

# Materials Horizons

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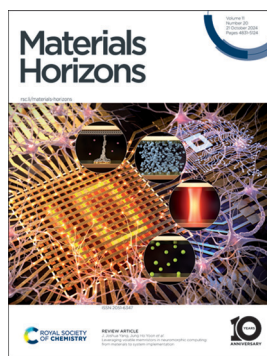
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See Marcin Runowski, Sebastian Mahlik *et al.*, pp. 4911–4924. Image reproduced by permission of Marcin Runowski from *Mater. Horiz.*, 2024, 11, 4911.



### Inside cover

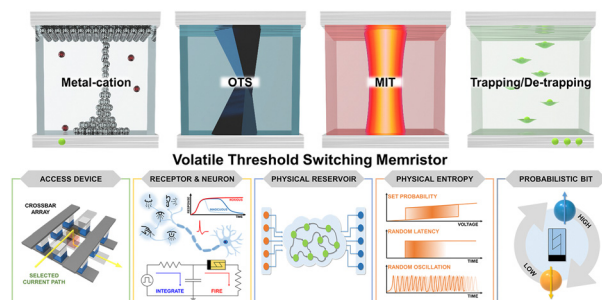
See J. Joshua Yang, Jung Ho Yoon *et al.*, pp. 4840–4866. Image reproduced by permission of Jung Ho Yoon from *Mater. Horiz.*, 2024, 11, 4840.

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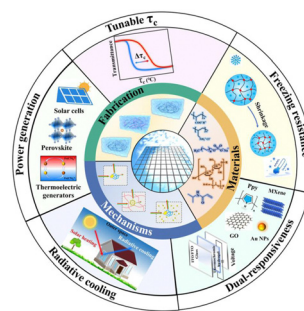
Taehwan Moon, Keunho Soh, Jong Sung Kim, Ji Eun Kim, Suk Yeop Chun, Kyungjune Cho, J. Joshua Yang\* and Jung Ho Yoon\*



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### Thermochromic hydrogel-based energy efficient smart windows: fabrication, mechanisms, and advancements

Gang Xu, Yucan Lu, Xinguantong Zhou, Nosipho Moloto, Jiacheng Liu, Song-Zhu Kure-Chu, Takehiko Hihara, Wei Zhang\* and ZhengMing Sun\*



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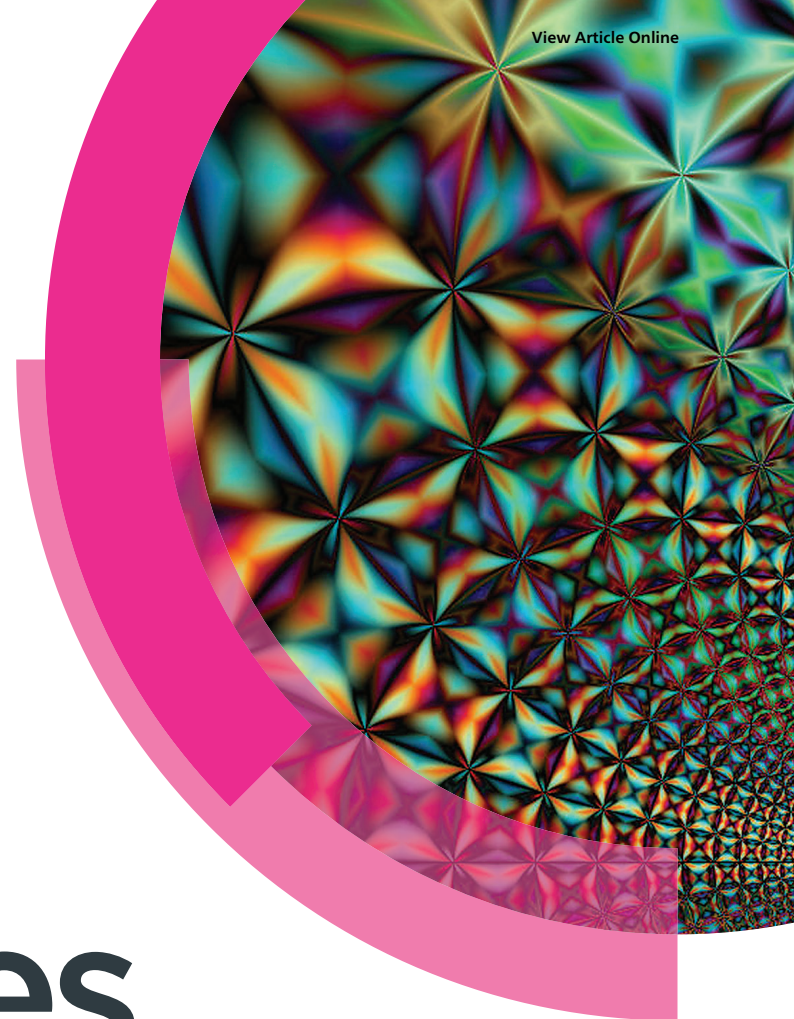


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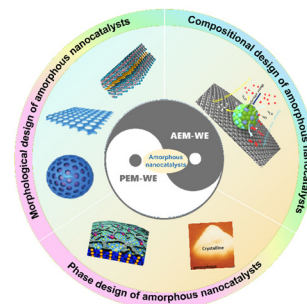


## REVIEWS

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## Unveiling the potential of amorphous nanocatalysts in membrane-based hydrogen production

Yifei Liu, Qi Hu,\* Xiuyi Yang\* and Jianxin Kang\*

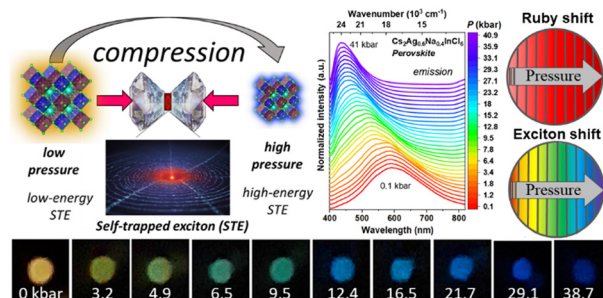


## COMMUNICATIONS

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## Supersensitive visual pressure sensor based on the exciton luminescence of a perovskite material

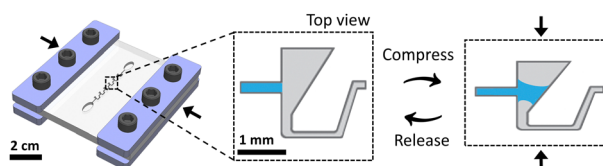
Marcin Runowski,\* Przemysław Woźny, Kevin Soler-Carracedo, Agata Lazarowska, Mikotaj Kamiński, Natalia Majewska, Alfonso Muñoz, Jan Moszczyński, Szymon Sobczak, Kashyap Dave, Wen-Tse Huang, Ru-Shi Liu and Sebastian Mahlik\*



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## Liquid Zener diodes

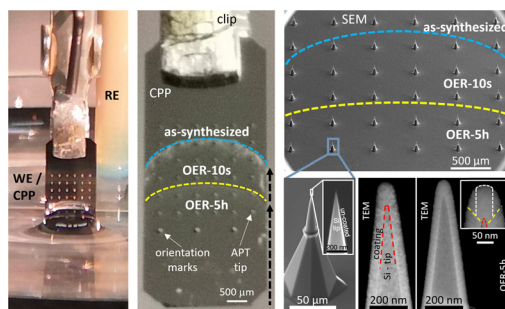
Camilla Sammartino and Bat-El Pinchasik\*



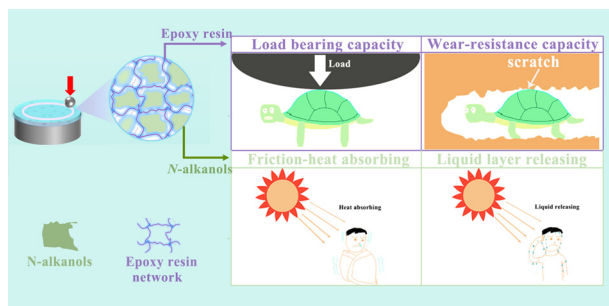
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## Self-formation of compositionally complex surface oxides on high entropy alloys observed by accelerated atom probe tomography: a route to sustainable catalysts

Valerie Strotkötter, Yujiao Li, Aleksander Kostka, Florian Lourens, Tobias Löffler, Wolfgang Schuhmann and Alfred Ludwig\*



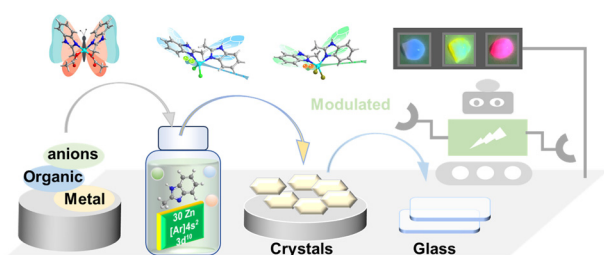
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### Friction heat-driven robust self-lubricity of *n*-alkanols/epoxy resin coatings enabled by solid–liquid phase transition

Hao Li,\* Cheng Cao, Yuting Li, Xiaoqiang Fan, Junhui Sun\* and Minhao Zhu

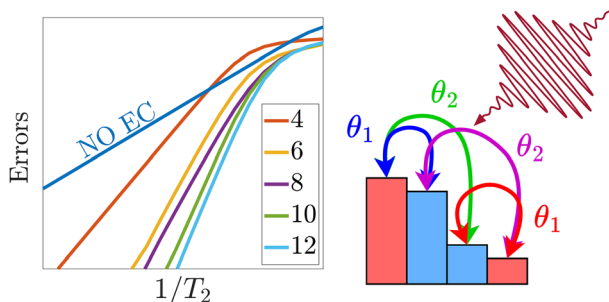
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### The trade-off anionic modulation in metal–organic glasses showing color-tunable persistent luminescence

Tianhong Chen, Yu-Juan Ma, Guowei Xiao, Xiaoyu Fang, Yumin Liu, Kangjing Li and Dongpeng Yan\*

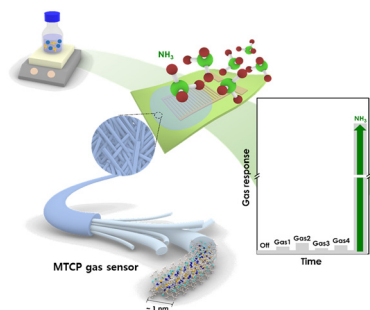
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### Fault-tolerant computing with single-qudit encoding in a molecular spin

Matteo Mezzadri, Alessandro Chiesa, Luca Lepori and Stefano Carretta\*

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### Single stranded 1D-helical Cu coordination polymer for ultra-sensitive ammonia sensing at room temperature

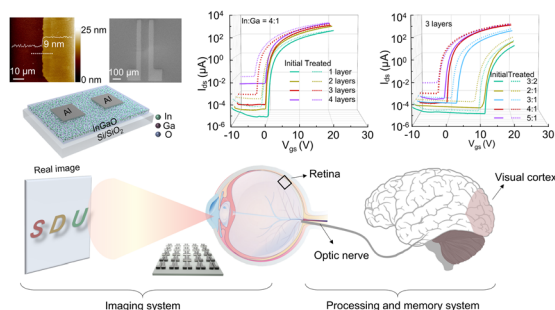
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## Tunable synaptic behaviors of solution-processed InGaO films for artificial visual systems

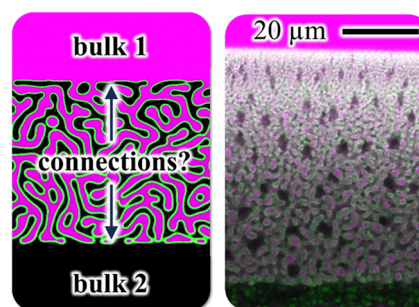
Pengsheng Li, Honglin Song, Zixu Sa, Fengjing Liu,\*  
Mingxu Wang, Guangcan Wang, Junchen Wan,  
Zeqi Zang, Jie Jiang\* and Zai-xing Yang\*



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## Dual access to the fluid networks of colloid-stabilized bicontinuous emulsions through uninterrupted connections

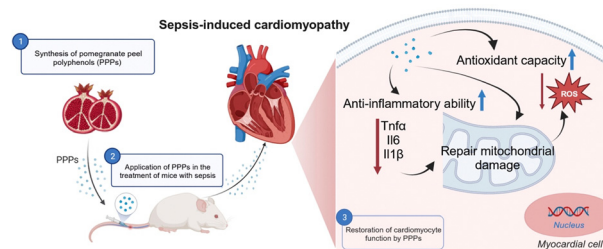
Mariska de Ruiter, Meyer T. Alting, Henrik Siegel and  
Martin F. Haase\*



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## Biogenic derived nanoparticles modulate mitochondrial function in cardiomyocytes

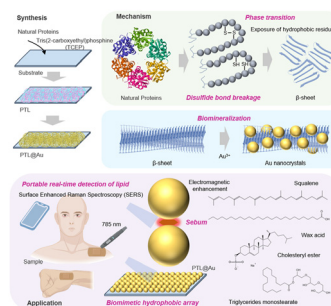
Xiaolan Zheng, Tianyou Wang, Jixing Gong, Peng Yang,  
Yulin Zhang, Yue Zhang, Nan Cao, Kaiyu Zhou, Yiwen Li,  
Yimin Hua, Donghui Zhang,\* Zhipeng Gu\* and Yifei Li\*



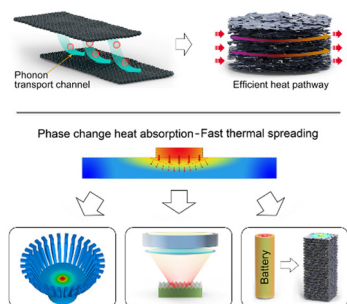
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## Mineralized aggregates based on native protein phase transition for non-destructive diagnosis of seborrheic skin by surface-enhanced Raman spectroscopy

Hao Liu, Zhiming Liu, Hao Zhang, Ke Huang, Xiaohui Liu,  
Hui Jiang\* and Xuemei Wang\*



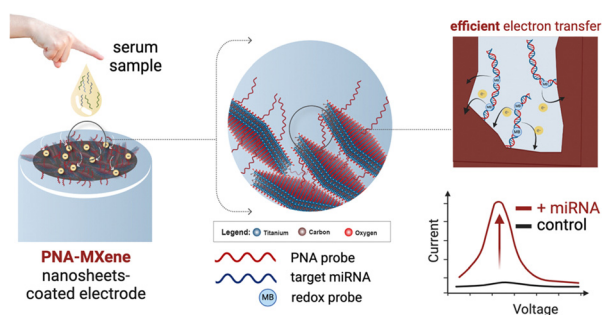
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### van der Waals-bonded graphene clusters enhance thermal conductivity of phase-change materials for advanced thermal energy management

Liwen Sun, Yandong Wang, Lu Chen, Junfeng Ying, Qiuyu Li, Li Fu, Qingwei Yan, Kai Wu, Chen Xue,\* Jinhong Yu, Nan Jiang, Kazuhito Nishimura, Cheng-Te Lin\* and Wen Dai\*

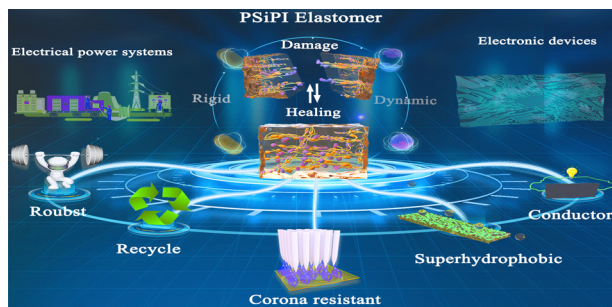
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### Peptide nucleic acid-clicked $Ti_3C_2T_x$ MXene for ultrasensitive enzyme-free electrochemical detection of microRNA biomarkers

Muhsin Ali, Erol Hasan, Sharat Chandra Barman, Mohamed Nejib Hedhili, Husam N. Alshareef and Dana Alsulaiman\*

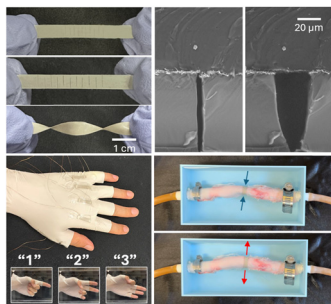
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### High toughness, healable, self-cleaning polydimethylsiloxane elastomers with "rigid-while-flexible" mutual network structure

Xing Yang, Jiawen Ren, Baoquan Wan, Sichen Qin,\* Qian Wang, Wenjie Huang, Jinghui Gao, Bing Xia and Jun-Wei Zha\*

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### Encapsulated stretchable amphibious strain sensors

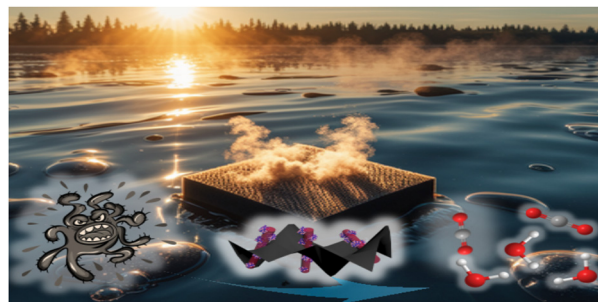
Shuang Wu, Doyun Kim, Xiaoqi Tang, Martin W. King and Yong Zhu\*



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### Monolith floatable dual-function solar photothermal evaporator: efficient clean water regeneration synergizing with pollutant degradation

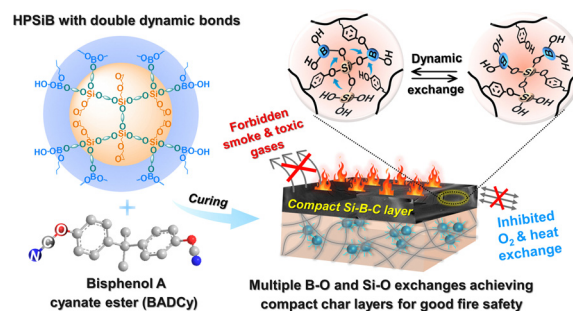
Hongyao Zhao, Danhong Shang, Haodong Li, Marliyana Aizudin, Hongyang Zhu, Xiu Zhong, Yang Liu, Zhenxiao Wang, Ruiting Ni, Yanyun Wang, Sheng Tang, Edison Huixiang Ang\* and Fu Yang\*



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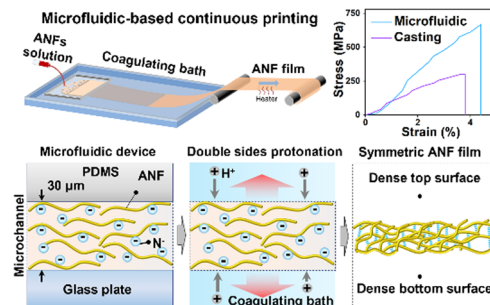
Rui Liu, Yifeng Zhang, Zheng Li, Rui Wang and Hongxia Yan\*



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Xiao Chen, Jiaqing Su, Sha Cheng, Cheng Huang, Chunxia Zhao, Chao Teng\* and Pengchao Zhang\*



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Nirmiti Mate, Kallayi Nabeela, Gopika Preethikumar, Saju Pillai\* and Shaikh M. Mobin\*

