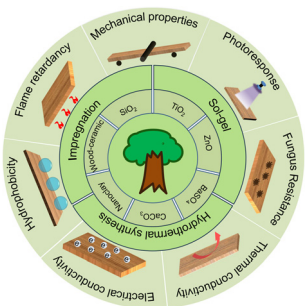
Meidan Que, Yuan Xu, Qizhao Wu, Jin Chen, Lili Gao and Shengzhong (Frank) Liu*



2503

Advanced wood–inorganic composites: preparation, properties and perspectives

Bingqian Zhang, Gaigai Duan,* Qin Qin, Shanshan Li,* Wei Zhou, Chunmei Zhang* and Shaohua Jiang*



COMMUNICATIONS

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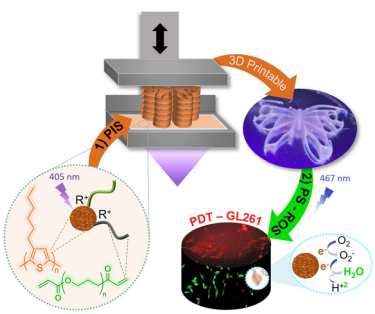
Poly(3-hexylthiophene) nanoparticles as visible-light photoinitiators and photosensitizers in 3D printable acrylic hydrogels for photodynamic therapies

Rocío Natera Abalos, Ilaria Abdel Aziz, Matías Caverzan, Arianna Sosa Lochedino, Luis E. Ibarra, Antonela Gallastegui, Carlos A. Chesta, M. Lorena Gómez, David Mecerreyes, Rodrigo E. Palacios* and Miryam Criado-Gonzalez*



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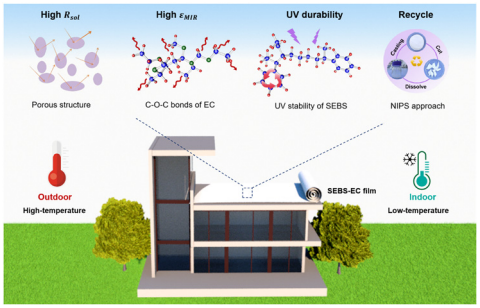
COMMUNICATIONS

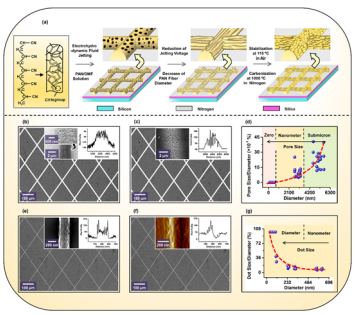
2535



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*

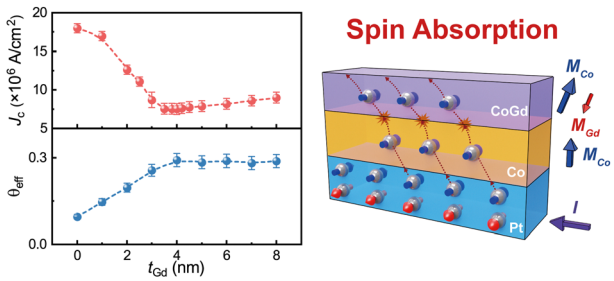
2545



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

Jufeng Deng,* Chong Liu* and Marc Madou*

2554



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*

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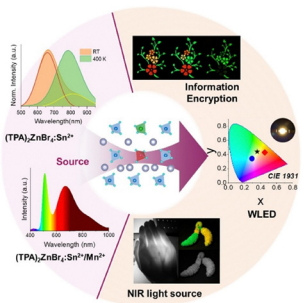

Multifunctional applications enabled by tunable multi-emission and ultra-broadband VIS-NIR luminescence *via* energy transfer in Sn^{2+}/Mn^{2+}-doped lead-free Zn-based metal halides

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

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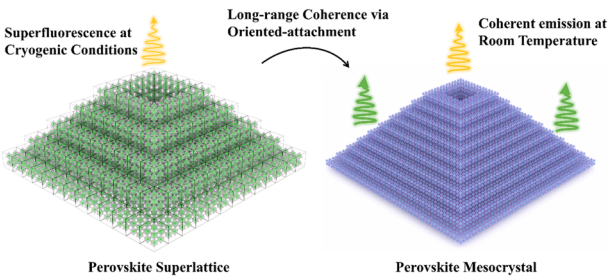
Pyramid-shaped quantum dot superlattice exhibiting tunable room-temperature coherent emission *via* oriented attachment

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



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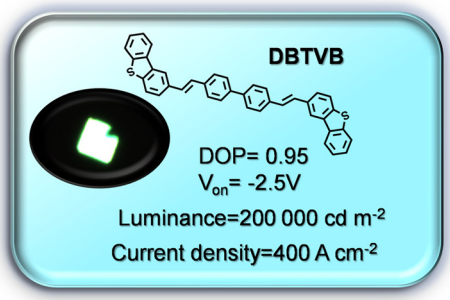
Highly polarized single-crystal organic light-emitting devices with low turn-on voltage and high brightness

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



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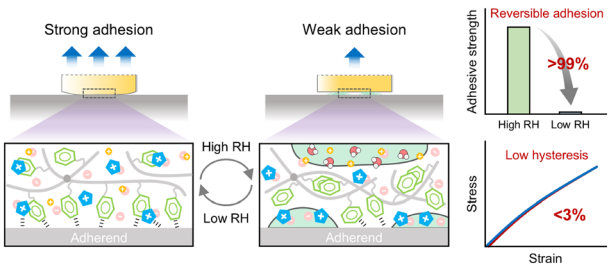
Moisture-responsive ultralow-hysteresis polymer ionogels for adhesion-switchable strain sensing

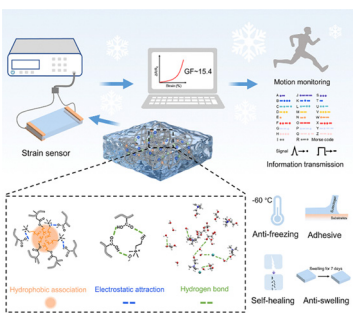
Yichen Zhou, Xing Zhang, Ying Zheng, Junfeng Liu, Yongzhong Bao, Guorong Shan, Chengtao Yu* and Pengju Pan*



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



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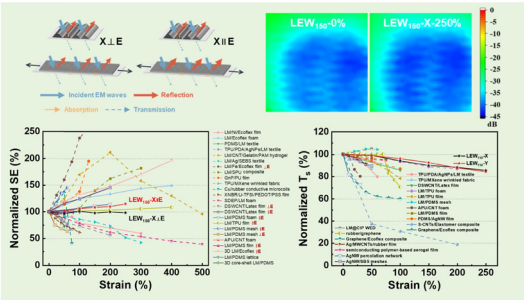

Stretchable wrinkle-structured liquid metal sandwich films enable strain-insensitive electromagnetic shielding and Joule heating

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

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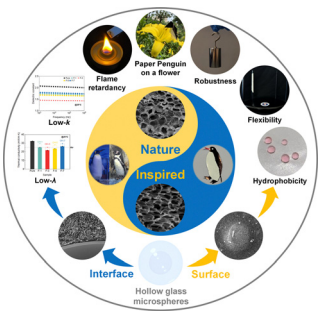

Penguin feather-inspired flexible aerogel composite films featuring ultra-low thermal conductivity and dielectric constant

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

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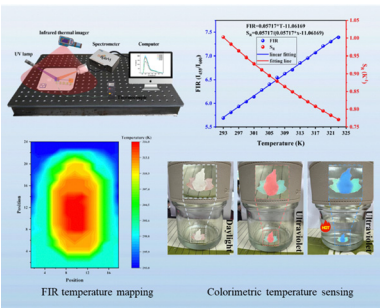

Highly sensitive temperature sensors based on the fluorescence intensity ratio of dual-emissive lead-free metal halides

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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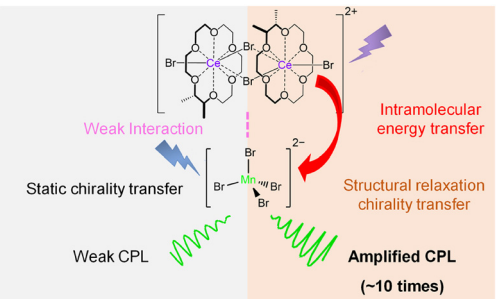

Structural relaxation chirality transfer enhanced circularly polarized luminescence in heteronuclear Ce^{III}–Mn^{II} complexes

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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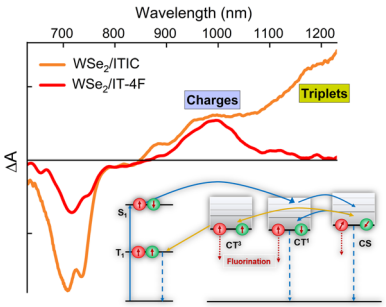
Mitigating triplet loss in 2D WSe_2/non-fullerene heterostructures using halogenated acceptors

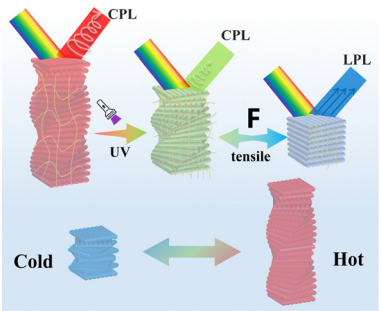
Sreelakshmi Chandrabose,* Ana M. Valencia, Meysam Raoufi, Nisreen Alshehri, Tracey M. Clarke, Frédéric Laquai, Caterina Cocchi and Dieter Neher*



2669

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

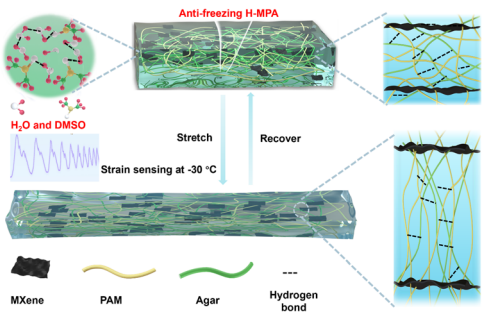
Baoqi Li, Mingcong Xu,* Bang An, Wenye Sun, Rui Teng, Sha Luo, Chunhui Ma, Zhijun Chen, Jian Li, Wei Li* and Shouxin Liu*



2679

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*



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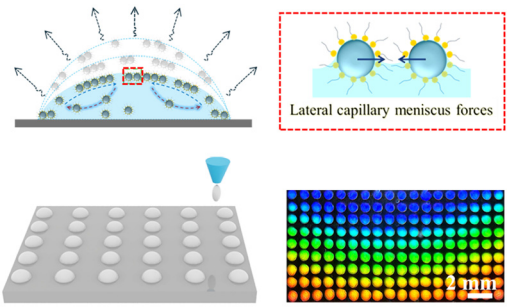
Surfactant-based interface capture towards the development of 2D-printed photonic structures

Appurva Tiwari, Seong Jae Lee and Ashish Kumar Thokchom*



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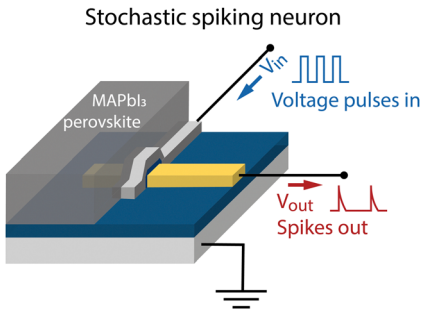

Integrated artificial neurons from metal halide perovskites

Jeroen J. de Boer and Bruno Ehrler*

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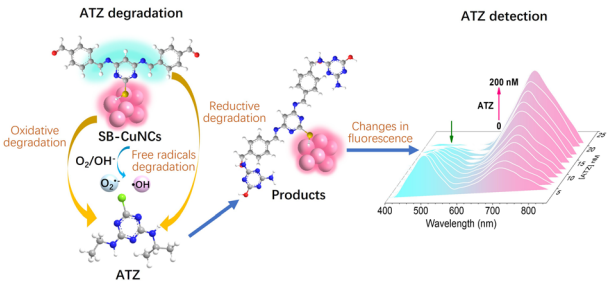

A Schiff-base-modified Cu nanocluster with redox dual-catalytic sites and fluorescence sensing for the degradation and detection of atrazine

Li Wang and Yang Chen*

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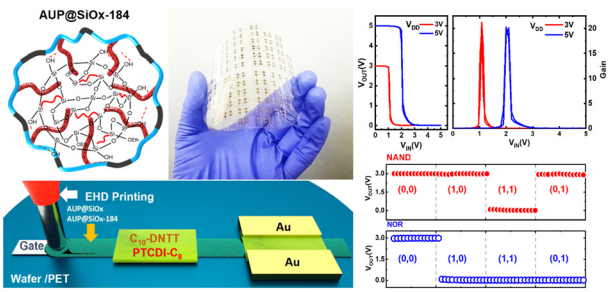

High-*k* organic–inorganic hybrid dielectric material for flexible thin-film transistors and printed logic circuits

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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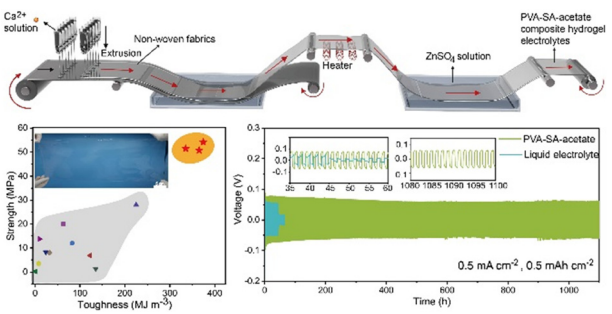

Mass production of robust hydrogel electrolytes for high-performance zinc-ion batteries

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

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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*

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