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Fundamental questions
Elemental answers

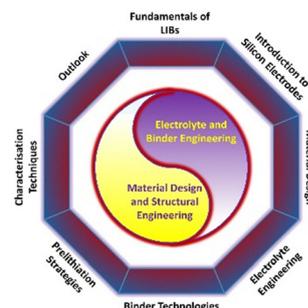


REVIEWS

6440

Silicon negative electrodes for lithium-ion batteries: challenges, advances, and future prospects

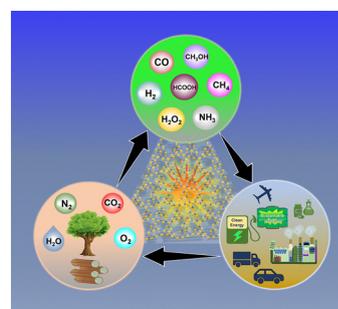
Pin-Yi Zhao,* Shengbo Zhang,* Kwang-Leong Choy,* Yongyi Song, Shudong Zhang, Decai Guo and Chengkai Yang*



6485

Harnessing mesoporous g-C₃N₄-based photocatalytic materials for sustainable fuel production *via* solar energy conversion: a review

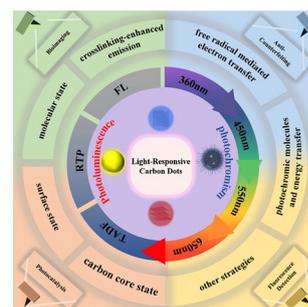
Pratikshya Dash, Ashish Kumar Kar, Rajendra Srivastava* and Kulamani Parida*



6558

Research on light-responsive luminescence properties of carbon dots and their applications

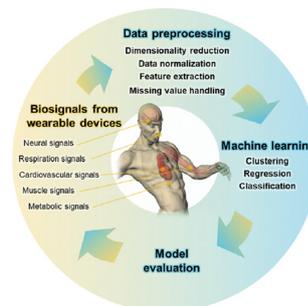
Zhimeng Ma, Qiang Fu,* Kailin Zhang, Shouhong Sun and Mingbo Yue



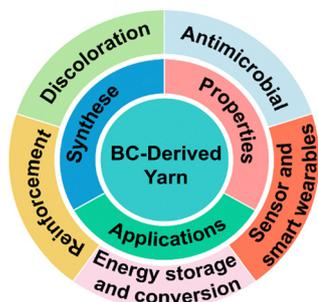
6587

Machine learning in biosignal analysis from wearable devices

Inhea Jeong, Won Gi Chung, Enji Kim, Wonjung Park, Hayoung Song, Jakyoun Lee, Myoungjae Oh, Eunmin Kim, Joonho Paek, Taekyeong Lee, Dayeon Kim, Seung Hyun An, Sumin Kim, Hyunjo Cho and Jang-Ung Park*



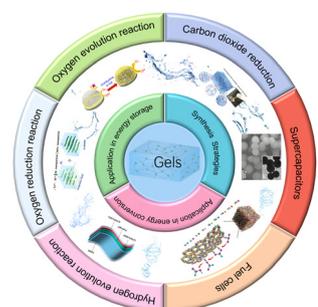
6622



Bacterial cellulose-based functional yarns: from design to applications

Yilu Xu, Xue Lu, Cancan Jin, Danyu Liu, Yingjia Tong, Yixuan Zhang, Xun Liu, Pan Xue, Qufu Wei and Pengfei Lv*

6650



Recent progress of gel-based materials in energy storage and conversion

Shengbao Zhou, Yongchao Yang, Lei Shi, Songlin Zhang, Jingyang Wang, Feifei Zhang* and Shenlong Zhao*

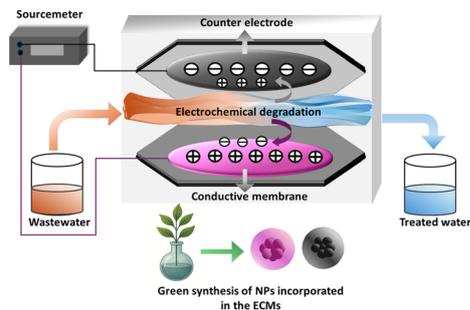
6681



Self-powered wearable sensing devices for digital health

Yumeng Zhang, Engui Wang, Han Ouyang* and Zhou Li*

6707



Electrically conductive nanomaterial-enhanced membranes for wastewater reclamation: mechanisms and performance insights

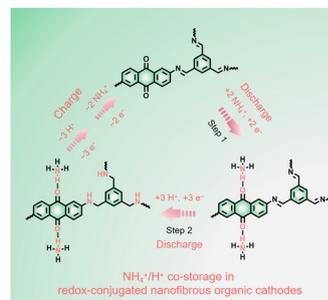
Priyamjeet Deka, Bipasha Saikia, Sonali Roy, Kalyan Raidongia* and Senthilmurugan Subbiah*



6733

Conjugated nanofibrous organic cathodes with high-density carbonyl/imine redox sites for superior NH_4^+/H^+ co-storage

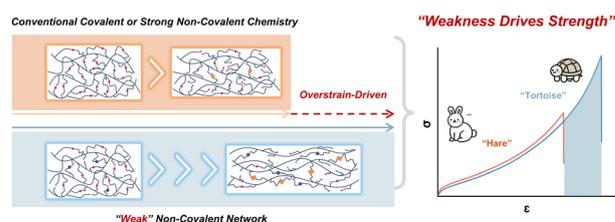
Yujia Fu, Yehui Zhang,* Qi Huang, Pingxuan Liu, Yaokang Lv, Ziyang Song, Lihua Gan* and Mingxian Liu*



6741

Strategic weakening for holistic strengthening: overstrain-driven synchronous strengthening-toughening in sustainable rubber via "weak" non-covalent networks

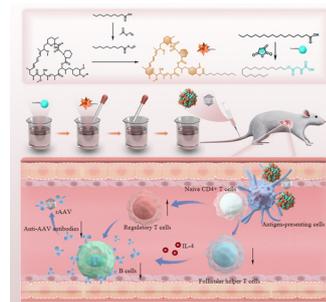
Wei-Chen Zhou, Xue-Qin Gao,* Jia-Hao Li, Yan Wang, Yu-Zhong Wang and Cong Deng*



6751

Nanotherapeutics-mediated tolerogenic induction for enabling adeno-associated virus vector gene therapy re-administration by overcoming anti-drug antibodies

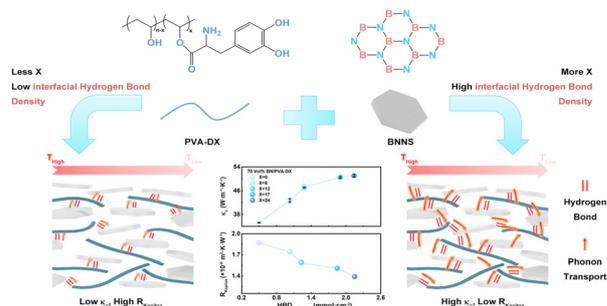
Yubo Liu, Fangming Liang, Rui Zhang, Chengcheng Tang, Xin Li, Yongjun Wang,* Zhonggui He* and Hongzhuo Liu*



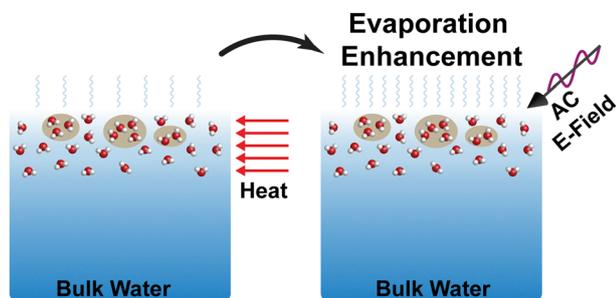
6765

Boosting thermal conductivity of boron nitride incorporated polymer composites via hydrogen bonding engineering

Wenbo Lin, Yanfeng Li, Xirui Liu, Rui Xu, Jiajing Huang, Zhiyuan Jiang, Zhiguo Qu, Kai Xi* and Yue Lin*



6774



Oscillations in incident electric field enhances interfacial water evaporation

Saqlain Raza, Cong Yang, Xin Qian* and Jun Liu*

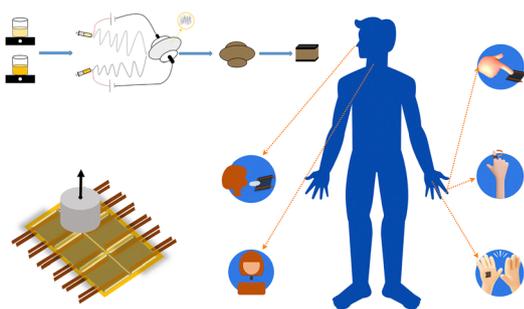
6784



Flexible point-of-use phosphate electrochemical sensors based on electrodeposited molybdenum oxide

Siqi Yu, Xiyu Sun, Zinan Yu, Jinwook Jung, Satoshi Ishii, Christopher T. Hayes, Valérie C. Pierre, Amar H. Flood, Jason D. Azoulay and Tse Nga Ng*

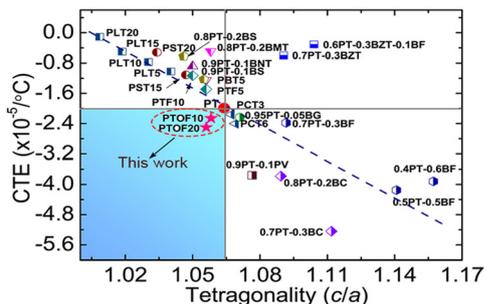
6793



CNFs/Al₂O₃-SiC SBD flexible e-skin to achieve dual function sensing of pressure and temperature

He Gong, Lingyun Ni, Hang Zhu, Hongli Chao, Lan Luo, Mengchao Chen, JinFan Wei, Tianli Hu, Ying Guo, Zhiqiang Cheng, Ye Mu* and Xiuling Yu*

6804



Anion-mediated unusual enhancement of negative thermal expansion in the oxyfluoride of PbTiO₃

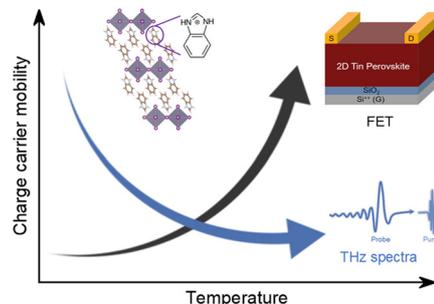
Zhao Pan,* Yue-Wen Fang, Sergey A. Nikolaev, Lin Wu, Jie Zhang, Mengqi Ye, Jin Liu, Xubin Ye, Xiao Wang, Takumi Nishikubo, Yuki Sakai, Runze Yu, Shogo Kawaguchi, Nianpeng Lu, Yoshihiro Kuroiwa, Jun Chen,* Masaki Azuma,* Xianran Xing and Youwen Long*



6812

Charge carrier transport in two-dimensional benzimidazole-based perovskites

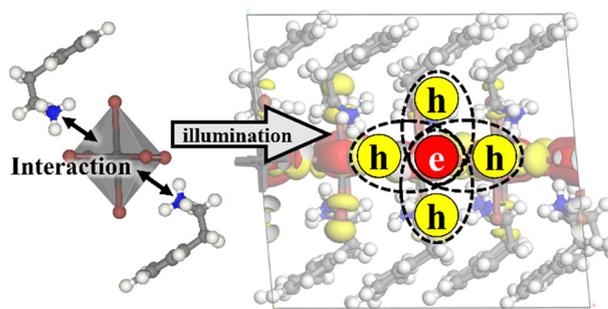
Shuanglong Wang, Lei Gao, Mukunda Mandal, Hao Wu, Zhitian Ling, Mischa Bonn, Denis Andrienko, Paul W. M. Blom, Hai I. Wang, Wojciech Pisula* and Tomasz Marszalek*



6822

Out-of-plane quadrupolar excitons in Ruddlesden–Popper perovskites: theoretical insights into the effects of organic spacer cations

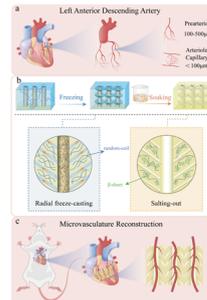
Qingjie Feng, Xu Zhang* and Guangjun Nan*



6831

Perfusable and toughening cardiac patch with hierarchically branched microchannels for myocardial infarction revascularization

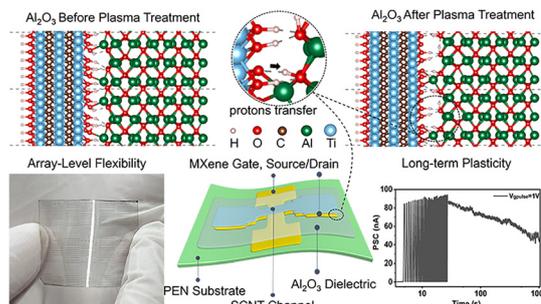
Shuaibing Liu, Kexin Feng, Zhenhao Teng, Ruiyue Zhao, Xinchang Kang, Qi Chen, Yi Yuan, Xiaomeng Li* and Jianglin Wang*



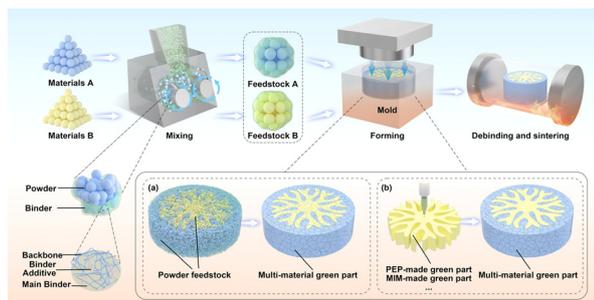
6842

Array-level MXene electrode flexible long-term-plasticity synaptic transistors

Zifan Wang, Jiahao Zhu, Dexing Liu, Qinqi Ren, Rui Qiu, Qi Liu, Wanting Wang, Yufeng Jin and Min Zhang*



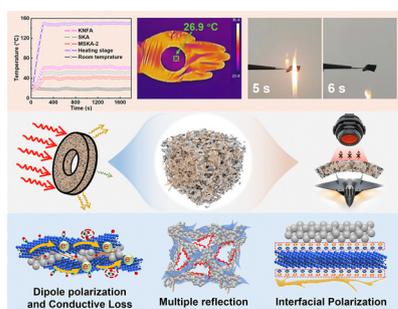
6853



A combined plastic shaping method for powder metallurgy complex multi-material structures

Mengxiong Chen, Decai Ouyang, Yang Fu, Heng Zou, Huiwen Xiong,* Lei Zhang and Kechao Zhou

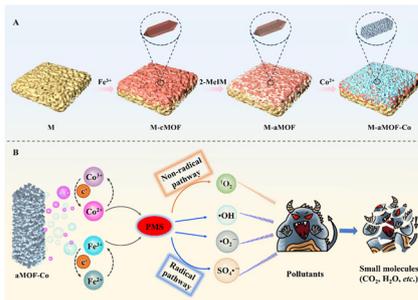
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Cross-dimensional assembly of MXene/SiO₂/KNF composite aerogels for radar and infrared stealth

Shuo Zhang, Fushuo Wu, Feiyue Hu, Peiyong Hu, Miaoping Li, Peng Zeng, Peigen Zhang,* Tianyu Wang, Shuangshuang Chen, Jian Liu, Longzhu Cai and ZhengMing Sun*

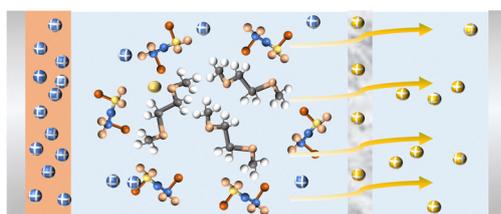
6875



Heterostructural amorphous catalyst decorated membranes with excellent anti-fouling performances in wastewater purification

Yuling Yang, Yingxin Zhang, Ping Zhu, Gang Wang, Zhanghui Wang, Lijing Zhu* and Zhixiang Zeng*

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Synergistic solid-liquid hybrid electrolyte for cycle-stable and high-efficiency Li-CuCl₂ batteries

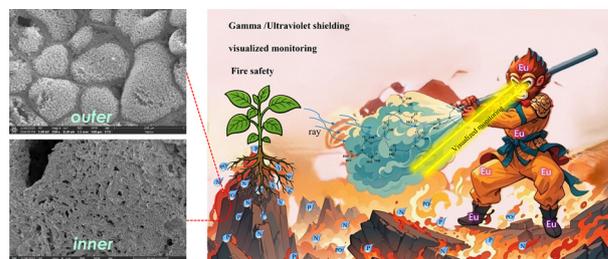
Qianqian Shen, Yechao Lin, Hongge Pan, Mi Yan, Xuan Zhang* and Yinzhu Jiang*



6899

Biomimetic sand-fixation-inspired flame retardants: enhanced char stabilization and multifunctional polyurethane with integrated fire safety, radiation shielding, and visual monitoring

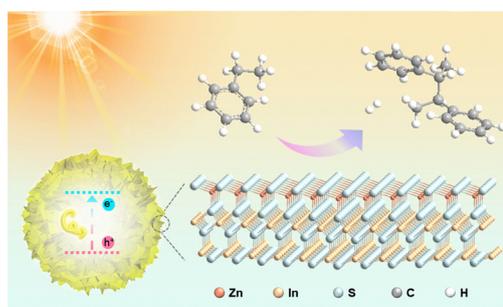
Xingyao Li, Meina Xie, Jianguan Gao, Kunpeng Song, Xiangmei Li, Junming Geng,* Jiyu He* and Rongjie Yang



6912

Customizing ZnIn₂S₄ photocatalysts by regulating sulfur sources for C(sp³)-H transformation

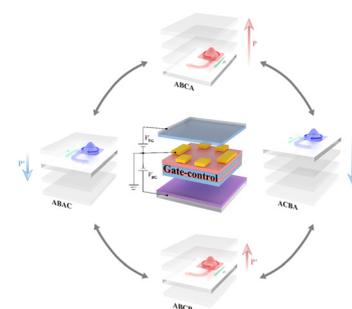
Jian-Hui Zheng, Chang-Long Tan, Ming-Yu Qi,* Zi-Rong Tang* and Yi-Jun Xu*



6919

Gate-controllable quadri-layertronics in a 2D multiferroic antiferromagnet

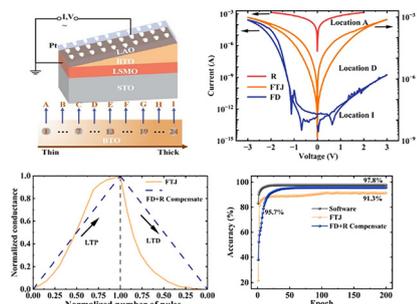
Ting Zhang,* Mingsheng Wang, Xilong Xu, Ying Dai and Yandong Ma*



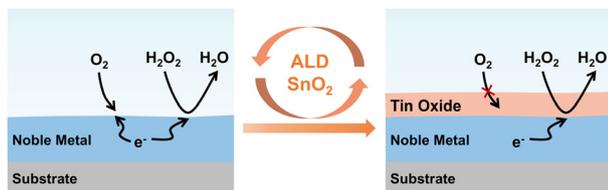
6928

Adaptive ferroelectric memristors with high-throughput BaTiO₃ thin films for neuromorphic computing

Ya-Fei Jiang, Huai-Yu Peng, Yu Cai, Ya-Ting Xu, Meng-Yao Fu, Min Feng, Bo-Wen Wang, Ya-Qiong Wang, Zhao Guan, Bin-Bin Chen, Ni Zhong, Chun-Gang Duan and Ping-Hua Xiang*



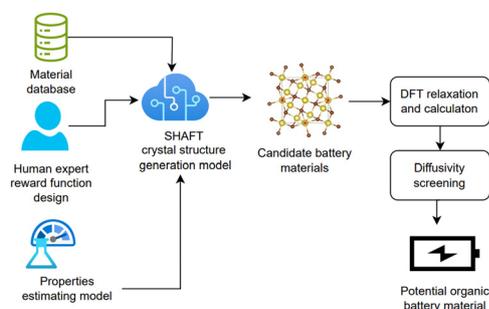
6938



High O₂ tolerant metal-based catalysts for selective H₂O₂ reduction by constructing an ultra-thin oxide passivation layer

Yaolan Li, Zhenyao Ding, Yifan Zhou, Zhiping Liu, Lihui Huang, Liping Chen* and Xinjian Feng*

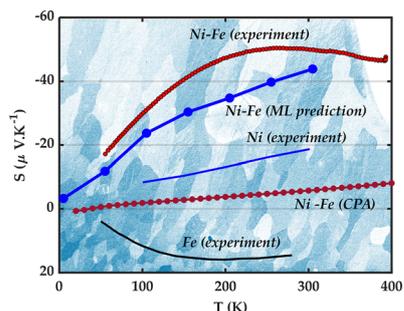
6945



The search for superionic solid-state electrolytes using a physics-informed generative model

Tri Minh Nguyen,* Sherif Abdulkader Tawfik, Truyen Tran, Sunil Gupta, Santu Rana and Svetha Venkatesh

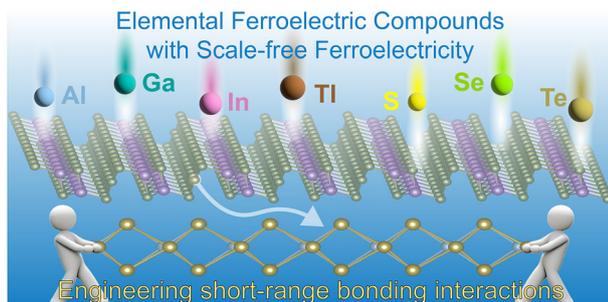
6956



High thermoelectric power factor in Ni–Fe alloy for active cooling applications

Shuai Li, Sree Sourav Das, Haobo Wang, Kacper Pryga, Sujit Bati, Bartłomiej Wiendlocha, Junichiro Shiomi, Jerrold A. Floro, Prasanna V. Balachandran and Mona Zebarjadi*

6967



Prediction of scale-free ferroelectricity in the elemental ferroelectric compound M₂X₅ with distinctive structural prototype

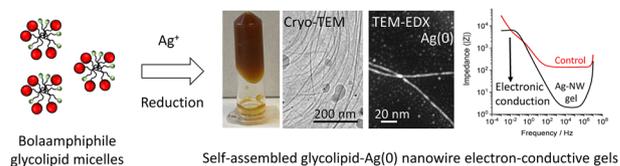
Huidong Wang, Xiaojun Shi, Ran Xia and Xiaoming Zhang*



6977

Electron conductive self-assembled hybrid low-molecular weight glycolipid-nanosilver gels

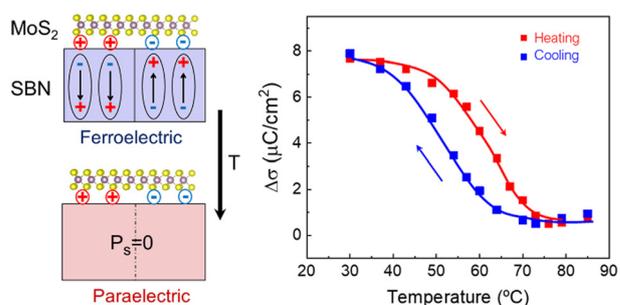
Korin Gasia Ozkaya, Othmane Darouich, Hynd Remita, Isabelle Lampre, Lionel Porcar, Alain Carvalho, Marc Schmutz, Sandra Casale, Christel Laberty-Robert and Niki Baccile*



6992

Electron density modulation in monolayer MoS₂ through the phase transition of a relaxor ferroelectric substrate

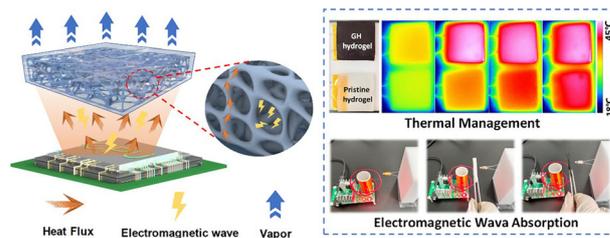
David Hernández-Pinilla, Dennis P. Cachago, Yi An Xia, Guillermo López-Polín, Mariola O Ramírez and Luisa E. Bausá*



7000

GO-HNT framework-based hydrogels with efficient water evaporation-driven cooling and superior electromagnetic wave absorption

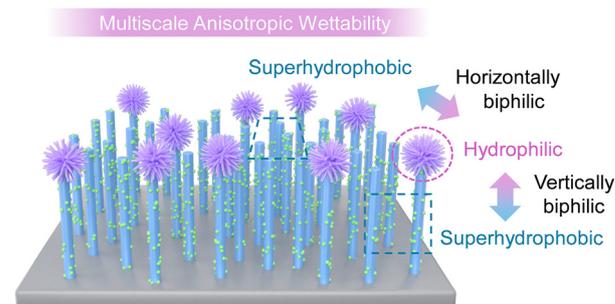
Yang Tao, Junwei Li, Yongxin Qian, Shuangfu Gang, Hao He, Wang Li, Yubo Luo, Xin Li* and Junyou Yang*



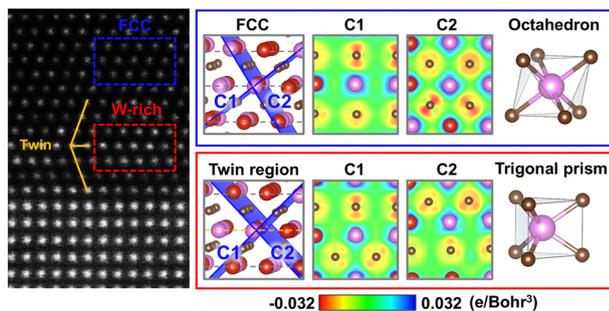
7012

Enhancing liquid–vapor phase behavior through multiscale anisotropic wettability gradient in dandelion-inspired nanostructures

Jiayu Song, Francis Eric P. Almaquer, Zixuan Xiong, Xiong Wang, Meng Li, Xiao Yan, Wei Han, Qiong Wu, Michael Kappl, Youmin Hou, Hans-Jürgen Butt and King Lun Yeung*



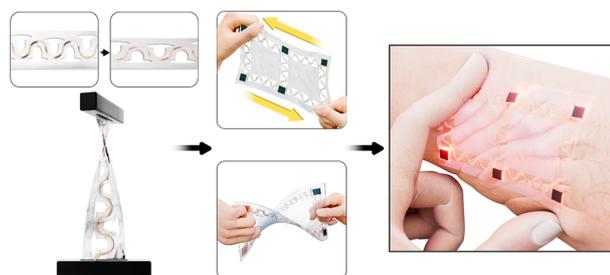
7024



A new twinning mechanism induced by solute electronic structures

Wenjin Zheng, Huasheng Lei, Wei Lai, Xiaoyuan Ye, Junwen Fu, Chongze Hu,* Fu-Zhi Dai* and Zhiyang Yu*

7033



Designing pores to suppress crack generation at the interface between serpentine interconnects and elastomers for highly durable stretchable electronics

Seungkyu Lee, Jun Chang Yang* and Steve Park*

