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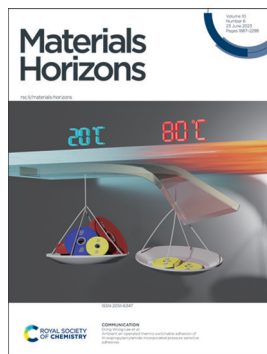
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Inside cover

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EDITORIAL

1899

Materials Horizons Emerging Investigator Series:
Dr Megan Fieser, University of Southern California, USA

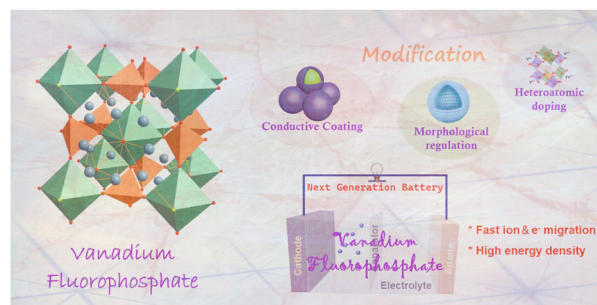


REVIEWS

1901

Vanadium fluorophosphates: advanced cathode materials for next-generation secondary batteries

Shitan Xu, Yi Yang, Fang Tang, Yu Yao, Xiang Lv, Lin Liu, Chen Xu, Yuezhan Feng, Xianhong Rui* and Yan Yu*



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Building and designing systems from the molecular level

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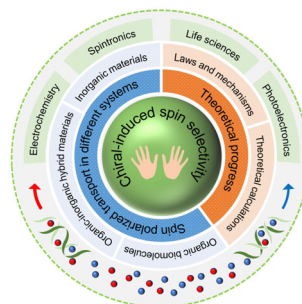


REVIEWS

1924

Chiral-induced spin selectivity in biomolecules, hybrid organic–inorganic perovskites and inorganic materials: a comprehensive review on recent progress

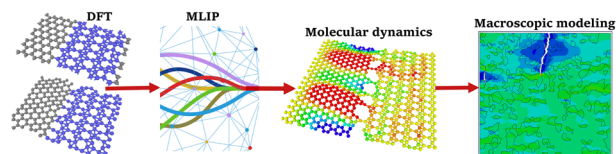
Yingdan Xu and Wenbo Mi*



1956

Atomistic modeling of the mechanical properties: the rise of machine learning interatomic potentials

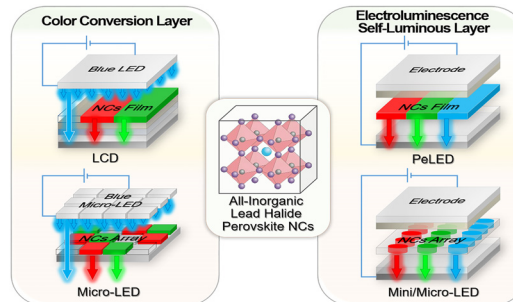
Bohayra Mortazavi,* Xiaoying Zhuang,* Timon Rabczuk and Alexander V. Shapeev*



1969

All-inorganic lead halide perovskite nanocrystals applied in advanced display devices

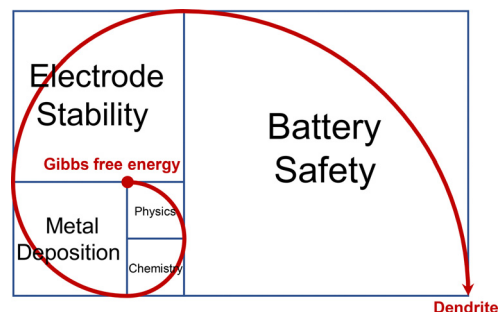
Liuli Yang, Jianhua Huang, Yike Tan, Wei Lu, Ziwei Li* and Anlian Pan*

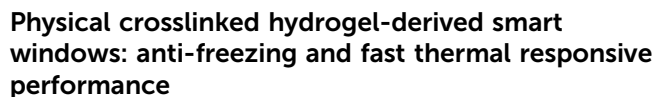


1990

Nucleophilic deposition behavior of metal anodes

Yuqian Li, Jie Shu and Liyuan Zhang*





Gang Li, Jiwei Chen, Zhaonan Yan, Shancheng Wang,
Yujie Ke, Wei Luo, Huiru Ma, Jianguo Guan* and
Yi Long*

Adhesion on

Ambient air

Cooling

Heating

H-bonding

H-bonding site ↑

Adhesion off

Intra-/inter-molecular bonding

H-bonding site ↓

Probe tack (kPa)

Number of cycle

Cooling

Heating

— $E_6A_3N_6$

— $E_6A_3N_2$

Ambient air-operated thermo-switchable adhesion of *N*-isopropylacrylamide-incorporated pressure sensitive adhesives

Jeonguk Hwang, Daegyun Lim, Geonwoo Lee,
Young Eun Kim, Jintae Park, Myung-Jin Baek,
Hak-Sun Kim, KeumHwan Park, Kang Hee Ku and
Dong Wooq Lee*

The figure illustrates the proposed system's architecture and operation. The top left shows a sequence of three images illustrating the system's operation: a camera captures a scene, a controller processes the data, and a camera again captures the scene. The top right shows a block diagram of the system architecture. The bottom shows three screenshots of the system's output, displaying a 3D model of a scene with a camera and a controller.

Chameleon-inspired active tunable structural color based on smart skin with multi-functions of structural color, sensing and actuation

Weitian Zhang, Hongmiao Tian,* Tianci Liu, Haoran Liu,
Fabo Zhao, Xiangming Li, Chunhui Wang, Xiaoliang Chen
and Jinyou Shao

Imidazole-based artificial synapses for neuromorphic computing: a cluster-type conductive filament *via* controllable nanocluster nucleation

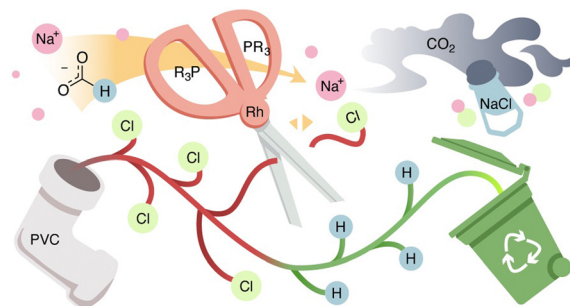
Jungyeop Oh, Sang Yoon Yang, Sungkyu Kim,
Changhyeon Lee, Jun-Hwe Cha, Byung Chul Jang,
Sung Gap Im and Sung-Yool Choi*

COMMUNICATIONS

2047

Controlling selectivity for dechlorination of poly(vinyl chloride) with (xantphos)RhCl

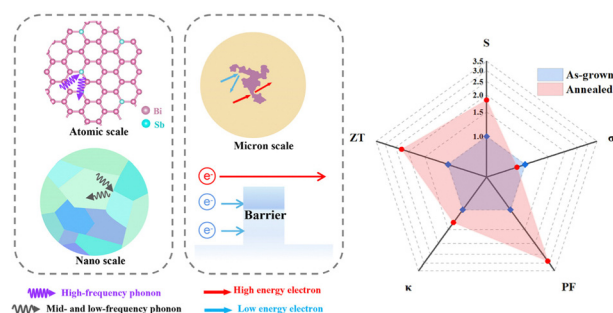
Nancy G. Bush, Mikiyas K. Assefa, Selin Bac, Shaama Mallikarjun Sharada* and Megan E. Fieser*



2053

Large-area 2D bismuth antimonide with enhanced thermoelectric properties via multiscale electron-phonon decoupling

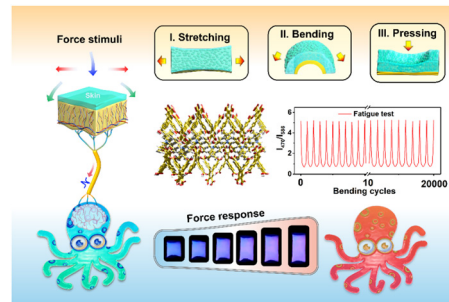
Hanliu Zhao, Yuxin Xue, Yu Zhao, Jiayi Chen, Bo Chang, Hao Huang, Tao Xu, Litao Sun, Yunfei Chen, Jingjie Sha,* Beibei Zhu* and Li Tao*



2062

Bioinspired HOF-based luminescent skin sensor with triple mechanochromism responses for the recognition and collection of human biophysical signals

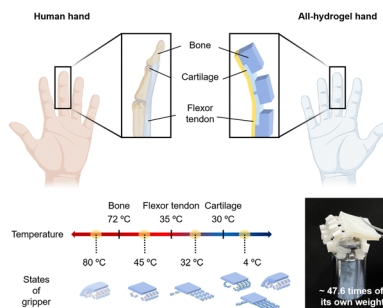
Xin Xu and Bing Yan*



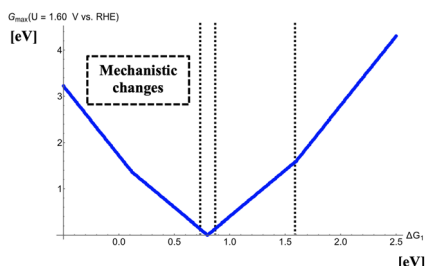
2075

Human hand-inspired all-hydrogel gripper with a high load capacity formed by the split-brushing adhesion of diverse hydrogels

Hye Been Koo, Eunseok Heo, In Cho, Sun Hong Kim, Jiheong Kang and Jae-Byum Chang*



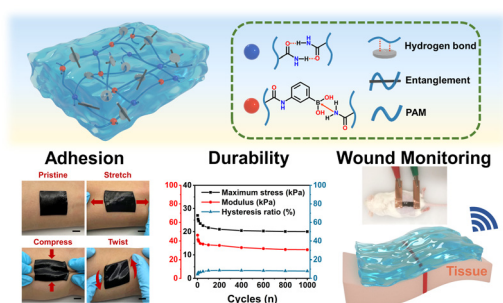
2086

 $G_{\max}(U)$ -based OER volcano

On the mechanistic complexity of oxygen evolution: potential-dependent switching of the mechanism at the volcano apex

Kai S. Exner

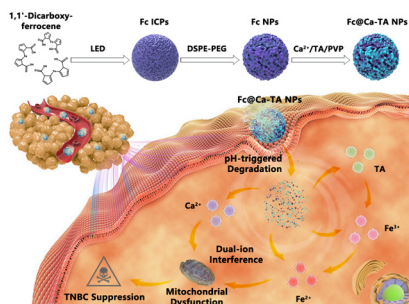
2096



Nanocomposite conductive hydrogels with Robust elasticity and multifunctional responsiveness for flexible sensing and wound monitoring

Kaixiang Shen, Zheng Liu, Ruilin Xie, Yuchen Zhang, Yuxuan Yang, Xiaodan Zhao, Yanfeng Zhang, Aimin Yang and Yilong Cheng*

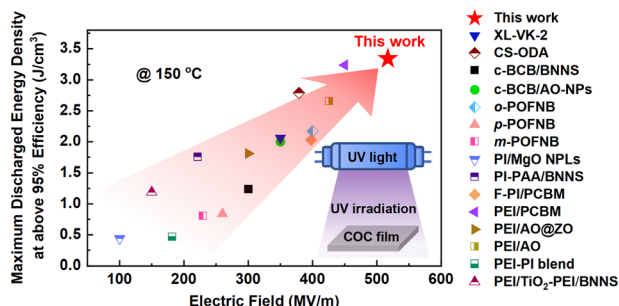
2109



Dual-infinite coordination polymer-engineered nanomedicines for dual-ion interference-mediated oxidative stress-dependent tumor suppression

Junlie Yao, Jie Xing, Fang Zheng, Zihou Li, Shunxiang Li, Xiawei Xu, Devrim Unay, Young Min Song, Fang Yang* and Aiguo Wu*

2120



Significantly enhanced high-temperature capacitive energy storage in cyclic olefin copolymer dielectric films via ultraviolet irradiation

Zhiwei Bao, Song Ding, Zhizhan Dai, Yiwei Wang, Jiangheng Jia, Shengchun Shen, Yuewei Yin* and Xiaoguang Li*

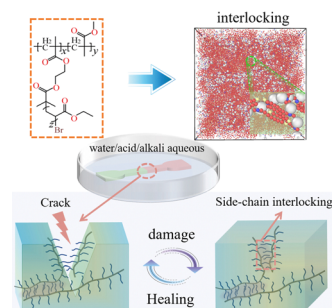


COMMUNICATIONS

2128

Self-healing bottlebrush polymer networks enabled via a side-chain interlocking design

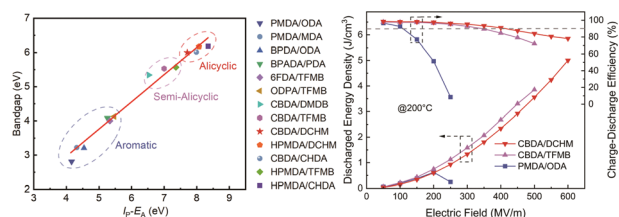
Hui Xiong, Tongkui Yue, Qi Wu, Linjun Zhang, Zhengtian Xie, Jun Liu,* Liqun Zhang and Jinrong Wu*



2139

Alicyclic polyimides with large band gaps exhibit superior high-temperature capacitive energy storage

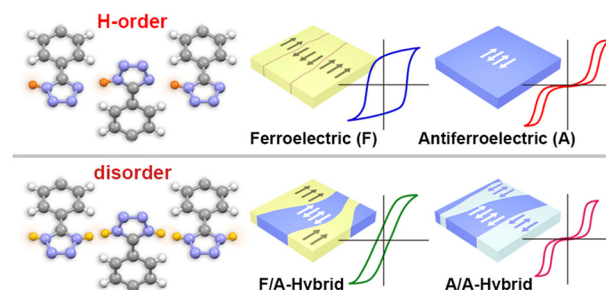
Jinhui Song, Hongmei Qin, Shiyu Qin, Man Liu, Shixian Zhang, Junyu Chen, Yang Zhang, Shan Wang,* Qi Li,* Lijie Dong* and Chuanxi Xiong



2149

Competition of polar and antipolar states hidden behind a variety of polarization switching modes in hydrogen-bonded molecular chains

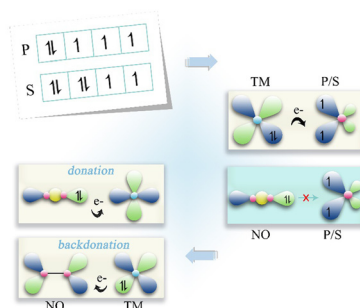
Sachio Horiuchi,* Hiromi Minemawari and Shoji Ishibashi*



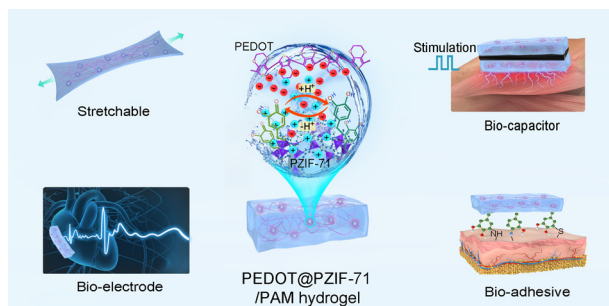
2160

Activating dual atomic electrocatalysts for the nitric oxide reduction reaction through the P/S element

Yanmei Zang, Qian Wu,* Shuhua Wang, Baibiao Huang, Ying Dai* and Yandong Ma*



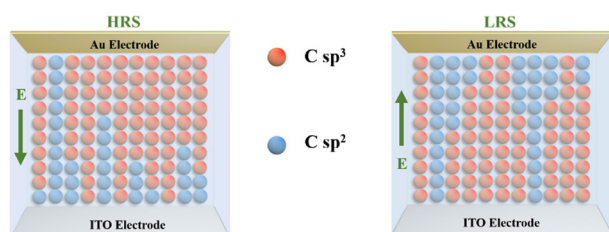
2169



Bioadhesive and electroactive hydrogels for flexible bioelectronics and supercapacitors enabled by a redox-active core-shell PEDOT@PZIF-71 system

Donglin Gan, Ziqiang Huang, Xiao Wang, Dejia Xu, Shuquan Rao, Kefeng Wang, Fuzeng Ren, Lili Jiang,* Chaoming Xie* and Xiong Lu*

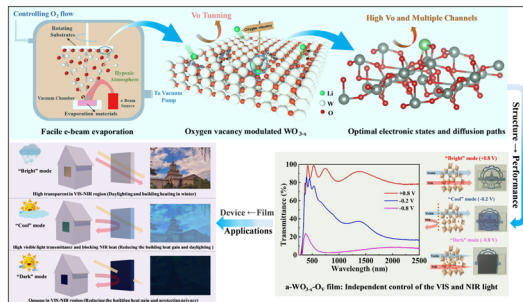
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Hybridization state transition-driven carbon quantum dot (CQD)-based resistive switches for bionic synapses

Tianqi Yu, Yong Fang, Xinyue Chen, Min Liu, Dong Wang, Shilin Liu, Wei Lei, Helong Jiang, Suhaidi Shafie, Mohd Nazim Mohtar, Likun Pan and Zhiwei Zhao*

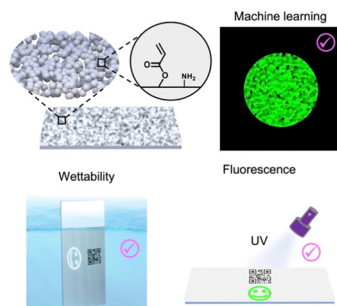
2191



Oxygen vacancy modulated amorphous tungsten oxide films for fast-switching and ultra-stable dual-band electrochromic energy storage smart windows

Mingjun Chen, Xiang Zhang,* Dukang Yan, Jianbo Deng, Wenhai Sun, Zitong Li, Yingjun Xiao, Zhenmin Ding, Jiupeng Zhao* and Yao Li

2204



Design of a self-cleanable multilevel anticounterfeiting interface through covalent chemical modulation

Manideepa Dhar, Ufuoma I. Kara, Supriya Das, Yang Xu, Sohini Mandal, Robert L. Dupont, Eric C. Boerner, Boyuan Chen, Yuxing Yao, Xiaoguang Wang* and Uttam Manna*

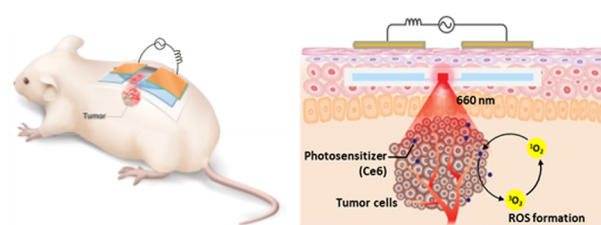


COMMUNICATIONS

2215

An implantable ionic therapeutic platform for photodynamic therapy with wireless capacitive power transfer

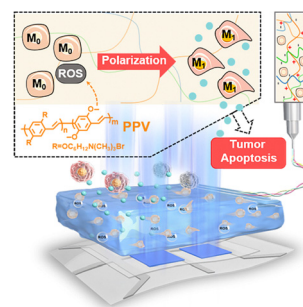
Seol-Ha Jeong, Min-Gyu Lee, Chong-Chan Kim, Jeehun Park, Yujin Baek, Byung Ik Park, Junsang Doh and Jeong-Yun Sun*



2226

A biophotonic device based on a conjugated polymer and a macrophage-laden hydrogel for triggering immunotherapy

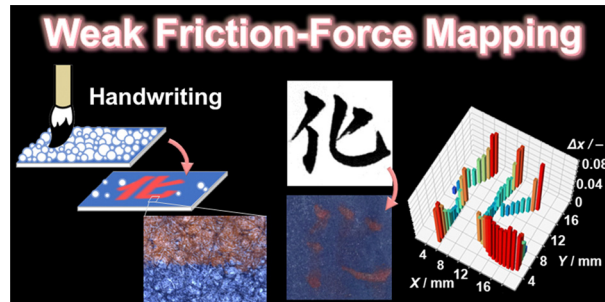
Zhiwen Yang, Qi Shen, Longjiang Xing, Xuancheng Fu, Zhipeng Qiu, Hongping Xiang, Yiming Huang, Fengting Lv, Haotian Bai,* Yanping Huo* and Shu Wang*



2237

A highly sensitive friction-imaging device based on cascading stimuli responsiveness

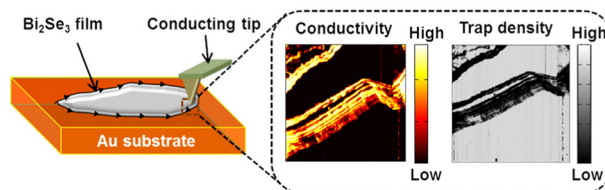
Nano Shioda, Ryotaro Kobayashi, Seiichiro Katsura, Hiroaki Imai, Syuji Fujii* and Yuya Oaki*



2245

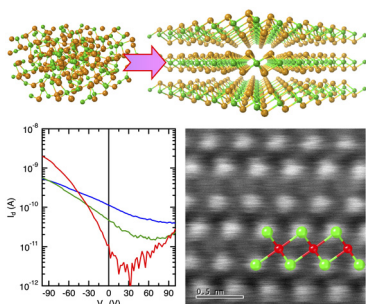
Nanoscale mapping of edge-state conductivity and charge-trap activity in topological insulators

Shashank Shekhar, Yuhyeon Oh, Jin-Young Jeong, Yoonji Choi, Duckhyung Cho and Seunghun Hong*



COMMUNICATIONS

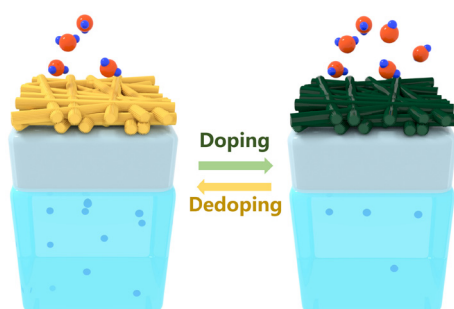
2254



Discovery of a metastable van der Waals semiconductor via polymorphic crystallization of an amorphous film

Yuta Saito,* Shogo Hatayama, Wen Hsin Chang, Naoya Okada, Toshifumi Irisawa, Fumihiko Uesugi, Masaki Takeguchi, Yuji Sutou and Paul Fons

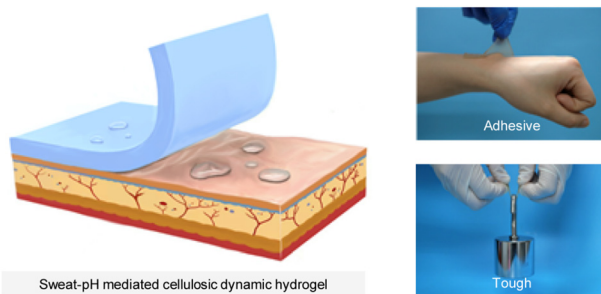
2262



Achieving fast interfacial solar vapor generation and aqueous acid purification using $\text{Ti}_3\text{C}_2\text{T}_x$ MXene/PANI non-woven fabrics

Renjie Ding, Jinhua Xiong, Qian Yan, Zhong Chen, Zonglin Liu, Xu Zhao, Qingyu Peng* and Xiaodong He*

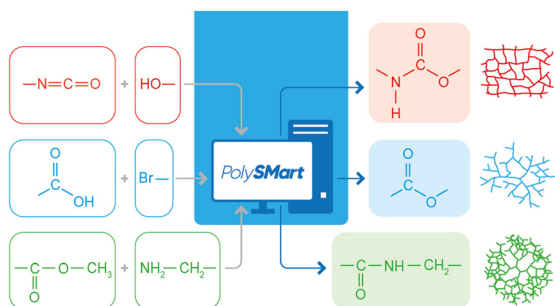
2271



A sweat-pH-enabled strongly adhesive hydrogel for self-powered e-skin applications

Lei Zhang, Siheng Wang, Zhuomin Wang, Zhen Huang, Penghao Sun, Fuhao Dong, He Liu,* Dan Wang* and Xu Xu*

2281



PolySMart: a general coarse-grained molecular dynamics polymerization scheme

Seyyed Mohammad Mousavifard, Hassan Ghermezcheshme, Alireza Mirzaalipour, Mohsen Mohseni, Gijsbertus de With and Hesam Makki*

