

Materials Horizons

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ISSN 2051-6347 CODEN MHAOAL 11(18) 4227-4522 (2024)



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See Bhagya Dharmasiri, Luke C. Henderson *et al.*, pp. 4321–4328. Image reproduced by permission of Luke Henderson from *Mater. Horiz.*, 2024, 11, 4321.

EDITORIAL

4237

Materials Horizons Emerging Investigator Series: Dr Bhagya Dharmasiri, Deakin University, Australia

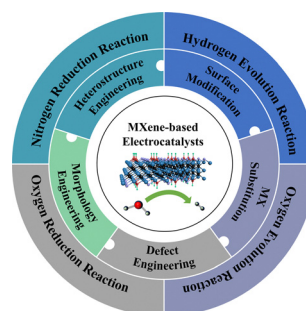


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Advances and challenges in MXene-based electrocatalysts: unlocking the potential for sustainable energy conversion

Lei He, Haizheng Zhuang, Qi Fan, Ping Yu, Shengchao Wang, Yifan Pang, Ke Chen and Kun Liang*



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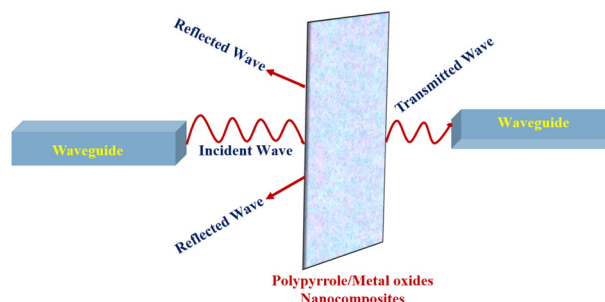
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REVIEWS

4256

Exploring the efficacy and future potential of polypyrrole/metal oxide nanocomposites for electromagnetic interference shielding: a review

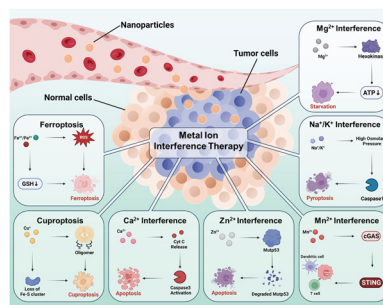
Yuvika Sood, Harish Mudila, Pankaj Chamoli, Parveen Saini* and Anil Kumar*



4275

Metal ion interference therapy: metal-based nanomaterial-mediated mechanisms and strategies to boost intracellular "ion overload" for cancer treatment

Yutang Li, Yandong Wang, Li Zhao, Martina H. Stenzel* and Yanyan Jiang*

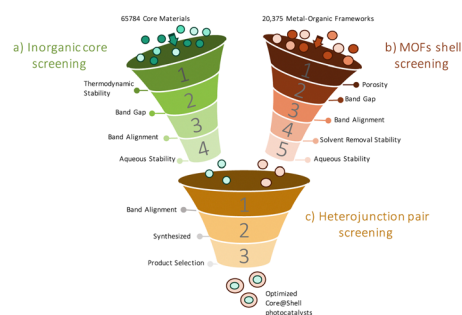


COMMUNICATIONS

4311

High-throughput screening of nano-hybrid metal-organic-frameworks for photocatalytic CO₂ reduction

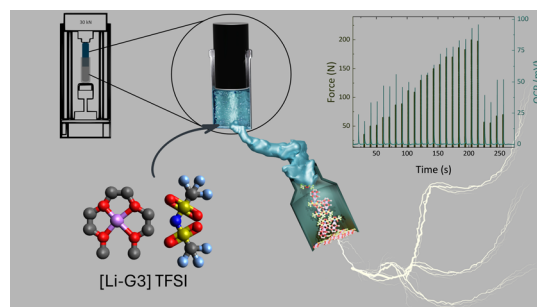
Moin Khwaja and Takuya Harada*



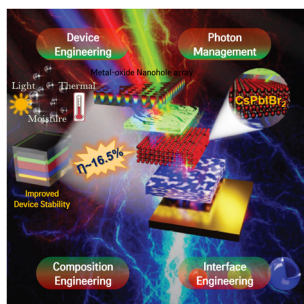
4321

From stress to charge: investigating the piezoelectric response of solvate ionic liquid in structural energy storage composites

Žan Simon, Bhagya Dharmasiri,* Timothy Harte, Peter C. Sherrell and Luke C. Henderson*



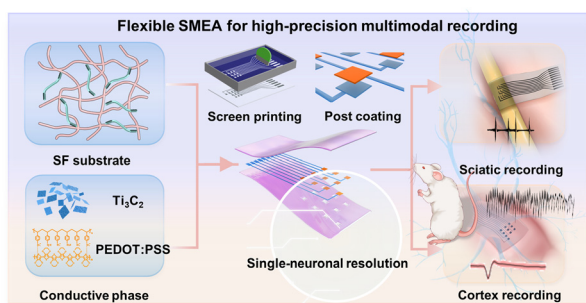
4329



Revealing the full potential of CsPbI₂Br₂ perovskite solar cells: advancements towards enhanced performance

Mohammad Ismail Hossain,* Md. Shahiduzzaman,* Junayed Hossain Rafij, Asman Tamang, Md. Akhtaruzzaman, Almohamadi Hamad, Jamal Uddin, Nowshad Amin, Jean-Michel Nunzi and Tetsuya Taima

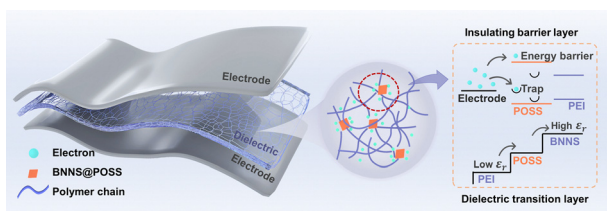
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Flexible silk-fibroin-based microelectrode arrays for high-resolution neural recording

Jie Ding, Mingze Zeng, Yuan Tian, Zhihong Chen, Zi Qiao, Zhanwen Xiao, Chengheng Wu, Dan Wei,* Jing Sun and Hongsong Fan*

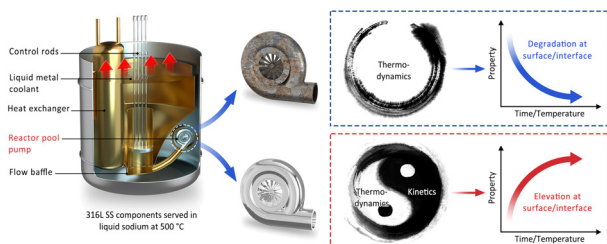
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Enhancing the high-temperature energy storage properties of PEI dielectrics by constructing trap-rich covalently cross-linked networks via POSS-functionalized BNNS

Yijie Zhou, Zongwu Zhang, Qiufan Tang, Xiaoyan Ma* and Xiao Hou

4359



A self-organized sandwich structure of chromium nitride for ultra-long lifetime in liquid sodium

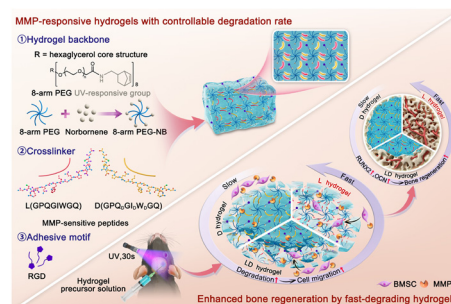
Ming Lou, Ran Chen, Kai Xu, Jibin Pu* and Keke Chang*



4367

Injectable hydrogels for bone regeneration with tunable degradability *via* peptide chirality modification

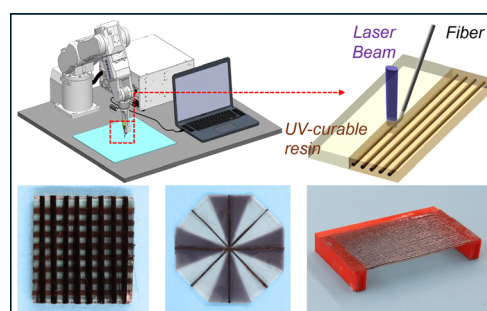
Weikai Chen, Shihao Sheng, Kai Tan, Sicheng Wang, Xiang Wu, Jiayi Yang, Yan Hu, Liehu Cao, Ke Xu, Fengjin Zhou,* Jiacan Su,* Qin Zhang* and Lei Yang*



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Embedded 3D printing of UV-curable thermosetting composites with continuous fiber

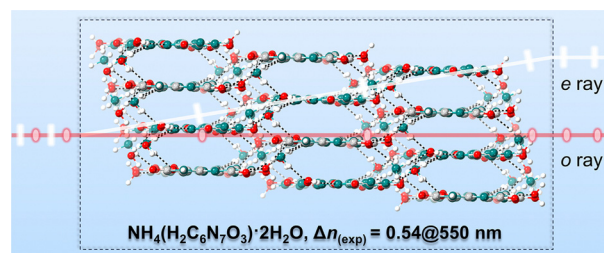
Yuchen Ding, Alston X. Gracego, Yuanrui Wang, Guoying Dong, Martin L. Dunn* and Kai Yu*



4393

A highly birefringent metal-free crystal assembled by cooperative non-covalent interactions

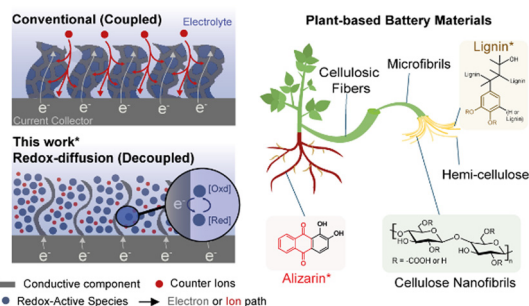
Yanqiang Li, Yang Zhou, Belal Ahmed, Qianting Xu, Weiqi Huang, Yipeng Song, Xianyu Song, Bin Chen, Junhua Luo and Sangen Zhao*



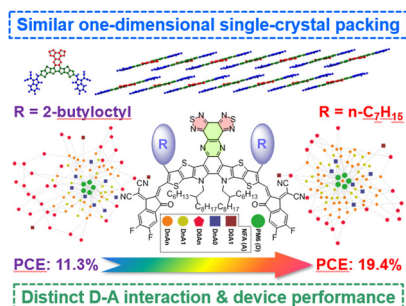
4400

Stretchable and biodegradable plant-based redox-diffusion batteries

Aiman Rahmanudin,* Mohsen Mohammadi, Patrik Isacson, Yuyang Li, Laura Seufert, Nara Kim, Saeed Mardi, Isak Engquist, Reverant Crispin and Klas Tybrandt*



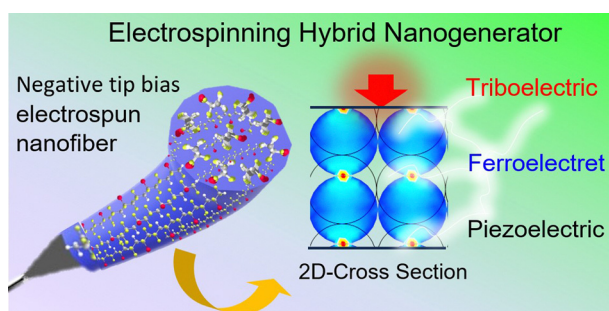
4413



The anti-correlation effect of alkyl chain size on the photovoltaic performance of centrally extended non-fullerene acceptors

Tainan Duan, Jia Wang, Xiaochan Zuo, Xingqi Bi, Cheng Zhong,* Yulu Li, Yuhong Long, Kaihui Tu, Weichao Zhang, Ke Yang, Huiqiong Zhou, Xiangjian Wan, Yan Zhao,* Bin Kan* and Yongsheng Chen*

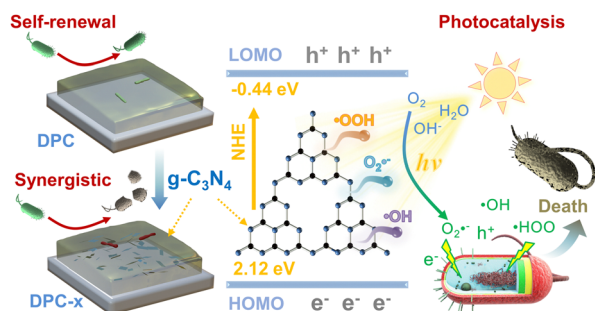
4424



Electrospun polarity-controlled molecular orientation for synergistic performance of an artifact-free piezoelectric anisotropic sensor

Ajay Kumar, Varun Gupta, Pinki Malik, Shanker Ram and Dipankar Mandal*

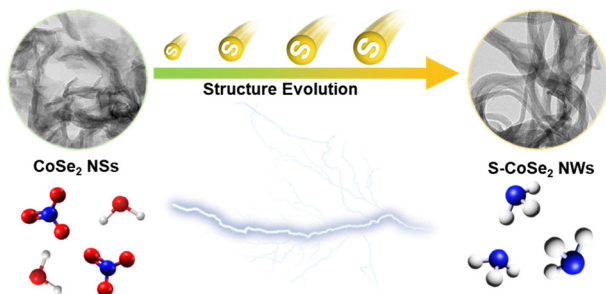
4438



Designing a photocatalytic and self-renewed g-C₃N₄ nanosheet/poly-Schiff base composite coating towards long-term biofouling resistance

Saijun Wu, Minglong Yan,* Yinghao Wu, Yangmin Wu, Xijian Lan, Jianjun Cheng and Wenjie Zhao*

4454



Sulfur-regulated CoSe₂ nanowires with high-charge active centers for electrochemical nitrate reduction to ammonium

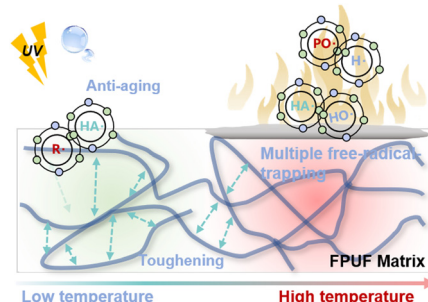
Wuyong Zhang, Yingjie Wen, Haocheng Chen, Minli Wang, Caihan Zhu, Yunan Wang* and Zhiyi Lu*



4462

Multiple free-radical-trapping and hydrogen-bonding-enhanced polyurethane foams with long-lasting flame retardancy, aging resistance, and toughness

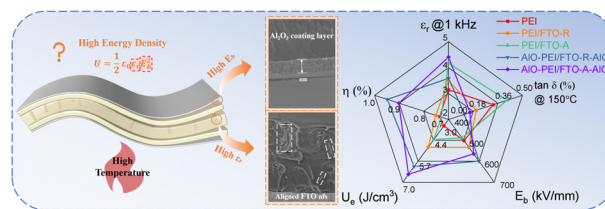
Lei He, Ming-Jun Chen,* Fu-Rong Zeng, Ting Wang, Wei-Luo, Dan-Xuan Fang, Shuai-Qi Guo, Cong Deng, Hai-Bo Zhao* and Yu-Zhong Wang*



4472

Magnetic-assisted alignment of nanofibers in a polymer nanocomposite for high-temperature capacitive energy storage applications

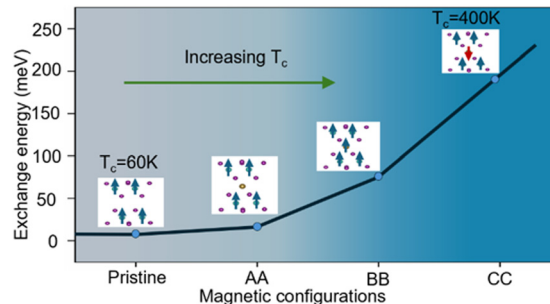
Zhi Li, Jian Wang, Junjie Zou, Shuxuan Li, Xin Zhen, Zhonghui Shen, Baowen Li, Xin Zhang* and Ce-Wen Nan*



4482

Enhancement of interlayer exchange coupling via intercalation in 2D magnetic bilayers: towards high Curie temperature

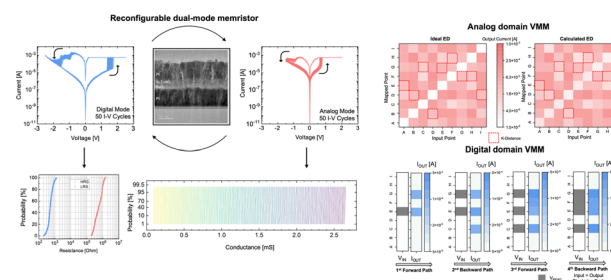
Suman Mishra, In Kee Park, Saqib Javaid, Seung Hwan Shin* and Geunsiik Lee*



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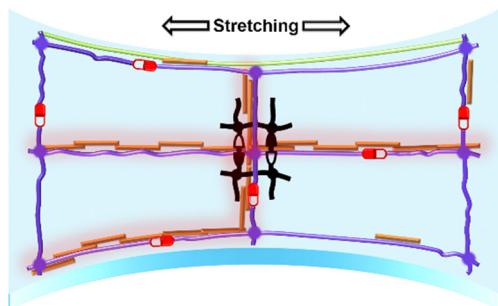
Heterogeneous density-based clustering with a dual-functional memristive array

Dong Hoon Shin, Sunwoo Cheong, Soo Hyung Lee, Yoon Ho Jang, Taegyun Park, Janguk Han, Sung Keun Shim, Yeong Rok Kim, Joon-Kyu Han, In Kyung Baek, Néstor Ghenzi* and Cheol Seong Hwang*



COMMUNICATIONS

4507

**Highly flexible yet strain-insensitive conjugated polymer**

Wen Wen Deng, Ze Ping Zhang,* Min Zhi Rong* and Ming Qiu Zhang*

CORRECTION

4519

Correction: 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*

