

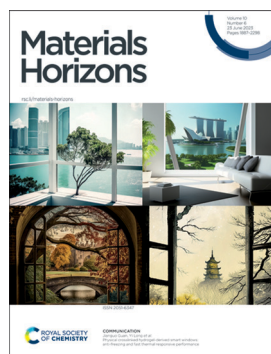
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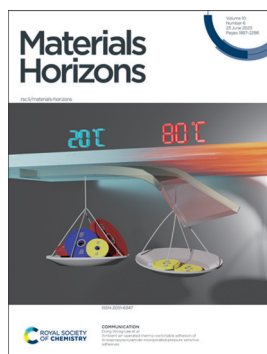
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ISSN 2051-6347 CODEN MHAOAL 10(6) 1887-2298 (2023)



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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

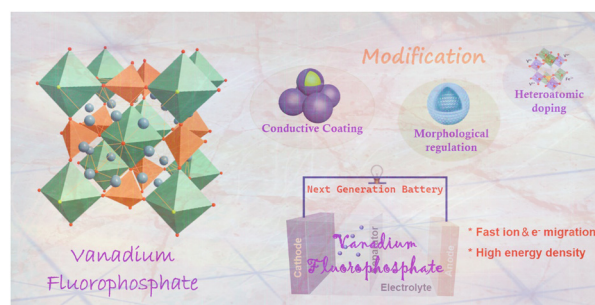


REVIEWS

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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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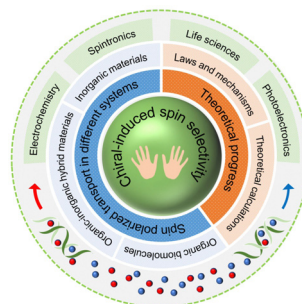


REVIEWS

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

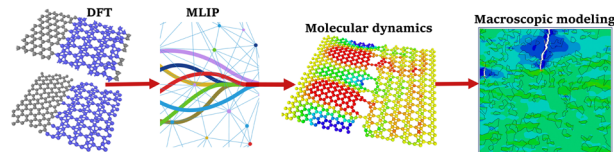
Yingdan Xu and Wenbo Mi*



1956

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

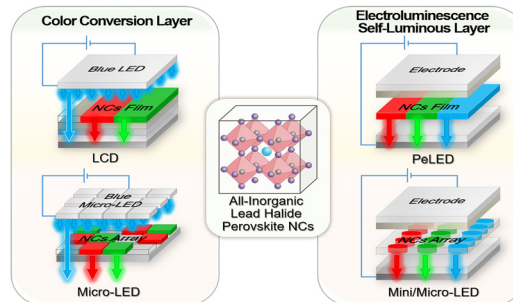
Bohayra Mortazavi,* Xiaoying Zhuang,* Timon Rabczuk and Alexander V. Shapeev*



1969

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

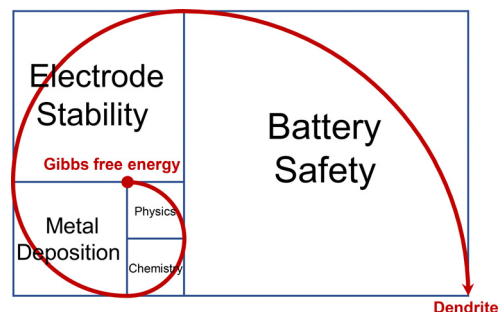
Liuli Yang, Jianhua Huang, Yike Tan, Wei Lu, Ziwei Li* and Anlian Pan*



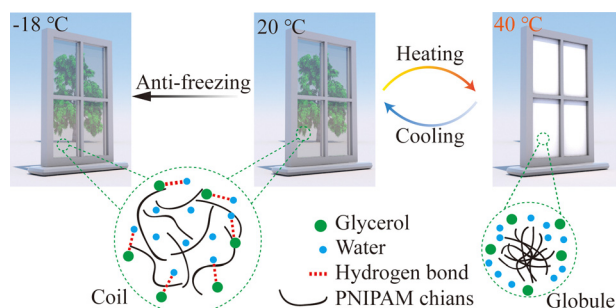
1990

Nucleophilic deposition behavior of metal anodes

Yuqian Li, Jie Shu and Liyuan Zhang*



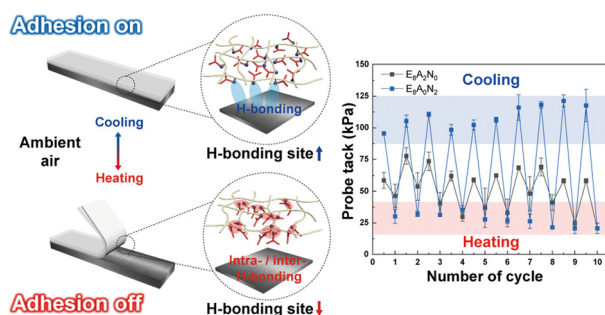
2004



Physical crosslinked hydrogel-derived smart windows: anti-freezing and fast thermal responsive performance

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

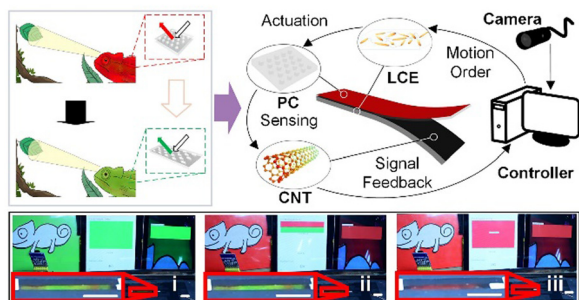
2013



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 Woog Lee*

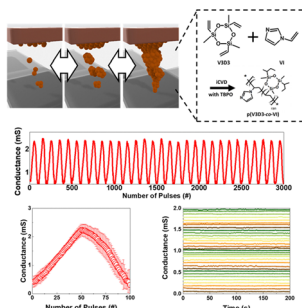
2024



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

2035



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

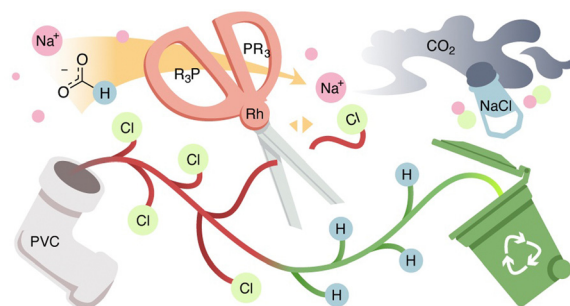
Jungyeop Oh, Sang Yoon Yang, Sungkyu Kim, Changhyeon Lee, Jun-Hwe Cha, Byung Chul Jang, Sung Gap Im and Sung-Yool Choi*



2047

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

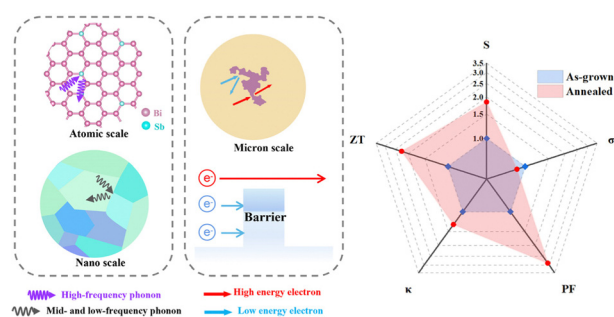
Nancy G. Bush, Mikiyas K. Assefa, Selin Bac, Shaama Mallikarjun Sharada* and Megan E. Fieser*



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

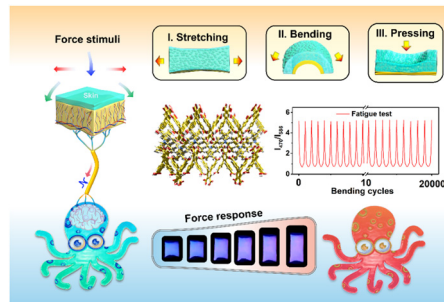
Hanliu Zhao, Yuxin Xue, Yu Zhao, Jiayi Chen, Bo Chang, Hao Huang, Tao Xu, Litao Sun, Yunfei Chen, Jingjie Sha,* Beibei Zhu* and Li Tao*



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

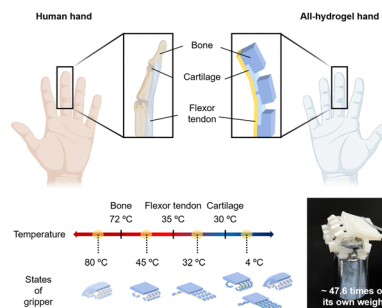
Xin Xu and Bing Yan*



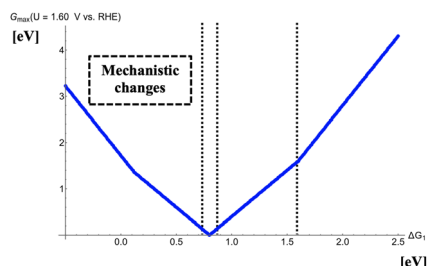
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Human hand-inspired all-hydrogel gripper with a high load capacity formed by the split-brushing adhesion of diverse hydrogels

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

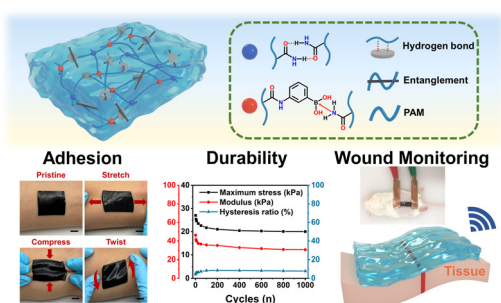


2086

 $G_{\max}(U)$ -based OER volcano**On the mechanistic complexity of oxygen evolution: potential-dependent switching of the mechanism at the volcano apex**

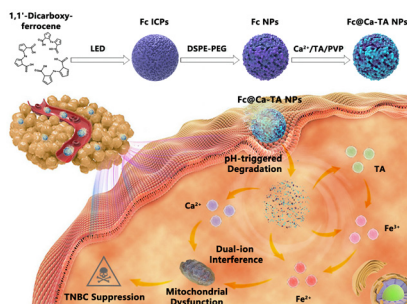
Kai S. Exner

2096

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

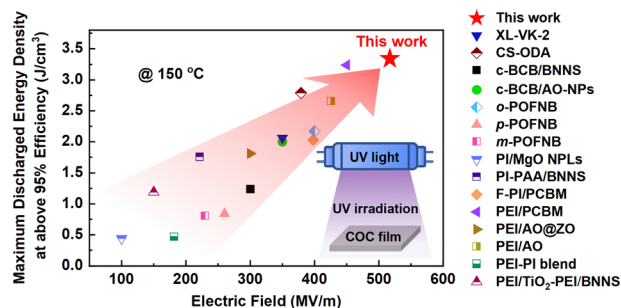
Kaixiang Shen, Zheng Liu, Ruilin Xie, Yuchen Zhang, Yuxuan Yang, Xiaodan Zhao, Yanfeng Zhang, Aimin Yang and Yilong Cheng*

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**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**

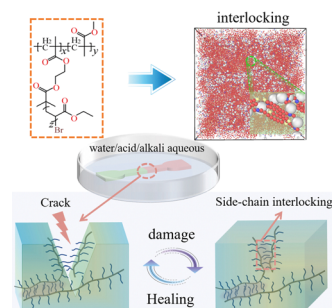
Zhiwei Bao, Song Ding, Zhizhan Dai, Yiwei Wang, Jiangheng Jia, Shengchun Shen, Yuewei Yin* and Xiaoguang Li*



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

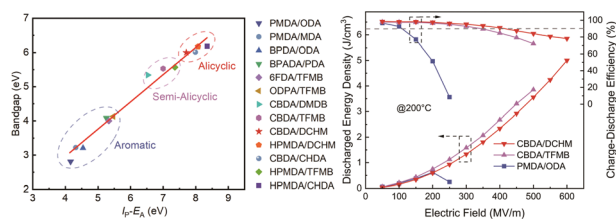
Hui Xiong, Tongkui Yue, Qi Wu, Linjun Zhang, Zhengtian Xie, Jun Liu,* Liqun Zhang and Jinrong Wu*



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

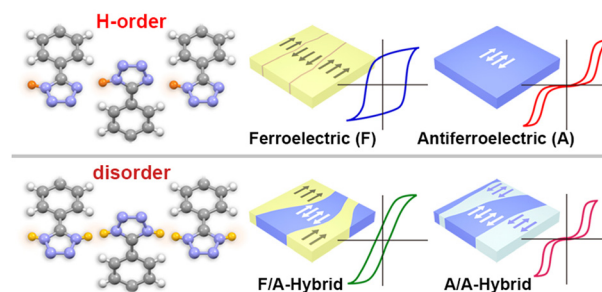
Jinhui Song, Hongmei Qin, Shiyu Qin, Man Liu, Shixian Zhang, Junyu Chen, Yang Zhang, Shan Wang,* Qi Li,* Lijie Dong* and Chuanxi Xiong



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

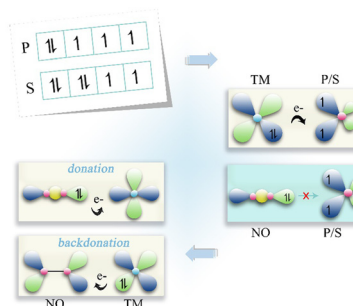
Sachio Horiuchi,* Hiromi Minemawari and Shoji Ishibashi*



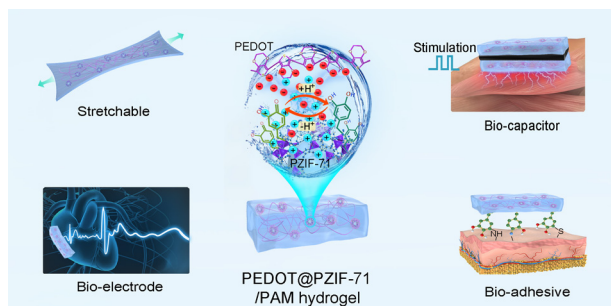
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Activating dual atomic electrocatalysts for the nitric oxide reduction reaction through the P/S element

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



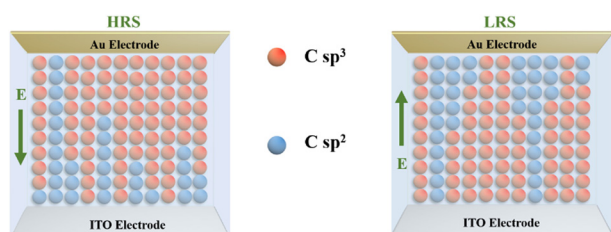
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Bioadhesive and electroactive hydrogels for flexible bioelectronics and supercapacitors enabled by a redox-active core-shell PEDOT@PZIF-71 system

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

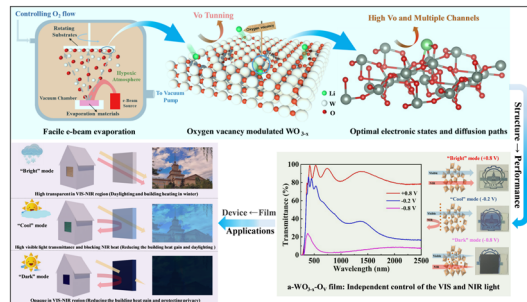
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Hybridization state transition-driven carbon quantum dot (CQD)-based resistive switches for bionic synapses

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*

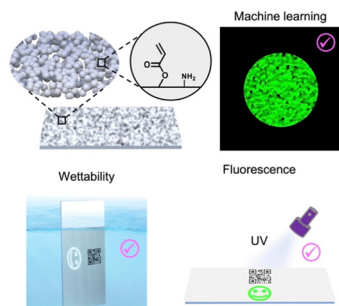
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Oxygen vacancy modulated amorphous tungsten oxide films for fast-switching and ultra-stable dual-band electrochromic energy storage smart windows

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

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

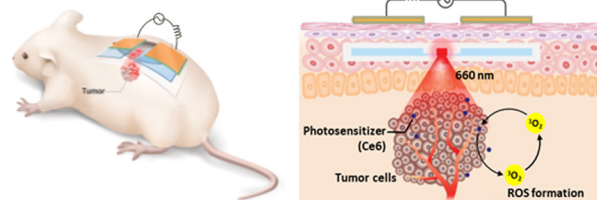
Manideepa Dhar, Ufuoma I. Kara, Supriya Das, Yang Xu, Sohini Mandal, Robert L. Dupont, Eric C. Boerner, Boyuan Chen, Yuxing Yao, Xiaoguang Wang* and Uttam Manna*



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

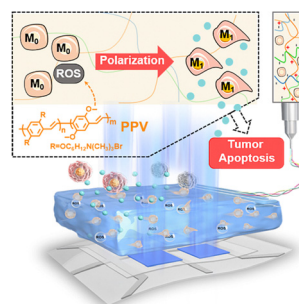
Seol-Ha Jeong, Min-Gyu Lee, Chong-Chan Kim, Jeehun Park, Yujin Baek, Byung Ik Park, Junsang Doh and Jeong-Yun Sun*



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

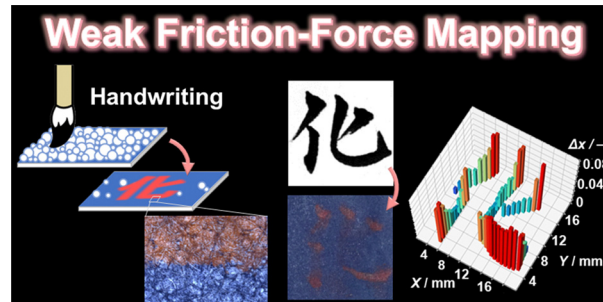
Zhiwen Yang, Qi Shen, Longjiang Xing, Xuancheng Fu, Zhipeng Qiu, Hongping Xiang, Yiming Huang, Fengting Lv, Haotian Bai,* Yanping Huo* and Shu Wang*



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

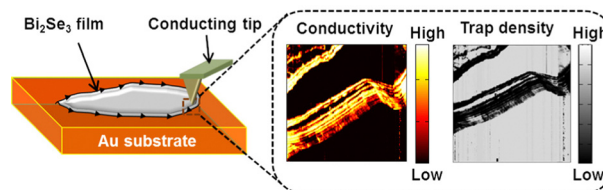
Nano Shioda, Ryotaro Kobayashi, Seiichiro Katsura, Hiroaki Imai, Syuji Fujii* and Yuya Oaki*



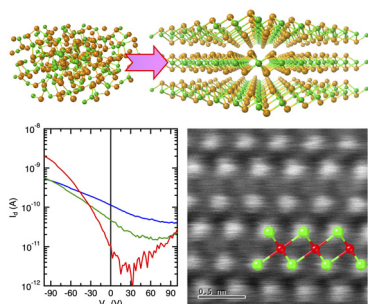
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Nanoscale mapping of edge-state conductivity and charge-trap activity in topological insulators

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



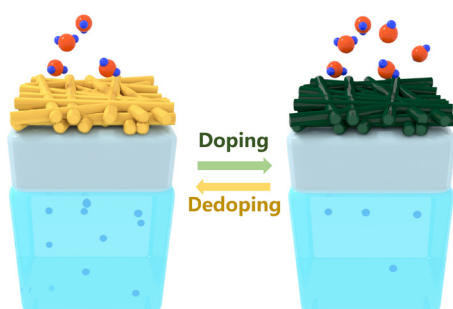
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Discovery of a metastable van der Waals semiconductor via polymorphic crystallization of an amorphous film

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

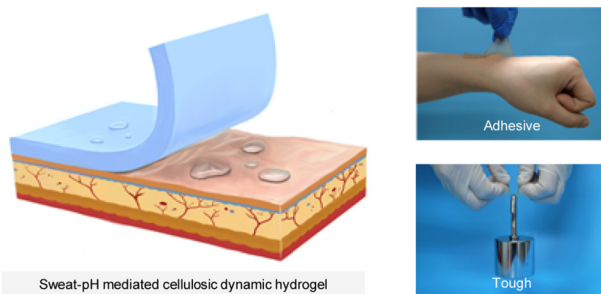
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Achieving fast interfacial solar vapor generation and aqueous acid purification using $\text{Ti}_3\text{C}_2\text{T}_x$ MXene/PANI non-woven fabrics

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

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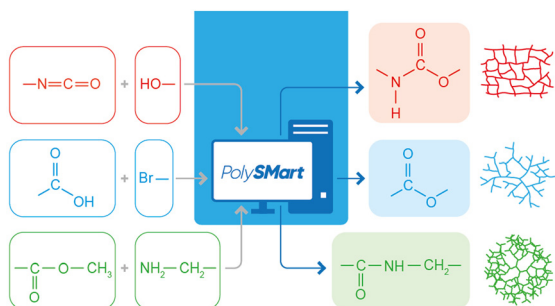


Sweat-pH mediated cellulosic dynamic hydrogel

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

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PolySMart: a general coarse-grained molecular dynamics polymerization scheme

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