

Materials Horizons

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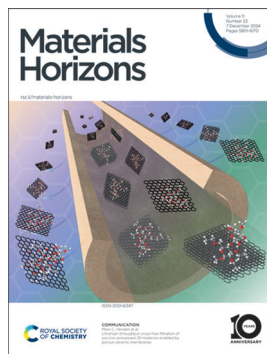
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See Néstor Ghenzi, Cheol Seong Hwang *et al.*, pp. 5946–5959. Image reproduced by permission of Cheol Seong Hwang from *Mater. Horiz.*, 2024, **11**, 5946.



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See Mark C. Hersam *et al.*, pp. 5960–5971. Image reproduced by permission of Mark C. Hersam from *Mater. Horiz.*, 2024, **11**, 5960.

EDITORIAL

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Materials Horizons Emerging Investigator Series:
Dr Muhammad Zubair and Dr Muhammad Qasim Mehmood, Information Technology University of the Punjab, Pakistan

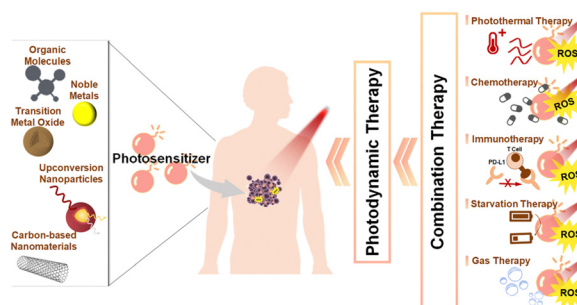


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Photodynamic therapy with NIR-II probes: review on state-of-the-art tools and strategies

Yiqian Yang, Shaohua Jiang, Stefan G. Stanciu, Hao Peng,* Aiguo Wu* and Fang Yang*



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REVIEWS

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A review of advanced helical fibers: formation mechanism, preparation, properties, and applications

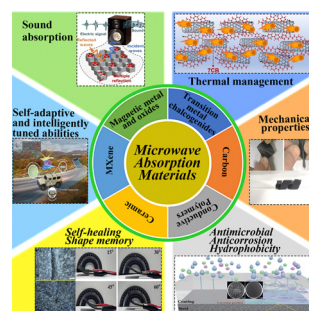
Minmin Ding, Xiuling Yang, Yanbo Liu,* Shiyi Zeng, Gaigai Duan,* Yong Huang, Zhao Liang,* Peng Zhang, Jian Ji and Shaohua Jiang*



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Multifunctional microwave absorption materials: construction strategies and functional applications

Junxiong Xiao, Mukun He, Beibei Zhan, Hua Guo, Jing-liang Yang, Yali Zhang, Xiaosi Qi* and Junwei Gu*



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Visible-light-excited organic room temperature phosphorescence

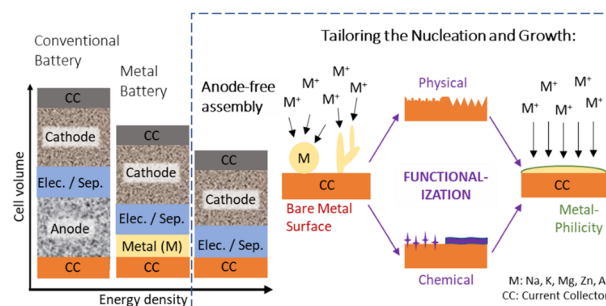
Longqiang Li, Depeng Liu, Jiayin Zhou, Min Qi, Guangqiang Yin* and Tao Chen*



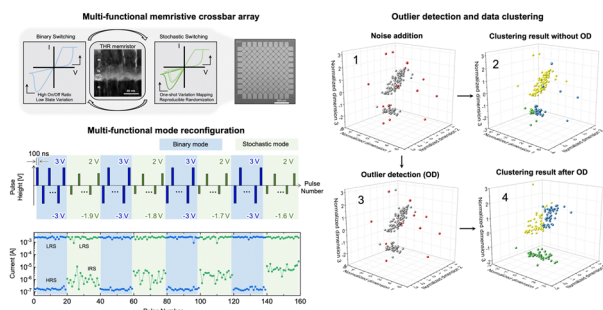
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Anode-free post-Li metal batteries

Deik Petersen, Monja Gronenberg, German Lener, Ezequiel P. M. Leiva, Guillermina L. Luque,* Sasan Rostami, Andrea Paoletta, Bing Joe Hwang, Rainer Adelung and Mozaffar Abdollahifar*



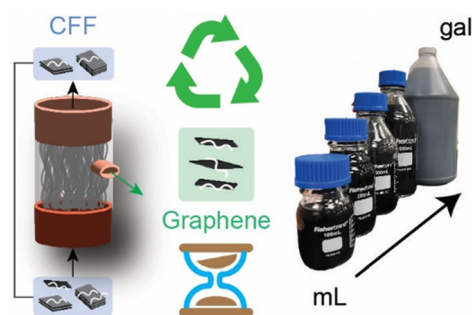
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Hyperplane tree-based data mining with a multi-functional memristive crossbar array

Sunwoo Cheong, Dong Hoon Shin, Soo Hyung Lee, Yoon Ho Jang, Janguk Han, Sung Keun Shim, Joon-Kyu Han, Néstor Ghenzi* and Cheol Seong Hwang*

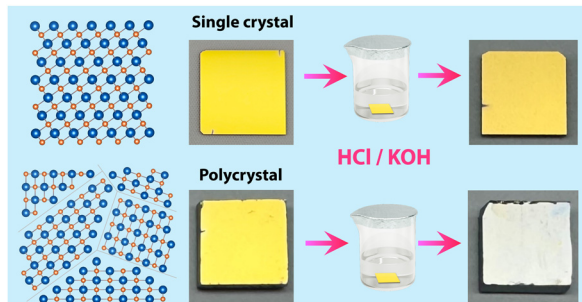
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Ultrahigh-throughput cross-flow filtration of solution-processed 2D materials enabled by porous ceramic membranes

Santiago Diaz-Arauzo, Julia R. Downing, Daphne Tsai, Jenna Trost, Janan Hui, Kevin Donahue, Nick Antonopoulos, Lindsay E. Chaney, Jennifer B. Dunn and Mark C. Hersam*

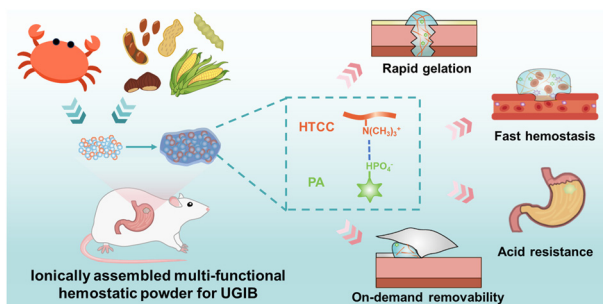
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High resistance of superconducting TiN thin films against environmental attacks

Zhangyuan Guo, Min Ge, You-Qi Zhou, Jiachang Bi,* Qinghua Zhang, Jiahui Zhang, Jin-Tao Ye, Rongjing Zhai, Fangfang Ge, Yuan Huang, Ruyi Zhang, Xiong Yao, Liang-Feng Huang* and Yanwei Cao*

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Ionically assembled hemostatic powders with rapid self-gelation, strong acid resistance, and on-demand removability for upper gastrointestinal bleeding

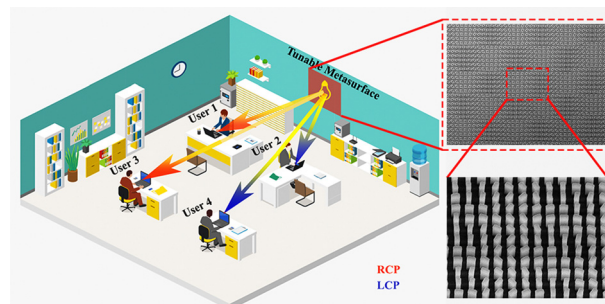
Ashuang Liu, Zhimao Huang, Shengyong Cui, Ying Xiao, Xiangshu Guo, Gaoke Pan, Lei Song, Junjie Deng, Ting Xu, Youfen Fan and Rong Wang*



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Fluid-responsive tunable metasurfaces for high-fidelity optical wireless communication

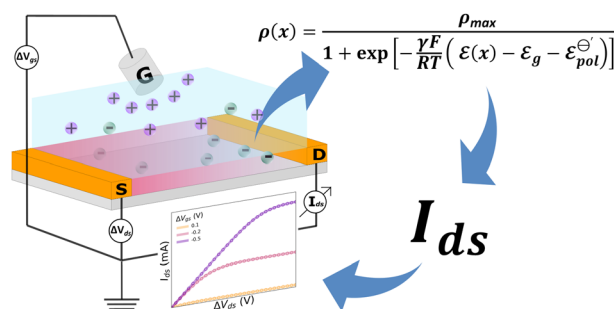
Ramna Khalid, Qing Yang Steve Wu, Nasir Mahmood, Jie Deng, Arash Nemati, Kandammathe Valiyaveedu Sreekanth, Humberto Cabrera, Muhammad Qasim Mehmood,* Jinghua Teng* and Muhammad Zubair*



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Non-ideal nernstian behavior in organic electrochemical transistors: fundamental processes and theory

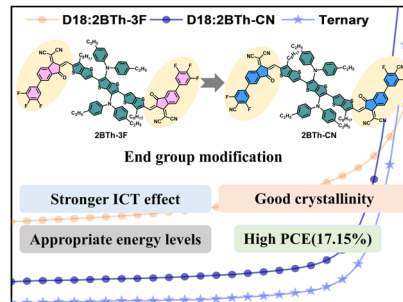
Bianca de Andrade Feitosa,* Bruno Bassi Millan Torres, Marcos Luginieski, Douglas José Coutinho and Gregório Couto Faria



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Boosting organic solar cell efficiency via tailored end-group modifications of novel non-fused ring electron acceptors

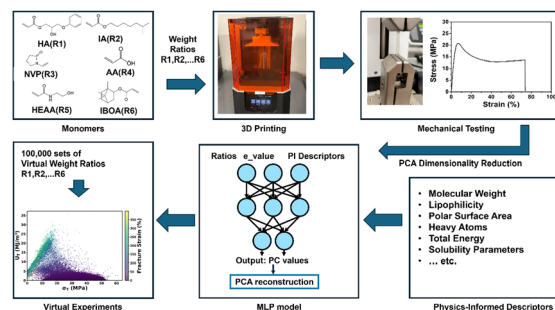
Xiaodong Wang, Nan Wei, Yetai Cheng, Andong Zhang, Ziqing Bian, Hao Lu,* Xiangwei Zhu, Yahui Liu,* Yaoyao Wei* and Zhishan Bo*



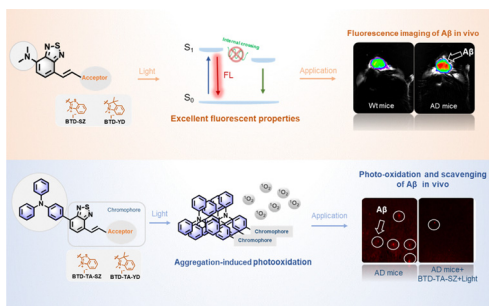
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Physics-informed machine learning enabled virtual experimentation for 3D printed thermoplastic

Zhenru Chen, Yuchao Wu, Yunchao Xie, Kianoosh Sattari and Jian Lin*



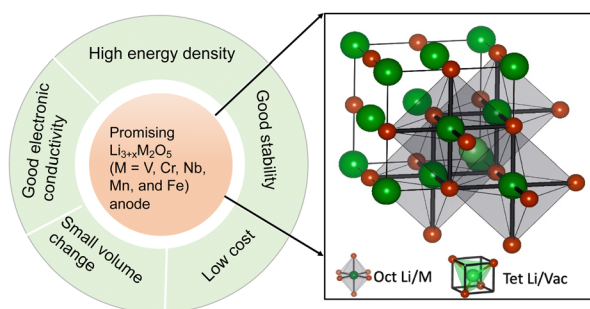
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Modulation of intramolecular freedom for tuning fluorescence imaging and photooxidation of amyloid- β aggregates

Yuhui Guo, Chunli Xia, Yingmei Cao, Junyi Su, Weijie Chi,* Daoyuan Chen* and Jinwu Yan*

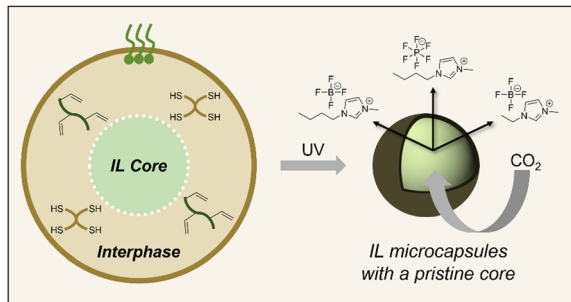
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Design principle of disordered rocksalt type overlithiated anode for high energy density batteries

Yufang He, Zhengda He and Bin Ouyang*

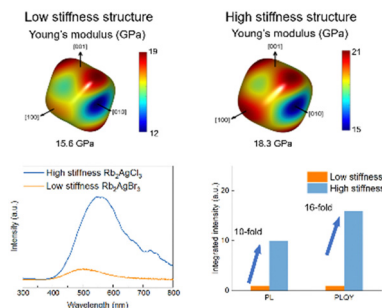
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Double emulsion microencapsulation of ionic liquids for carbon capture

Nicholas C. Starvaggi, Luma Al-Mahbobi, Muhammad Zeeshan, Eliandreina Cruz Barrios, Burcu Gurkan and Emily B. Pentzer*

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Microstructural stiffness engineering of low dimensional metal halide perovskites for efficient X-ray imaging

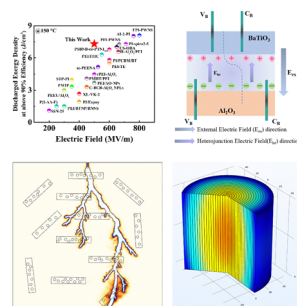
Yangmin Tang, Guiqiang Pu, Chengbin Kang, Chenyang Li, Xiaoze Wang, Machao Wang, Hui Bi, Wei Chen* and Jiacheng Wang*



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Engineering hierarchical interfaces in high-temperature polymer dielectrics for electrostatic supercapacitors

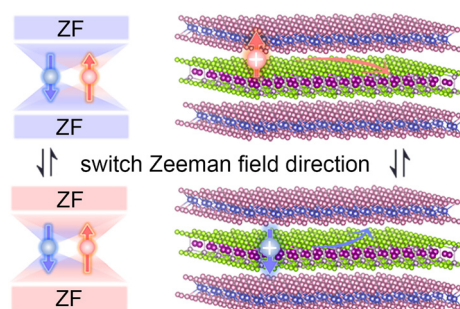
Xu Fan, Zhicheng Li, Yu Zhang, Peng Wang,* Jinjun Liu, Jinhong Yu, Jiwei Zhai, Weiping Li* and Zhongbin Pan*



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Ferrovalleytricity in a two-dimensional antiferromagnetic lattice

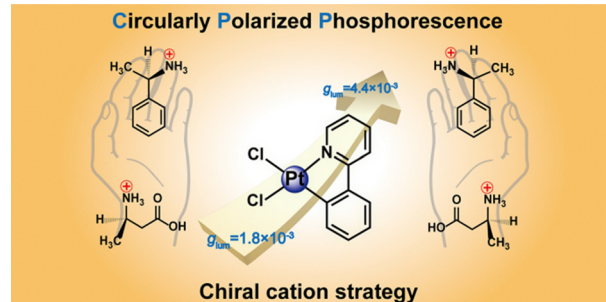
Shuyan Chai, Yangyang Feng, Ying Dai,* Baibiao Huang, Liangzhi Kou* and Yandong Ma*



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Tuning the circularly polarized phosphorescence of platinum(II) complexes through a chiral cation strategy

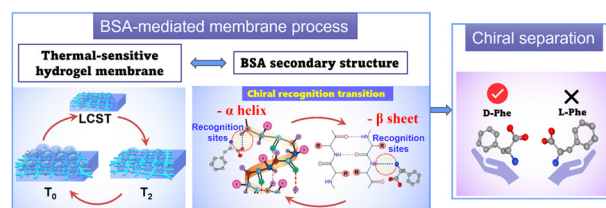
Jiajia Ren, Tengfei He, Haolin Lu, Hebin Wang, Tianyin Shao, Zhaoyu Wang, Yunxin Zhang, Sehrish Gull, Yun Chi, Yu-Wu Zhong, Yongsheng Chen and Guankui Long*



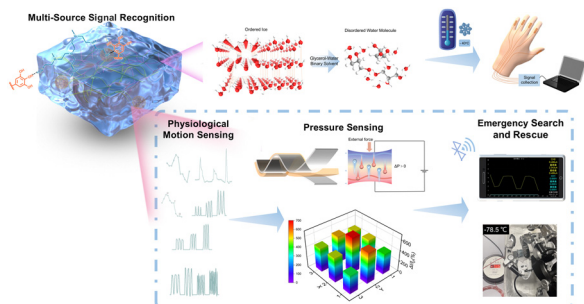
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A novel approach to chiral separation: thermo-sensitive hydrogel membranes

Ziyi Huang, Xinjie Shen, Yuxuan Wei, Jia Wei Chew, Edison Huixiang Ang* and Meilan Pan*



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Enhancement of hybrid organohydrogels by interpenetrating crosslinking strategies for multi-source signal recognition over a wide temperature range

Shen Zhang, Rui Sun, Jun Wang, Zhiqin Jiang, Mingfang Liu, Hua Chen, Zhijun Hu, Xiaoli Zhan, Feng Gao* and Qinghua Zhang*

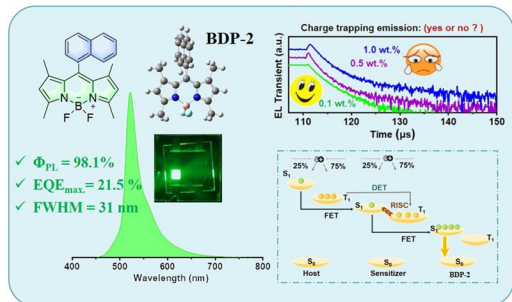
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Ultramicroporous crosslinked polyanthrene-poly(biphenyl piperidinium)-based anion exchange membranes for water electrolyzers operating under highly alkaline conditions

Zejun Zheng, Boxin Xue,* Jin Yao, Qingyi He, Zhen Wang and Jingling Yan*

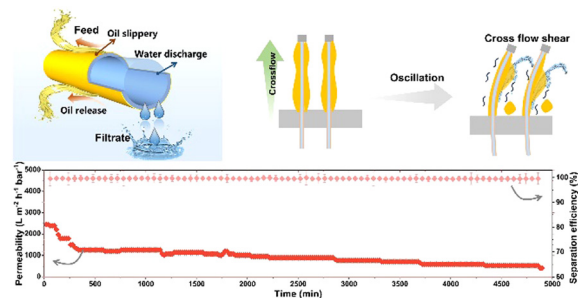
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Efficient solution-processed fluorescent OLEDs realized by removing charge trapping emission loss of BODIPY fluorochrome

Lisi Chen, Mei Chen, Yeying Lan, Yongxin Chang, Xianfeng Qiao, Chunlan Tao,* Xiaolong Zhao,* Dongdong Qin,* Yuwei Zhang,* Baohua Zhang and Li Niu

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Slippery hydrogel surface on PTFE hollow fiber membranes for sustainable emulsion separation

Yajie Ding, Yue Zhu, Jiawei Wang, Jianqiang Wang* and Fu Liu*

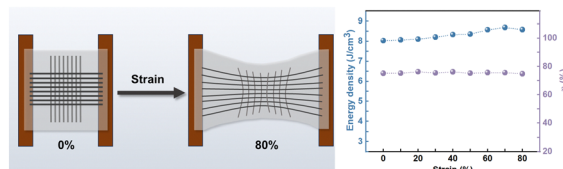


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Highly elastic relaxor ferroelectrics for wearable energy storage

Liang Gao, Jiaqi Zhang, Linping Wang,* Dongyang Zhang, Fangzhou Li, Haoyu Shen, Ben-Lin Hu* and Run-Wei Li*

Highly elastic relaxor ferroelectrics for wearable energy storage



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The role of temperature in the photoluminescence quantum yield (PLQY) of Ag₂S-based nanocrystals

Peijiang Wang, Rafael Morales-Márquez, Gabriel Cervás, Alejandro Hernández Medel, Marina Paris Ogayar, D. Jimenez de Aberasturi, Ana Ines de Isidro-Gomez, Almudena Torres-Pardo, Francisco Javier Palomares, Saül Garcia-Orrit, Célia T. Sousa, Ana Espinosa, Helmut H. Telle, Dirk H. Ortgies, Victor Vega-Mayoral, Juan Cabanillas-González, Emma Martín Rodríguez,* Ute Resch-Genger,* K. David Wegner* and Beatriz H. Juárez*

