

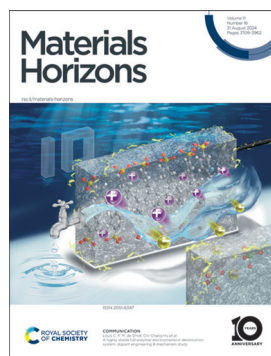
# Materials Horizons

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## IN THIS ISSUE

ISSN 2051-6347 CODEN MHAOAL 11(16) 3709-3962 (2024)



### Cover

See Louis C. P. M. de Smet, Chi-Chang Hu *et al.*, pp. 3792–3804. Image reproduced by permission of Yi-Heng Tu, Chi-Chang Hu and Louis C. P. M. de Smet from *Mater. Horiz.*, 2024, 11, 3792.

## EDITORIAL

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### Horizons Community Board collection: setting new trends in energy storage and harvesting through innovative approaches

Satyajit Ratha\* and Edison Huixiang Ang\*

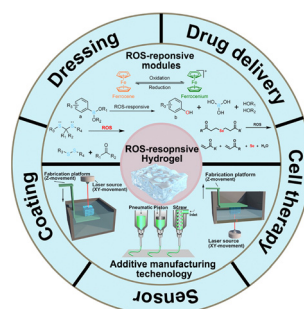


## REVIEWS

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### ROS-responsive hydrogels: from design and additive manufacturing to biomedical applications

Minju Pu, Huan Cao, Hengjie Zhang, Tianyou Wang, Yiwen Li, Shimeng Xiao\* and Zhipeng Gu\*



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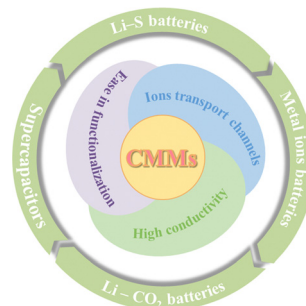


## REVIEWS

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## Porous crystalline conjugated macrocyclic materials and their energy storage applications

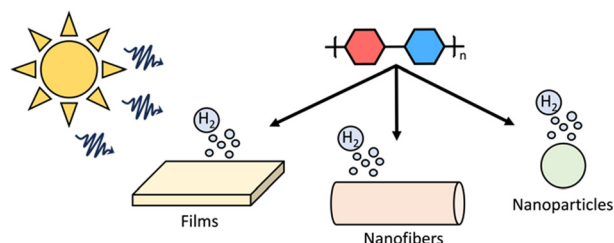
Yiwen Yang, Xiaoman Yao, Zhe Xuan, Xuanxu Chen, Yuluan Zhang, Taoping Huang, Mingjin Shi, Yifa Chen\* and Ya-Qian Lan\*



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## Processing polymer photocatalysts for photocatalytic hydrogen evolution

Richard Jack Lyons and Reiner Sebastian Sprick\*

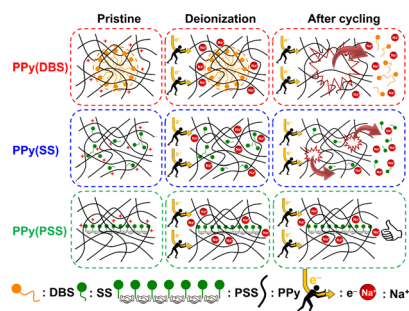


## COMMUNICATIONS

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## A highly stable full-polymer electrochemical deionization system: dopant engineering & mechanism study

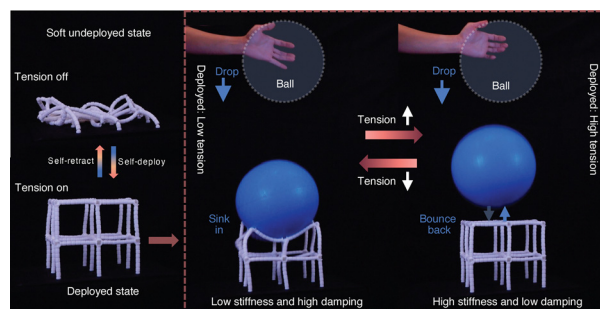
Yi-Heng Tu, Hung-Yi Huang, Yu-Hsiang Yang, Louis C. P. M. de Smet\* and Chi-Chang Hu\*



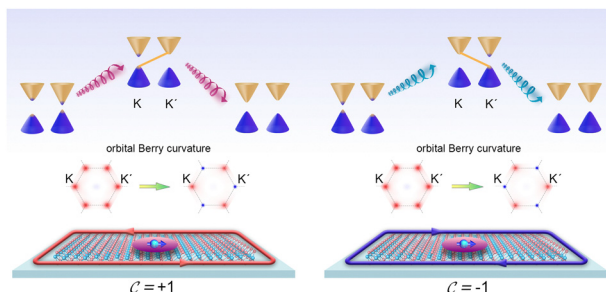
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## Self-deployable contracting-cord metamaterials with tunable mechanical properties

Wenzhong Yan,\* Talmage Jones, Christopher L. Jawetz, Ryan H. Lee, Jonathan B. Hopkins and Ankur Mehta



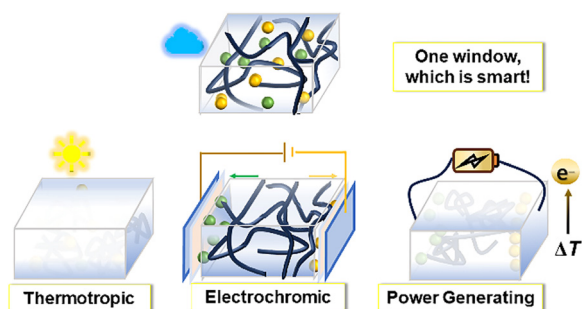
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### Floquet engineering of the orbital Hall effect and valleytronics in two-dimensional topological magnets

Runhan Li, Xiaorong Zou, Zhiqi Chen, Xiaoran Feng, Baibiao Huang, Ying Dai\* and Chengwang Niu\*

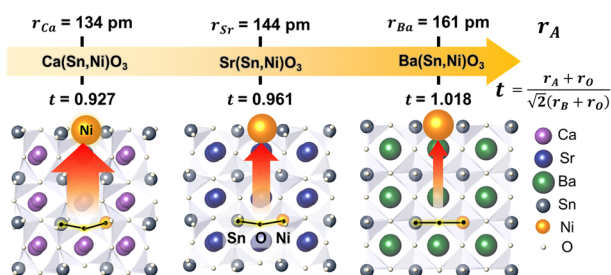
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### LCST ion gels fabricating "all-in-one" smart windows: thermotropic, electrochromic and power-generating

Yue Ma, Yunbo Wang, Junyu Zhou, Yueyang Lan, Sheng Jiang, Yifan Ge, Shuai Tan, Shiguo Zhang, Caihong Wang\* and Yong Wu

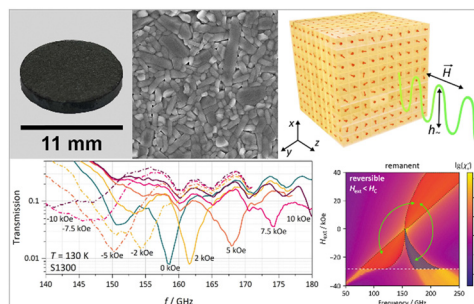
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### Accelerating metal nanoparticle exsolution by exploiting tolerance factor of perovskite stannate

Yujeong Lee, Daseob Yoon, Yeon-Seo Nam, Sangbae Yu, Chaesung Lim, Hyeji Sim, Yunkyu Park, Jeong Woo Han,\* Si-Young Choi\* and Junwoo Son\*

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### Tunable sub-terahertz resonance absorption in high-coercivity magnetodielectric ceramics

Evgeny A. Gorbachev,\* Liudmila N. Alyabyeva, Artem V. Pronin, Alexandra S. Sultanovskaya, Ekaterina S. Kozlyakova, Oxana V. Magdysyuk, Ilya V. Roslyakov, Martin Dressel, Boris P. Gorshunov and Lev A. Trusov\*

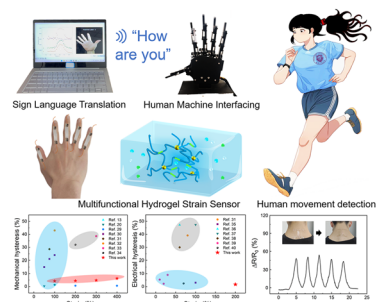




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### Low hysteresis, water retention, anti-freeze multifunctional hydrogel strain sensor for human–machine interfacing and real-time sign language translation

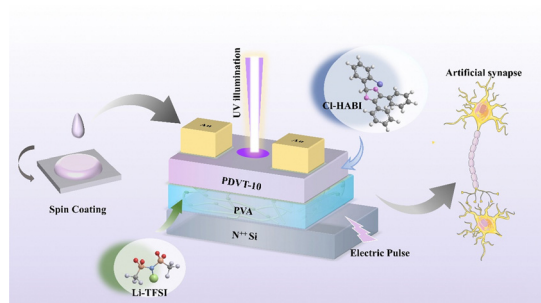
Lijuan Zhou, Bin Zhao, Jingye Liang, Fangying Lu, Weiping Yang, Jishuai Xu, Jingxuan Zheng, Yong Liu,\* Run Wang\* and Zunfeng Liu



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### A high-performance organic lithium salt-doped OFET with the optical radical effect for photoelectric pulse synaptic simulation and neuromorphic memory learning

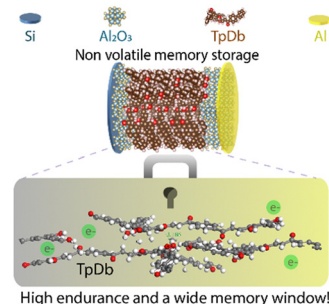
Yujiao Li, Gang He,\* Wenhao Wang, Can Fu, Shanshan Jiang, Elvira Fortunato and Rodrigo Martins



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### A carbonyl-decorated two-dimensional polymer as a charge-trapping layer for non-volatile memory storage devices with a high endurance and wide memory window

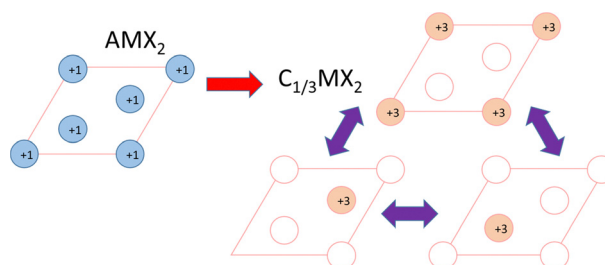
Ruba Al-Ajeil, Abdul Khayum Mohammed, Pratibha Pal, Matthew A. Addicoat, Surabhi Suresh Nair, Dayanand Kumar, Abdul Momin Syed, Ayman Rezk, Nirpendra Singh, Ammar Nayfeh, Nazek El-Atab\* and Dinesh Shetty\*



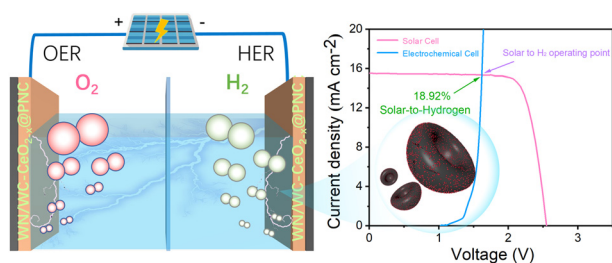
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### Quantized ferroelectricity in multivalent ion conductors with non-polar point groups

Xuechen Wang and Menghao Wu\*



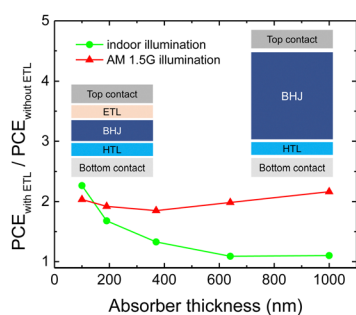
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### Treasure-bowl style bifunctional site in cerium–tungsten hetero-clusters for superior solar-driven hydrogen production

Pengliang Sun, Eduardo Gracia-Espino, Fang Tan, Hua Zhang, Qingquan Kong, Guangzhi Hu\* and Thomas Wågberg\*

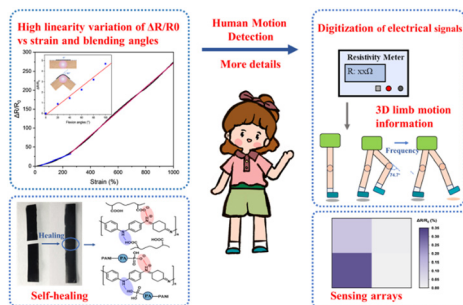
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### Organic indoor PV: vanishing surface recombination allows for robust device architecture

Xueshi Jiang,\* Bernhard Siegmund\* and Koen Vandewal\*

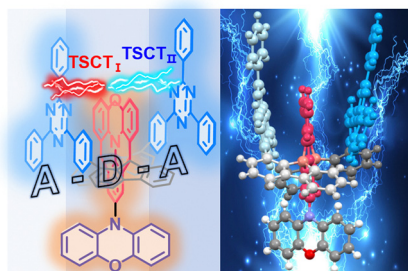
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### A stretchable conductive elastomer sensor with self-healing and highly linear strain for human movement detection and pressure response

Yao Zhang, Yizhong Yuan,\* Huimei Yu,\* Chunhua Cai, Jinyu Sun and Xiaohui Tian

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### Intramolecular exciplex featuring a bis- $sp^3$ C-locked acceptor–donor–acceptor sandwich

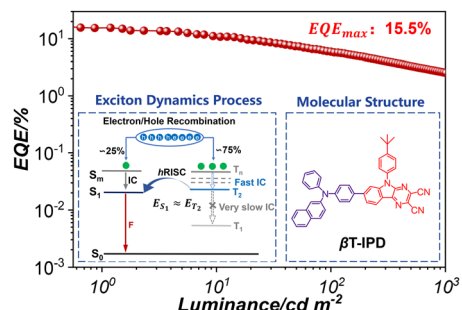
Feng-Ming Xie, Han-Yang Wang, Hao-Ze Li, Kai Zhang, Yang Shen, Jianhua Zou, Yan-Qing Li\* and Jian-Xin Tang\*



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### Optimizing the energy level alignment for achieving record-breaking efficiency in hot exciton deep red OLEDs

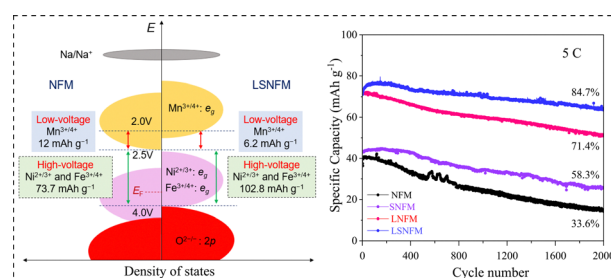
Yujie Wu, Jiasen Zhang, Deli Li, Songyu Du, Xilin Mu, Chunyu Liu, Kaibo Fang, Tingting Feng, Tao Wang, Wei Li\* and Ziyi Ge\*



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### Realizing long-term cycling stability of O3-type layered oxide cathodes for sodium-ion batteries

Guohua Zhang, Yuheng Gao, Ping Zhang, Yuheng Gao, Jingrong Hou, Xuemin Shi, Jiwei Ma, Renyuan Zhang\* and Yunhui Huang\*



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### New insights into pure zwitterionic hydrogels with high strength and high toughness

Haiyan Yin, Min You, Xinlei Shi, Hui Yu and Qiang Chen\*

