

# Materials Horizons

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See Chen Yu Li, Si Yu Zheng *et al.*, pp. 1452–1462. Image reproduced by permission of Si Yu Zheng and Chen Yu Li from *Mater. Horiz.*, 2025, 12, 1452.



### Inside cover

See Eric Collet *et al.*, pp. 1463–1472. Image reproduced by permission of Eric Collet from *Mater. Horiz.*, 2025, 12, 1463.

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**Two decades of materials research excellence at NIMTE: celebrating the 20th anniversary of Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences**

Zhiyi Lu,\* Tao Chen\* and Liping Wang\*



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**NIMTE's rising young scientists: celebrating 20 years of Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences**

Zhiyi Lu,\* Tao Chen\* and Liping Wang\*



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## EDITORIALS

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**Materials Horizons Emerging Investigator Series:**  
**Dr Katharina Ehrmann, Institute for Applied Synthetic Chemistry, Technische Universität Wien, Austria**

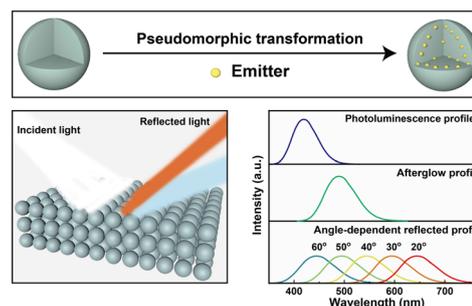


## OPINION

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**Rational design of uniform SiO<sub>2</sub>-based afterglow microparticles for photonic crystals**

Gaoqiang Li, Mengfen Che, Xue Chen and Xiaowang Liu\*

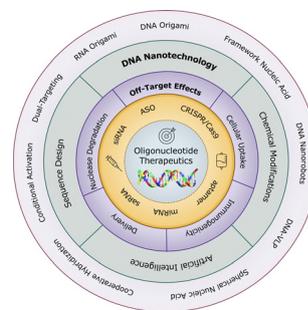


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**DNA nanotechnology-based strategies for minimising hybridisation-dependent off-target effects in oligonucleotide therapies**

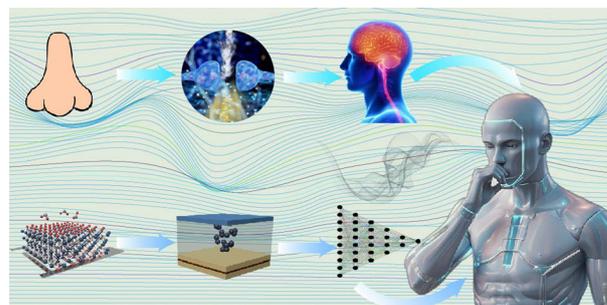
Xiaoyu Li, Huanhuan Hu, Hailong Wang, Jia Liu, Wenting Jiang, Feng Zhou\* and Jiantao Zhang\*



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**From materials to applications: a review of research on artificial olfactory memory**

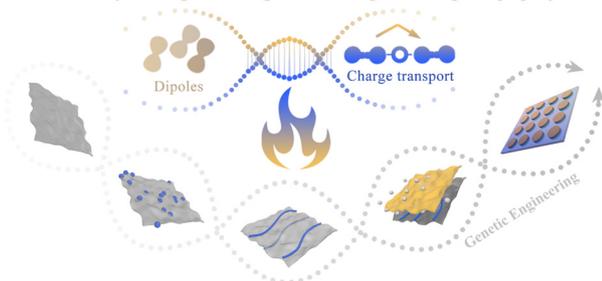
Liangchao Guo, Haoran Han, Chunyu Du, Xin Ji, Min Dai, Sergi Dosta, Ye Zhou\* and Chao Zhang\*



## REVIEWS

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Thermally tailoring dielectric genes for tuning electromagnetic property

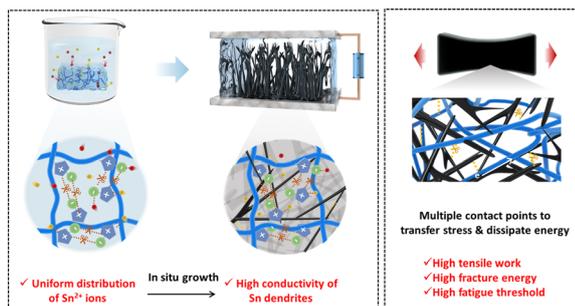


## Thermally tailoring dielectric genes of graphene hybrids for tuning electromagnetic properties

Min Zhang, Qi Zheng, Wen-Qiang Cao\* and Mao-Sheng Cao\*

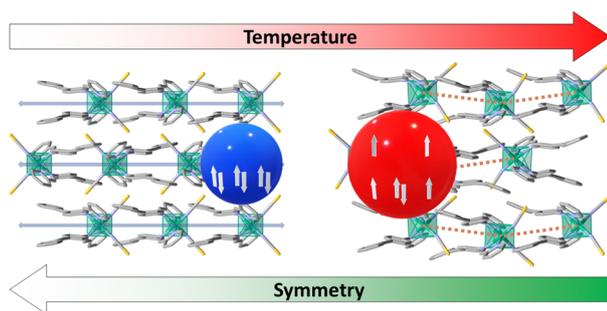
## COMMUNICATIONS

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Developing tough, fatigue-resistant and conductive hydrogels via *in situ* growth of metal dendrites

Mengjie Si, Yueman Tang, Chen Xu, Chen Yu Li,\* Kaishun Xia, Wei Xu, Ji Lin, Zhen Jiang, Jintao Yang and Si Yu Zheng\*

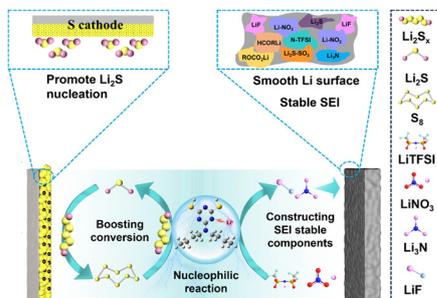
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## Stabilizing low symmetry-based functions of materials at room temperature through isosymmetric electronic bistability

Francisco Javier Valverde-Muñoz, Ricardo Guillermo Torres Ramírez, Elzbieta Trzop, Thierry Bataille, Nathalie Daro, Dominique Denux, Philippe Guionneau, Hervé Cailleau, Guillaume Chastanet, Boris Le Guennic and Eric Collet\*

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## Dual functional coordination interactions enable fast polysulfide conversion and robust interphase for high-loading lithium-sulfur batteries

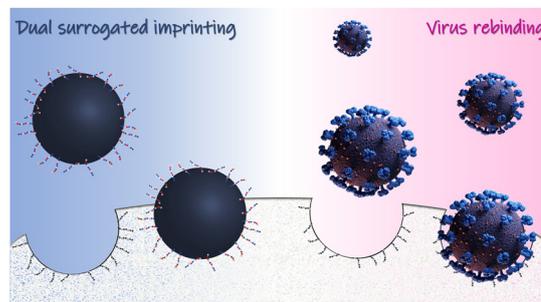
Wenchang Han, Jiyue Hou, Fei Wang, Bao Zhang, Enfeng Zhang, Yongqi Wang, Chunman Yang, Peng Dong, Weili Song, Xue Li, Yannan Zhang,\* Shuaifeng Lou,\* Yingjie Zhang\* and Yiyong Zhang\*



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### Dual surrogate imprinting: an innovative strategy for the preparation of virus-selective particles

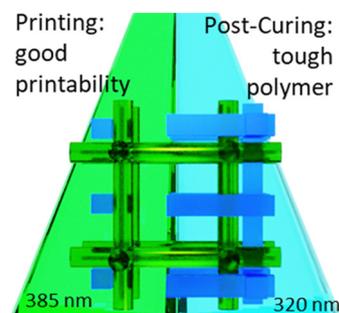
Beatriz Fresco-Cala,\* Ana Gálvez-Vergara, Daniel Baumgarten, Fabian Zech, Jan Münch and Boris Mizaikoff



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### Rapid 3D printing of unlayered, tough epoxy–alcohol resins with late gel points *via* dual-color curing technology

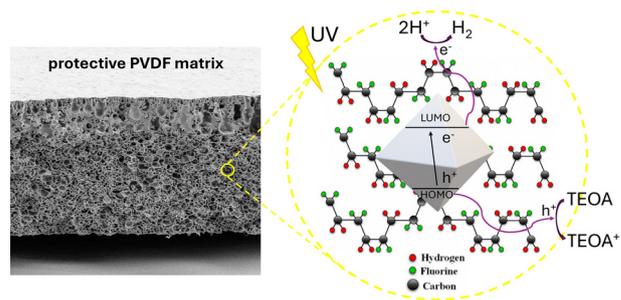
Florian Mayer, Dominik Laa, Thomas Koch, Jürgen Stampfl, Robert Liska and Katharina Ehrmann\*



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### Photocatalytic membranes based on Cu–NH<sub>2</sub>-MIL-125(Ti) protected by poly(vinylidene fluoride) for high and stable hydrogen production

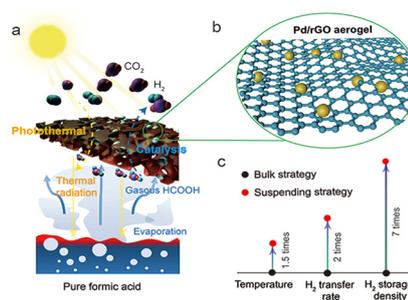
Emilia Gontarek-Castro,\* Anna Pancielejko, Mateusz Adam Baluk, Malwina Kroczevska-Gnatowska, Przemysław Gnatowski, Krzysztof Matus, Justyna Łuczak and Adriana Zaleska-Medynska



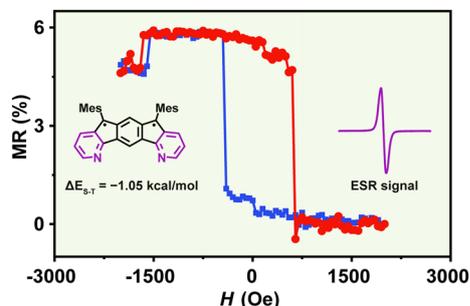
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### Photothermally-activated suspended aerogel triggers a biphasic interface reaction for high-efficiency and additive-free hydrogen generation

Qian Zhang, Bo Jiang, Yuming Gao, Lin Li\* and Dawei Tang



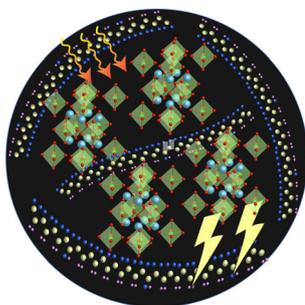
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### Magnetoresistance effect of pyridine-capped s-indacene-based conjugated radicals

Xuyang Wei, Dong Li, Xitong Liu, Weifeng Zhang,\*  
Hao Li, Shuai Yang, Hao Luo and Gui Yu\*

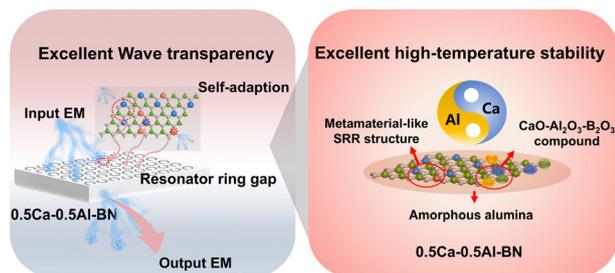
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### Light-regulated pyro-phototronic effects in a perovskite $\text{Cs}_2\text{SnI}_6$ -reinforced ferroelectric polymer hybrid nanostructure

Zinnia Mallick, Sudip Naskar, Shanker Ram\* and  
Dipankar Mandal\*

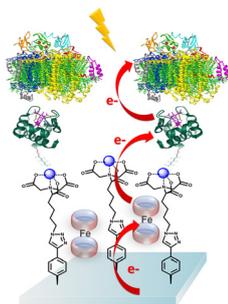
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### Dual metal synergistic modulation of boron nitride for high-temperature wave-transparent metamaterials

Zhangwen Xie, Yufei Tang,\* Ziyun Luo, Yagang Zhang,  
Wanxing Zheng, Xi Chen, Qingnan Meng, Chen Tang,  
Zhaowei Liu and Kang Zhao

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### Space-confined mediation of electron transfer for efficient biomolecular solar conversion

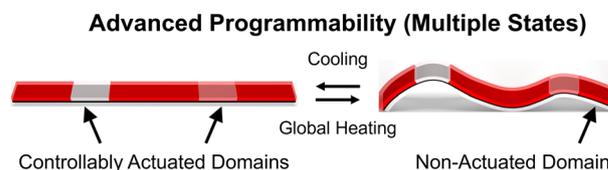
Margot Jacquet,\* Miriam Izzo, Piotr Wróbel,  
Marcin Strawski, Massimo Trotta, Rafat Jurczakowski and  
Joanna Kargul\*



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### Thermally responsive spatially programmable soft actuators with multiple response states enabled by Grayscale UV light processing

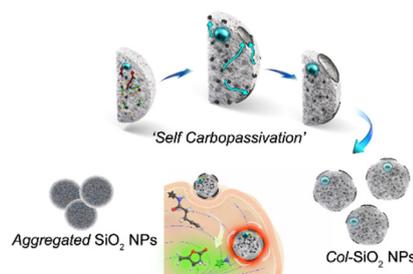
Yizong Li, Sooyeon Noh Coodley, Si Chen, Penghao Dong, Su Li and Shanshan Yao\*



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### Solid-state self carbo-passivation for refurbishing colloidal dispersity of catalytic silica nanoreactors

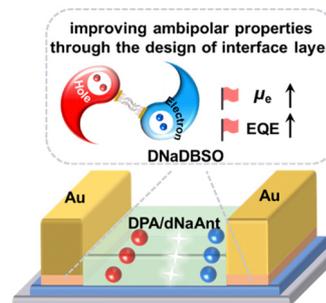
Jeong Hun Choi, Nitee Kumari, Anubhab Acharya, Amit Kumar, Sanghwang Park, Dongyeon Ro, Jongcheol Seo, Eunhye Lee, Jee Hwan Bae, Dong Won Chun, Kyungtaek Oh, Sunmin Ryu and In Su Lee\*



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### Improving electron injection of organic light-emitting transistors via interface layer design

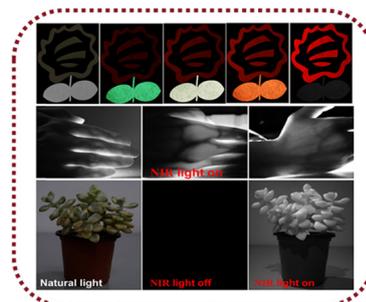
Xiangyu Tan, Qingbin Li, Zhengsheng Qin, Dan Liu, Yumin Liu, Pu Wang, Ziyi Xie, Zhagen Miao, Yanan Lei, Yu Zhang, Pengsong Wang, Xianneng Chen, Zhenling Liu, Can Gao, Wenping Hu, Hao-Li Zhang\* and Huanli Dong\*



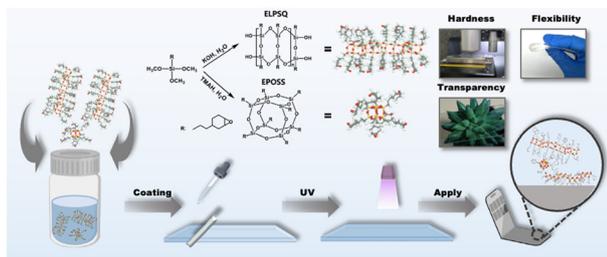
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### Large-scale preparation of Sb<sup>3+</sup>-activated hybrid metal halides with efficient tunable emission from visible to near-infrared regions for advanced photonic applications

Ou Xu, Hui Peng,\* Qilin Wei, Linghang Kong, Xiao Wang, Heng Zhang, Jialong Zhao and Bingsuo Zou



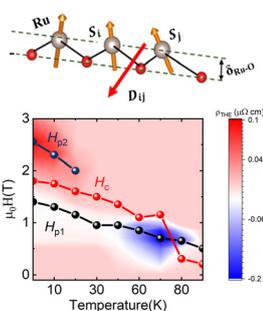
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### Topological regulation in polysilsesquioxanes for achieving super-hard and flexible membranes: insights from molecular simulation

Peng Xu, Yuxin Sun, Song Yang, Guangxin Chen, Jiali Qu, Qifang Li\* and Zheng Zhou\*

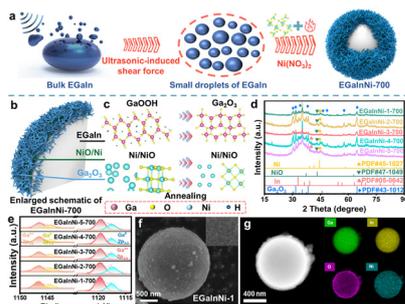
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### Proton-controlled Dzyaloshinskii–Moriya interaction and topological Hall effect in hydrogenated strontium ruthenate

Ya-Ting Xu, Xu Niu, Yi-Feng Zhao, Yu-Ke Zhang, Yu Cai, Meng-Yao Fu, Min Feng, Ke Qu, Xing Deng, Bo-Wen Wang, Ya-Qiong Wang, Zhao Guan, Zhen-Zhong Yang, Bin-Bin Chen,\* Ni Zhong,\* Chun-Gang Duan and Ping-Hua Xiang\*

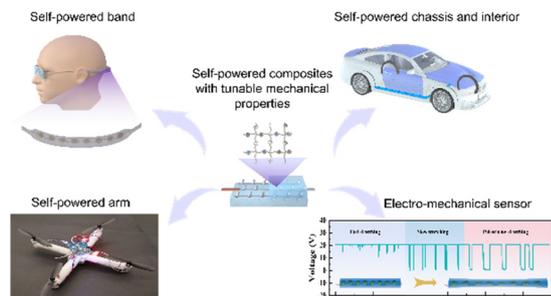
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### Dual relaxation behaviors driven by a homogeneous and stable dual-interface charge layer based on an EGaIn absorber

Geng Chen, Tao Zhang, Limin Zhang,\* Kai Tao,\* Qiang Chen\* and Hongjing Wu\*

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### Self-powered composites by bioinspired device-to-material integration

Guojiang Wen, Zhiwei Zhu, Wenrui Cai, Zhongfeng Ji, Hua Li, Chengye Ma, Ziyu Zhao, Shanshan Lv, Jiarui Yang, Xuewei Fu,\* Wei Yang and Yu Wang\*

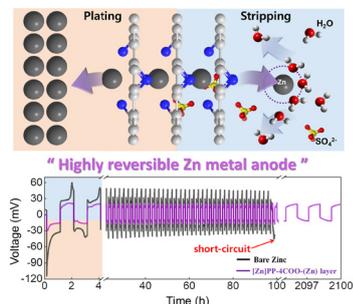


## COMMUNICATIONS

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### Porphyritic N<sub>4</sub> channels of zinc ions for the electrochemical reversibility of zinc plating/stripping

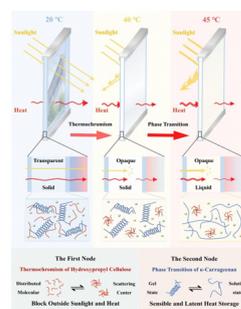
Hyun-Woo Kim, Eunyoung Cho, Myung-Jun Kwak, Jeongin Lee, Hosik Lee, Chihyun Hwang\* and Hyun-Kon Song\*



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### Multi-gradient energy-saving smart windows with thermo-response and multimodal thermal energy storage

Yang Zhou,\* Yiqi He, Sisi Zhao, Simeng Qi, Lulu Wang, Yingchun Niu,\* Quan Xu, Chunming Xu and Juncheng Wang\*



## CORRECTION

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### Correction: Photocatalytic membranes based on Cu–NH<sub>2</sub>–MIL-125(Ti) protected by poly(vinylidene fluoride) for high and stable hydrogen production

Emilia Gontarek-Castro,\* Anna Pancielejko, Mateusz Adam Baluk, Malwina Kroczevska-Gnatowska, Przemysław Gnatowski, Krzysztof Matus, Justyna Łuczak and Adriana Zaleska-Medynska

