

Materials Horizons

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Cover

See Hu Zhang *et al.*,
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2024, **11**, 2603.

EDITORIAL

2539

Materials Horizons Emerging Investigator Series:
**Professor Jingjing Duan, Nanjing University of
Science and Technology, China**

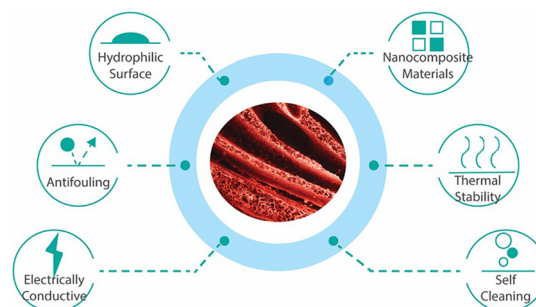


COMMENTARY

2540

**A reflection on 'Highly dispersible polypyrrole
nanospheres for advanced nanocomposite
ultrafiltration membranes'**

Cheng-Wei Lin and Richard B. Kaner*



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Fundamental questions
Elemental answers

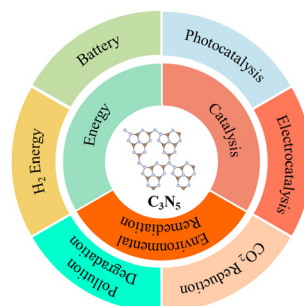


REVIEWS

2545

C₃N₅-based nanomaterials and their applications in heterogeneous catalysts, energy harvesting, and environmental remediation

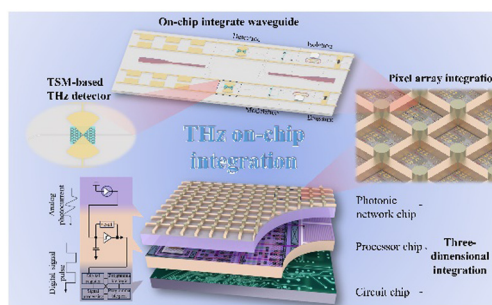
Linfeng Xiao, Sanshuang Gao, Runhua Liao,*
Yingtang Zhou,* Qingquan Kong and Guangzhi Hu*



2572

Two-dimensional topological semimetals: an emerging candidate for terahertz detectors and on-chip integration

Yun Li, Wenzhi Yu, Kai Zhang, Nan Cui, Tinghe Yun,
Xue Xia, Yan Jiang, Guangyu Zhang, Haoran Mu* and
Shenghuang Lin*

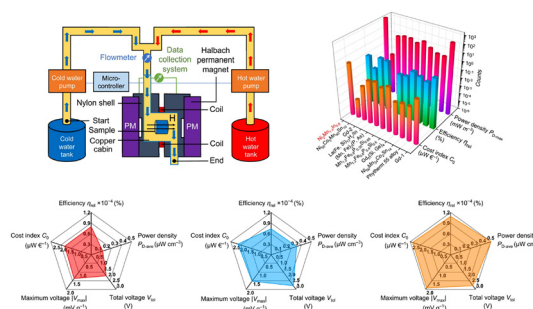


COMMUNICATIONS

2603

Excellent thermomagnetic power generation for harvesting waste heat via a second-order ferromagnetic transition

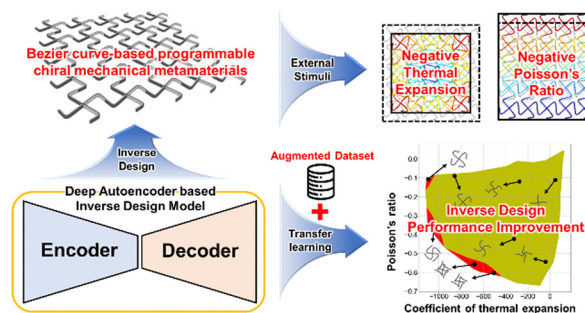
Haodong Chen, Xianliang Liu, Yao Liu, Longlong Xie,
Ziyuan Yu, Kaiming Qiao, Mingze Liu, Fengxia Hu,
Baogen Shen, R. V. Ramanujan, Ke Chu and Hu Zhang*



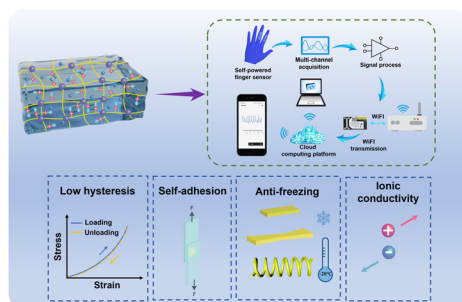
2615

Inverse design of Bézier curve-based mechanical metamaterials with programmable negative thermal expansion and negative Poisson's ratio via a data augmented deep autoencoder

Min Woo Cho, Keon Ko, Majid Mohammadhosseinzadeh,
Ji Hoon Kim, Dong Yong Park, Da Seul Shin* and
Sang Min Park*



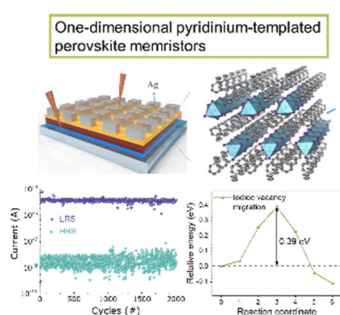
2628



Low hysteresis zwitterionic supramolecular polymer ion-conductive elastomers with anti-freezing properties, high stretchability, and self-adhesion for flexible electronic devices

Hongying Wang, Baocheng Liu, Danyang Chen, Zhuoya Wang, Haolun Wang, Siyu Bao, Ping Zhang,* Jianhai Yang* and Wenguang Liu

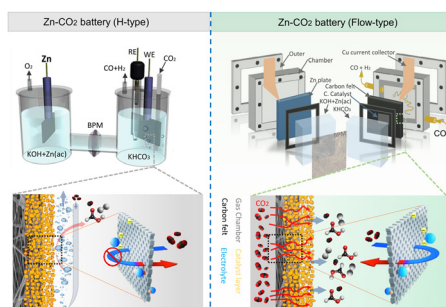
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High-performance one-dimensional halide perovskite crossbar memristors and synapses for neuromorphic computing

Sujaya Kumar Vishwanath,* Benny Febriansyah, Si En Ng, Tisita Das, Jyotibdha Acharya, Rohit Abraham John, Divyam Sharma, Putu Andhita Dananjaya, Metikoti Jagadeeswararao, Naveen Tiwari, Mohit Ramesh Chandra Kulkarni, Wen Siang Lew, Sudip Chakraborty,* Arindam Basu and Nripan Mathews*

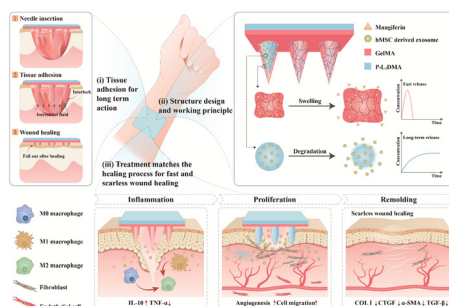
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Unlock flow-type reversible aqueous Zn-CO₂ batteries

Muhammad Kashif Aslam, Herui Wang, Zhihao Nie, Sheng Chen, Qiang Li* and Jingjing Duan*

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A differential-targeting core-shell microneedle patch with coordinated and prolonged release of mangiferin and MSC-derived exosomes for scarless skin regeneration

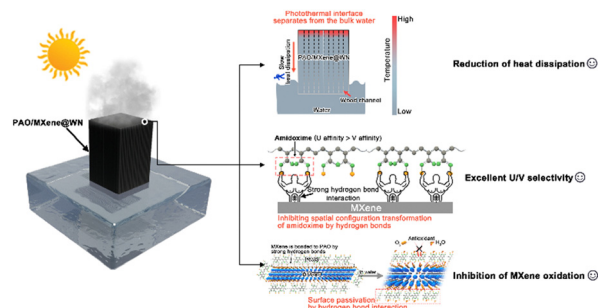
Shang Lyu, Qi Liu, Ho-Yin Yuen, Huizhi Xie, Yuhe Yang, Kelvin Wai-Kwok Yeung, Chak-yin Tang, Shuqi Wang, Yaxiong Liu, Bin Li,* Yong He* and Xin Zhao*



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Achieving ultrahigh uranium/vanadium selectivity of poly(amidoxime) *via* coupling MXene-enabled strong intermolecular interaction and separated photothermal interface

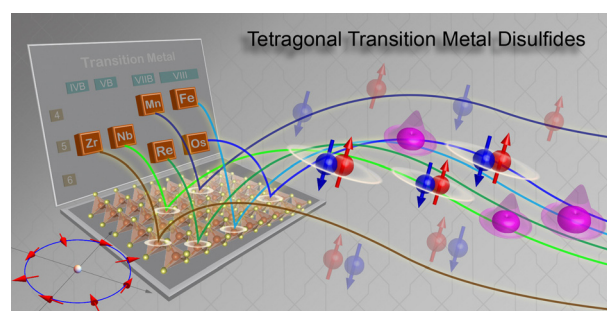
Hao Ye, Ming-Bang Wu,* Qi-Hui Ye, Rou-Ming Wen, Zhang-Ting Hu, Juming Yao* and Chao Zhang*



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Prediction of superconductivity in a series of tetragonal transition metal dichalcogenides

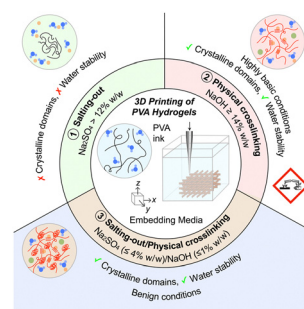
Jiale Liu, Huidong Wang, Xiaojun Shi and Xiaoming Zhang*



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3D printing of polyvinyl alcohol hydrogels enabled by aqueous two-phase system

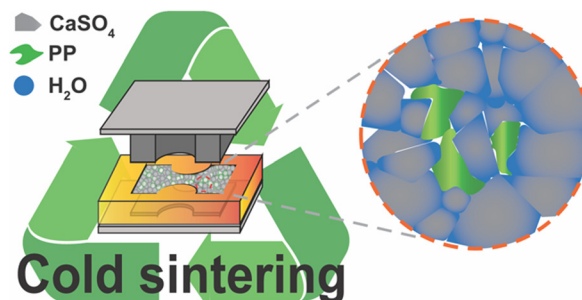
Rahul Karyappa, Nidhi Nagaraju, Kento Yamagishi, Xue Qi Koh, Qiang Zhu and Michinao Hashimoto*



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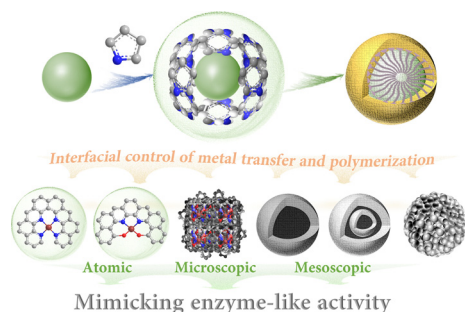
Upcycling plastic waste into fully recyclable composites through cold sintering

Po-Hao Lai, Shelby L. Hall, Yi-Chen Lan, Jia-Ruey Ai, Arian Jaber, Amir Sheikhi, Rui Shi, Bryan D. Vogt* and Enrique D. Gomez*



COMMUNICATIONS

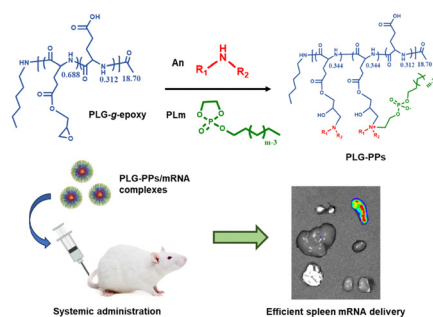
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Linking atomic to mesoscopic scales in multilevel structural tailoring of single-atom catalysts for peroxide activation

Li Yu,* Shaosong Xin, Yuchan Li and Hsien-Yi Hsu

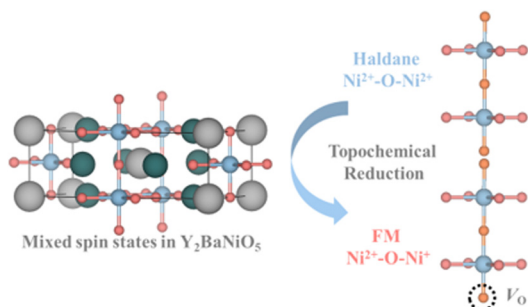
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A polyamino acid-based phosphatidyl polymer library for *in vivo* mRNA delivery with spleen targeting ability

Hanqin Zhao, Sheng Ma, Yibo Qi, Yuxi Gao, Yuyan Zhang, Minhui Li, Jie Chen, Wantong Song* and Xuesi Chen*

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Spin-degree manipulation for one-dimensional room-temperature ferromagnetism in a haldane system

Pengfei Tan, Chuanhui Zhu, Xiaosheng Ni, Han-Qing Wu, Shuang Zhao, Tao Xia, Jinjin Yang, Tao Han, Mei-Huan Zhao, Yifeng Han, Yuanhua Xia, Zheng Deng, Muwei Wu, Dao-Xin Yao* and Man-Rong Li*

CORRECTION

2759

Correction: A differential-targeting core-shell microneedle patch with coordinated and prolonged release of mangiferin and MSC-derived exosomes for scarless skin regeneration

Shang Lyu, Qi Liu, Ho-Yin Yuen, Huizhi Xie, Yuhe Yang, Kelvin Wai-Kwok Yeung, Chak-yin Tang, Shuqi Wang, Yaxiong Liu, Bin Li,* Yong He* and Xin Zhao*

