Materials Horizons

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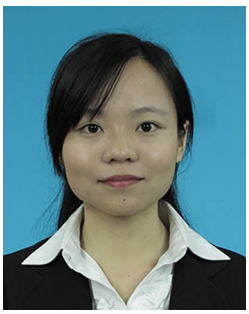
See Wei Tao, Tiangang Luan, Seyoung Koo, Xiaoyuan Ji *et al.*, pp. 5474–5483. Image reproduced by permission of Xiaoyuan Ji from *Mater. Horiz.*, 2023, **10**, 5474.

Inside cover
See Sandip Thakur and Ashutosh Giri, pp. 5484–5491. Image reproduced by permission of Ashutosh Giri from *Mater. Horiz.*, 2023, **10**, 5484.

EDITORIAL



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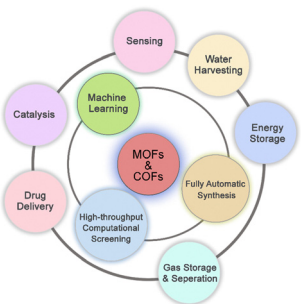

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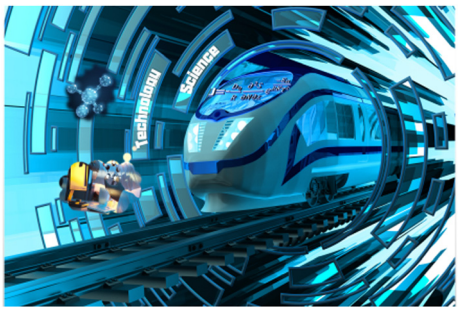

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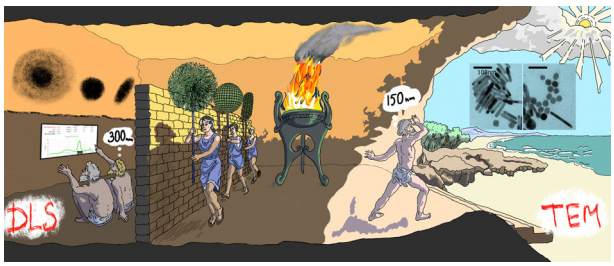
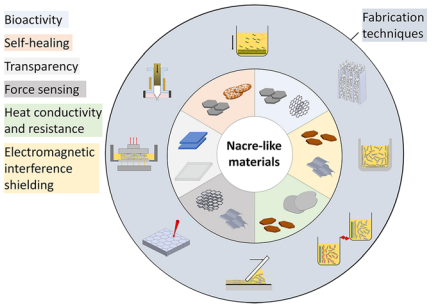
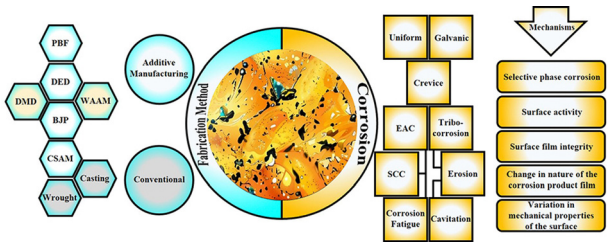


REVIEWS





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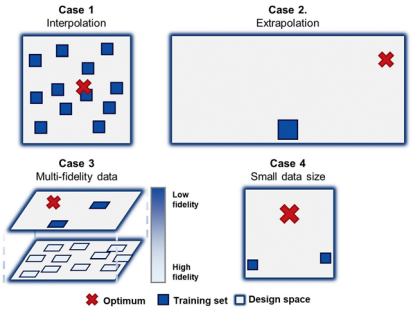
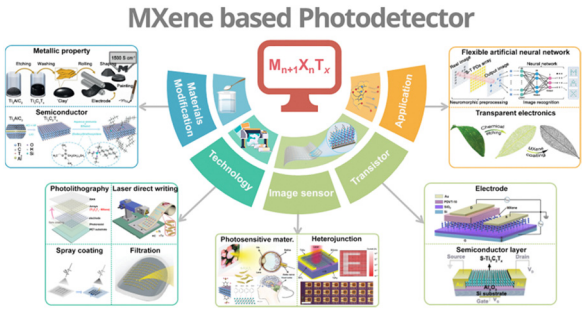


Machine learning-based inverse design methods considering data characteristics and design space size in materials design and manufacturing: a review

Junhyeong Lee, Donggeun Park, Mingyu Lee, Hugon Lee, Kundo Park, Ikjin Lee and Seunghwa Ryu*



MXene based flexible photodetectors: progress, challenges, and opportunities

La Li and Guozhen Shen*

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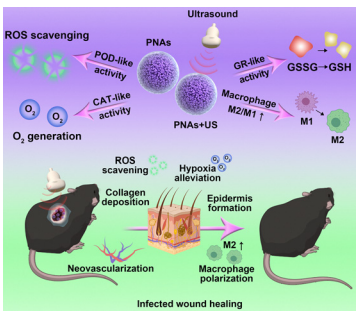
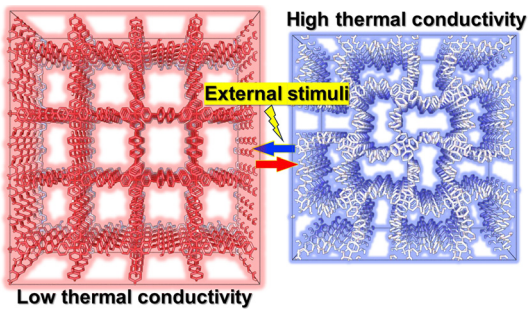


Infected wound repair with an ultrasound-enhanced nanozyme hydrogel scaffold

Fan Zhang, Yong Kang, Liwen Feng, Guan Xi, Wei Chen, Na Kong, Wei Tao,* Tiangang Luan,* Seyoung Koo* and Xiaoyuan Ji*



Reversible and high-contrast thermal conductivity switching in a flexible covalent organic framework possessing negative Poisson's ratio

Sandip Thakur and Ashutosh Giri*

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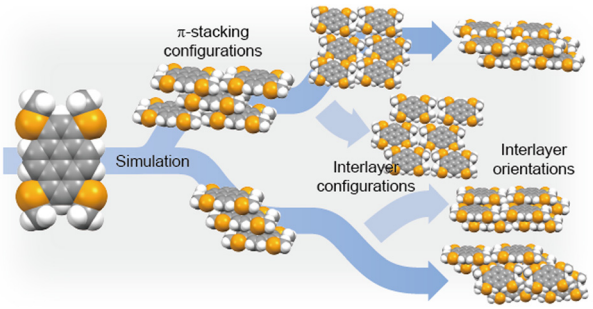

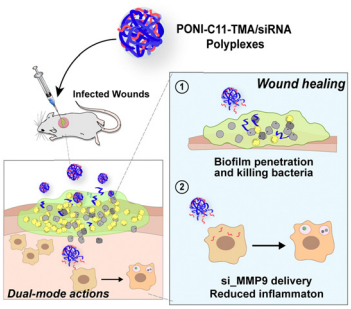

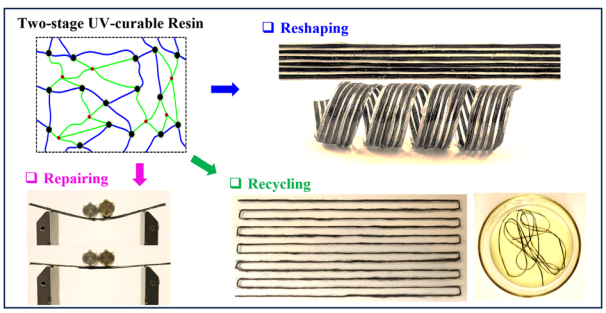

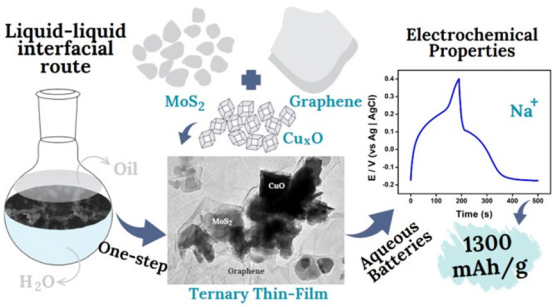

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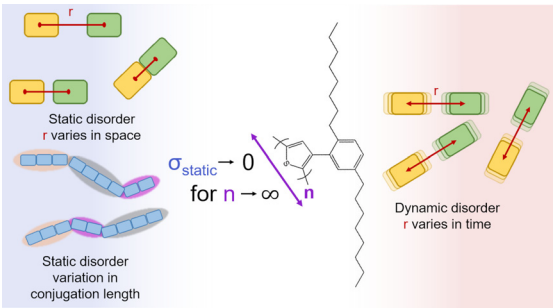

A spectroscopic assessment of static and dynamic disorder in a film of a polythiophene with a planarized backbone

Konstantin Schötz, Fabian Panzer, Michael Sommer, Heinz Bässler and Anna Köhler*

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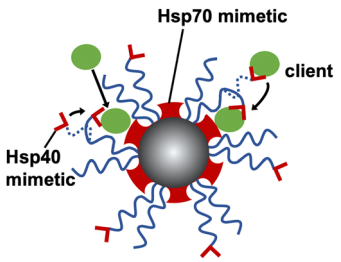

Development of self-cooperative nanochaperones with enhanced activity to facilitate protein refolding

Menglin Yang, Yanli Zhang, Fei Deng, Xiaohui Wu, Yujie Chen, Feihe Ma* and Linqi Shi*

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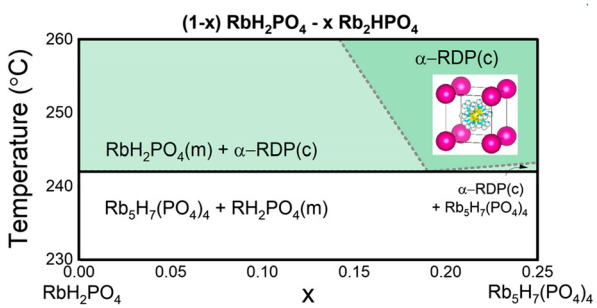

Superprotonic conductivity in $RbH_{2-3y}(PO_4)_{1-y}$: a phosphate deficient analog to cubic CsH_2PO_4 in the $(1-x)RbH_2PO_4 - xRb_2HPO_4$ system

Grace Xiong, Louis S. Wang and Sossina M. Haile*

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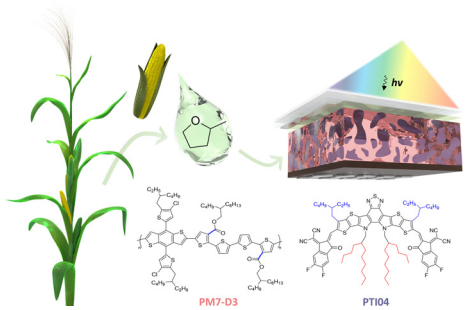

Additive-free molecular acceptor organic solar cells processed from a biorenewable solvent approaching 15% efficiency

Zhifang Du, Hoang Mai Luong, Sina Sabury, Pattarawadee Therdkatanyuphong, Sangmin Chae, Claire Welton, Austin L. Jones, Junxiang Zhang, Zhengxing Peng, Ziyue Zhu, Sadisha Nanayakkara, Veaceslav Coropceanu, Dylan G. Choi, Steven Xiao, Ahra Yi, Hyo Jung Kim, Jean-Luc Bredas, Harald Ade, G. N. Manjunatha Reddy,* Seth R. Marder,* John R. Reynolds* and Thuc-Quyen Nguyen*

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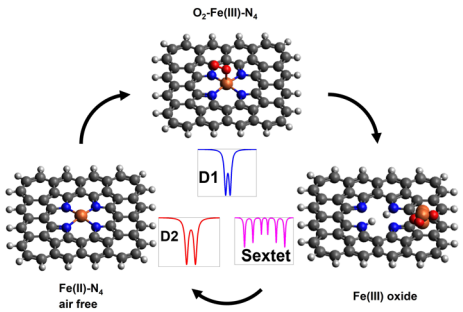

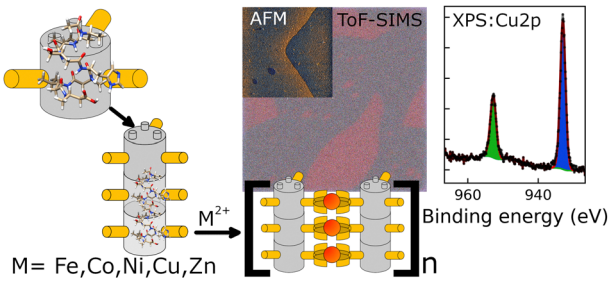

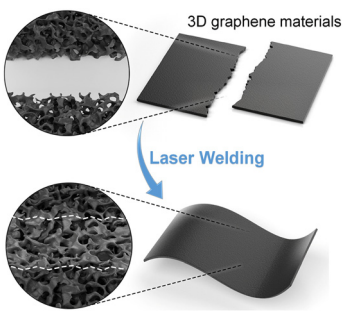

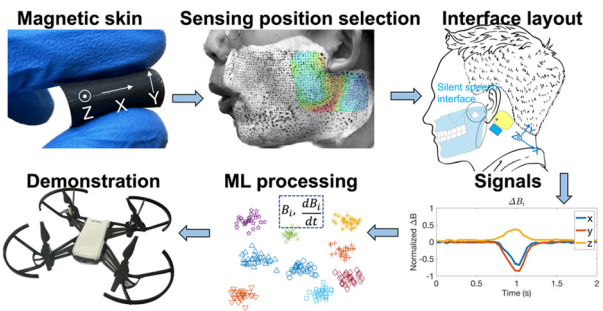

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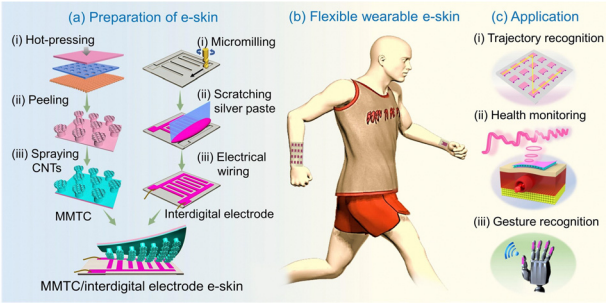

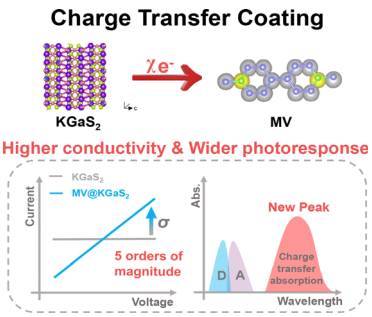

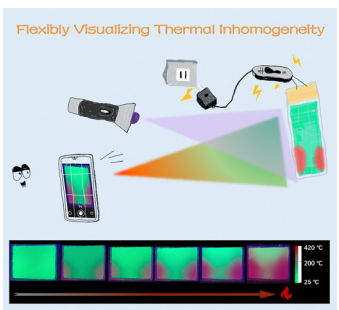

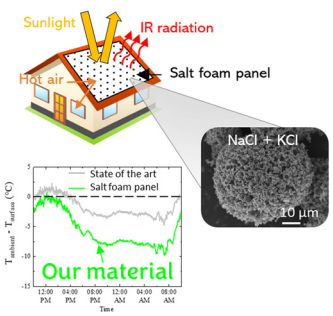

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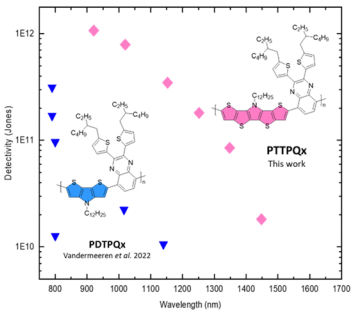
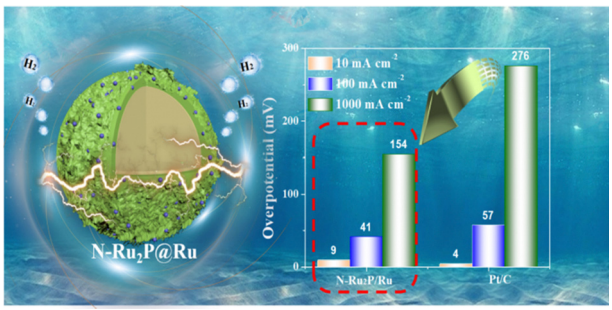


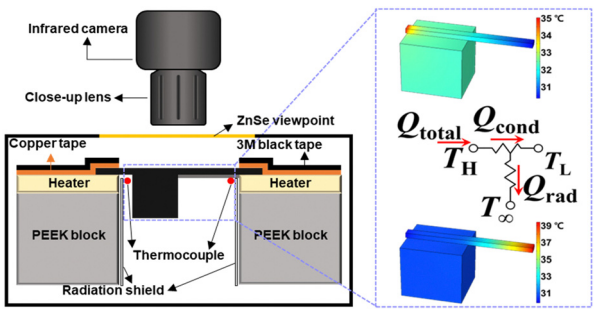
A tetrathienopyrrole-based ladder-type donor polymer for high-performance organic near-infrared cavity detectors

Kaat Valkeneers, Jorne Raymakers, Quan Liu,* Jochen Vanderspikken, Yuming Wang, Jurgen Kesters, Tyler James Quill, Zhen Liu, Niko Van den Brande, Laurence Lutsen, Koen Vandewal* and Wouter Maes*



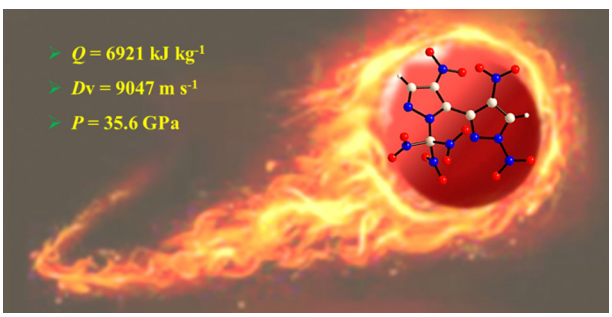
Developing energy-efficient N-doping technology to controllably construct N-Ru_2P@Ru nanospheres for highly efficient hydrogen evolution at an ampere-level current density

Mengmeng Wang, Yunmei Du,* Shuangshuang Li, Xiaoli Sun, Bin Li, Yuanxiang Gu and Lei Wang*



Giant thermal rectification efficiency by geometrically enhanced asymmetric non-linear radiation

Seongkyun Kim, Taeyeop Kim, Jaehyun Sung, Yongjun Kim, Dongwoo Lee* and Seunghyun Baik*



Pushing the limits of the heat of detonation *via* the construction of polynitro bipyrazole

Yaqun Dong, Miao Li, Jing Liu, Yuji Liu, Wei Huang, Jean'ne M. Shreeve and Yongxing Tang*

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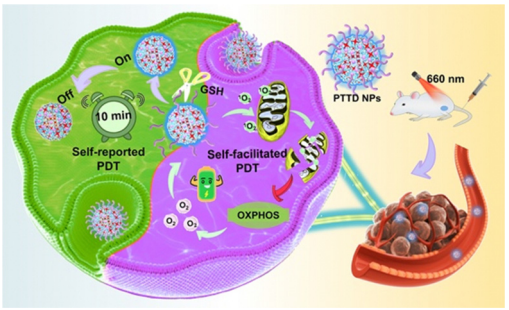

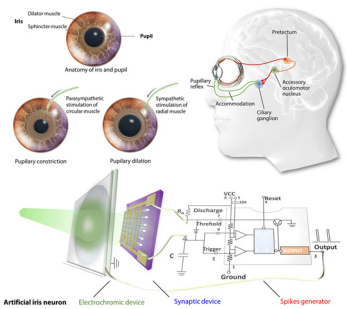

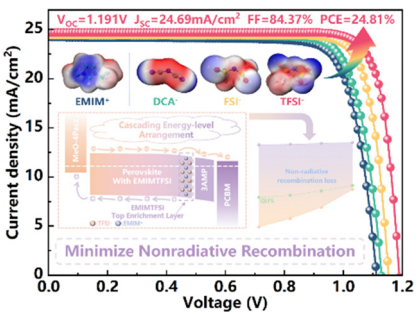

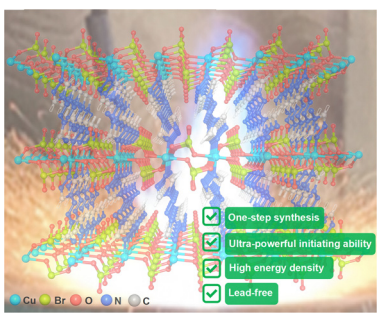

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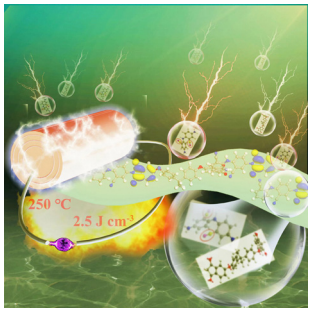

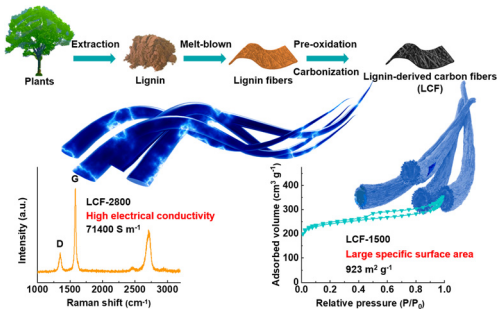

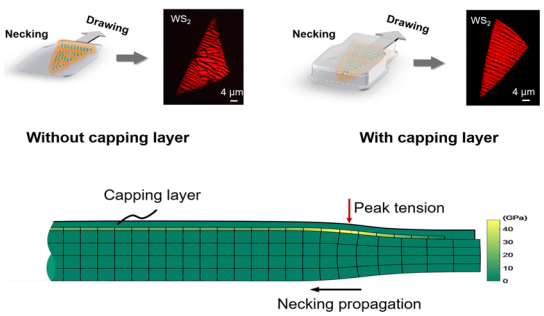

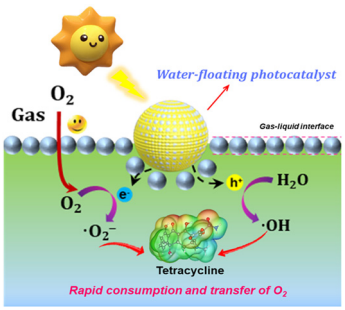

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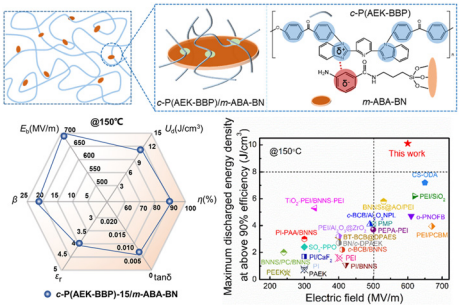

Superior high-temperature capacitive performance of polyaryl ether ketone copolymer composites enabled by interfacial engineered charge traps

Xinyi Li, Yunchuan Xie, Jie Xiong, Bofeng Zhu, Xiao Zhang,* Xinhua Duan, Bo Dong* and Zhicheng Zhang*

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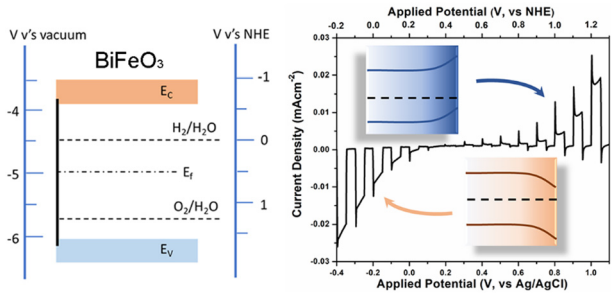

Origin of the switchable photocurrent direction in $BiFeO_3$ thin films

Yaqiong Wang, Matyas Daboczi, Man Zhang, Joe Briscoe, Ji-Seon Kim, Haixue Yan* and Steve Dunn*

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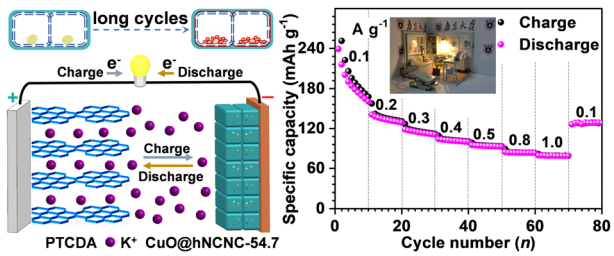
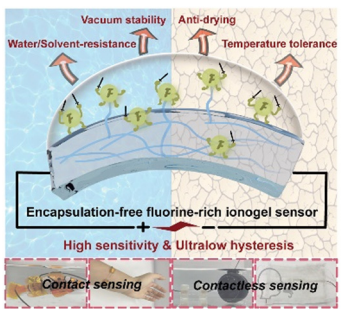


Loss-free pulverization by confining copper oxide inside hierarchical nitrogen-doped carbon nanocages toward superb potassium-ion batteries

Guanghai Chen, Jia Liu, Shenglan Ma, Changkai Zhou, Jietao Jiang, Zhen Shen, Lijie Yan, Yue Guo, Lijun Yang, Qiang Wu,* Xizhang Wang* and Zheng Hu*

5907



High-sensitivity and ultralow-hysteresis fluorine-rich ionogel strain sensors for multi-environment contact and contactless sensing

Faqi Hu, Zhenkai Huang, Chuan Luo and Kan Yue*

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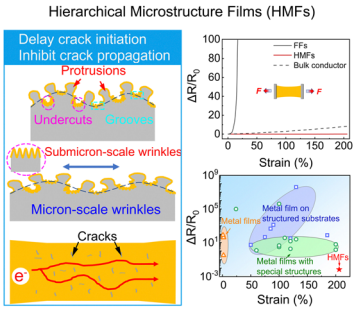

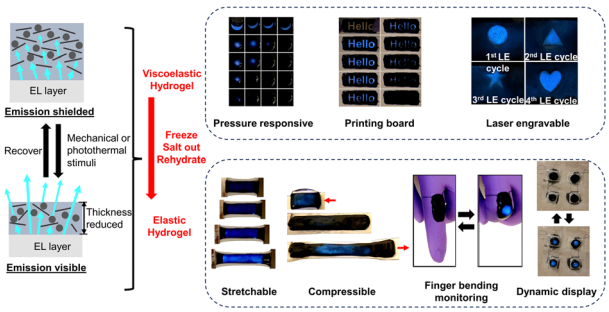

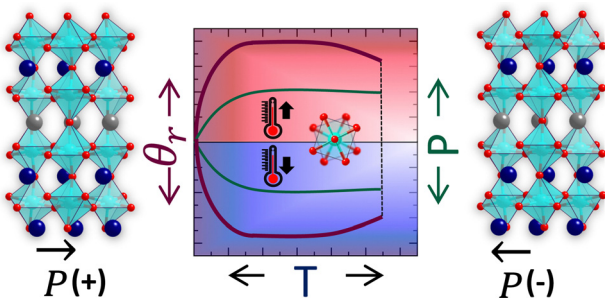

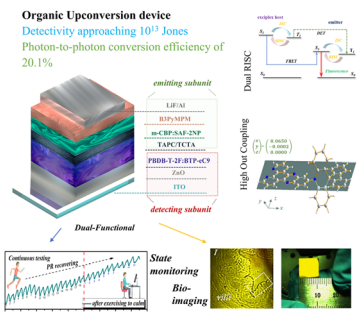

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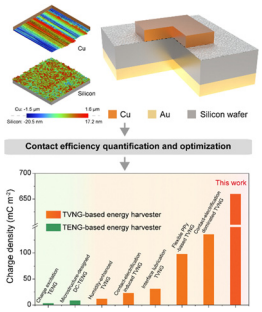
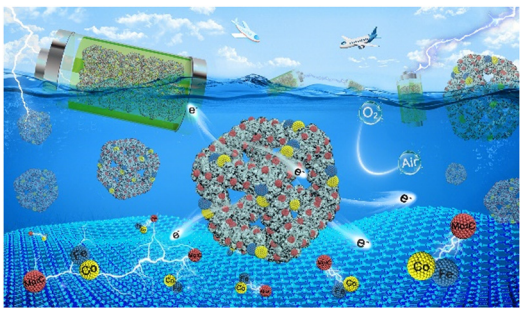


Contact efficiency optimization for tribovoltaic nanogenerators

Zhihao Zhao, Jiayue Zhang, Wenyan Qiao, Linglin Zhou, Ziting Guo, Xinyuan Li, Zhong Lin Wang* and Jie Wang*



A macroporous carbon nanoframe for hosting Mott–Schottky Fe–Co/Mo_2C sites as an outstanding bi-functional oxygen electrocatalyst

Jie Hong, Lei Zhang,* Qiliang Zhu, Ziang Du, Yingtang Zhou,* Thomas Wågberg and Guangzhi Hu*

CORRECTIONS

Correction: A wearable colorimetric sweat pH sensor-based smart textile for health state diagnosis

Ji-Hwan Ha, Yongrok Jeong, Junseong Ahn, Soonhyoung Hwang, Sohee Jeon, Dahong Kim, Jiwoo Ko, Byeongmin Kang, Young Jung, Jungrak Choi, Hyeonseok Han, Jimin Gu, Seokjoo Cho, Hyunjin Kim, Moonjeong Bok, Su A. Park, Jun-Ho Jeong* and Inkyu Park*

Correction: A super-high brightness and excellent colour quality laser-driven white light source enables miniaturized endoscopy

Shuxing Li, Linhui Huang, Yuqin Guo, Le Wang* and Rong-Jun Xie*