

Materials Horizons

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ISSN 2051-6347 CODEN MHAOAL 11(17) 3963-4226 (2024)



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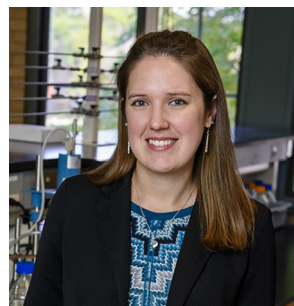
See Hongze Wang, Yi Wu et al., pp. 4037-4053.

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EDITORIAL

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Materials Horizons Emerging Investigator Series:
Professor Linsey C. Seitz, Northwestern University, USA

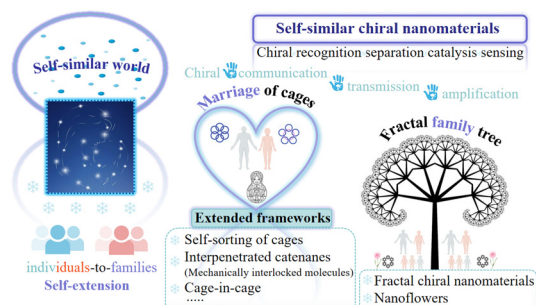


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From individuals to families: design and application of self-similar chiral nanomaterials

Tingting Hong,* Qi Zhou, Yilian Liu, Jiaqi Guan, Wenhui Zhou, Songwen Tan* and Zhiqiang Cai*



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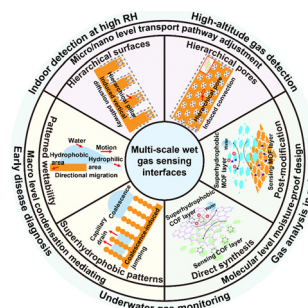


REVIEWS

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Bioinspired multi-scale interface design for wet gas sensing based on rational water management

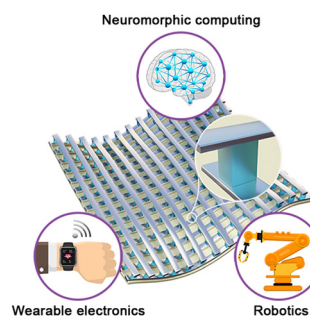
Yutian Ma, Weifeng Li, Weifang Zhang, Lei Kong, Chengyue Yu, Cen Tang, Zhongpeng Zhu,* Yupeng Chen* and Lei Jiang



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Recent advances in flexible memristors for advanced computing and sensing

Jiaming Xu, Ziwang Luo, Long Chen, Xuhui Zhou, Haozhe Zhang, Yuanjin Zheng* and Lei Wei*

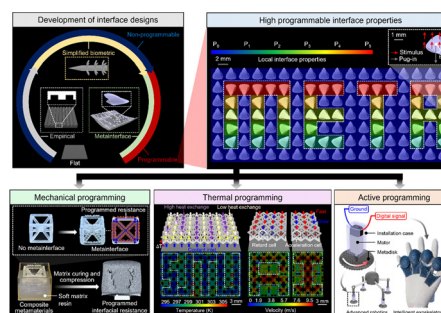


COMMUNICATIONS

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Metainterfaces with mechanical, thermal, and active programming properties based on programmable orientation-distributed biometric architectonics

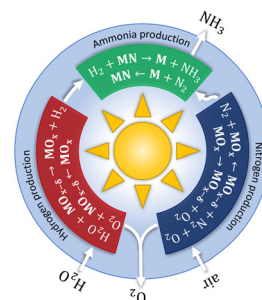
Zhenyang Gao, Hongze Wang,* Pengyuan Ren, Gengchen Zheng, Yang Lu, Bokang Peng, Zijue Tang, Yi Wu* and Haowei Wang



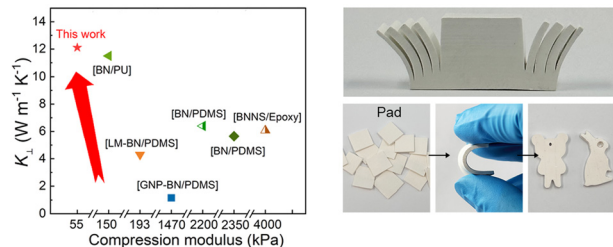
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Thermochemical production of ammonia via a two-step metal nitride cycle – materials screening and the strontium-based system

Daniel Notter, Tiago Elias Abi-Ramia Silva, Maria Elena Gálvez, Brendan Bulfin and Aldo Steinfeld*



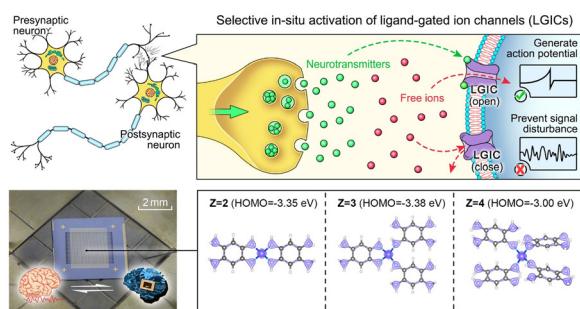
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Highly oriented BN-based TIMs with high through-plane thermal conductivity and low compression modulus

Rongjie Yang, Yandong Wang, Zhenbang Zhang, Kang Xu, Linhong Li, Yong Cao, Maohua Li, Jianxiang Zhang, Yue Qin, Boda Zhu, Yingying Guo, Yiwei Zhou, Tao Cai, Cheng-Te Lin, Kazuhito Nishimura, Chen Xue,* Nan Jiang and Jinhong Yu*

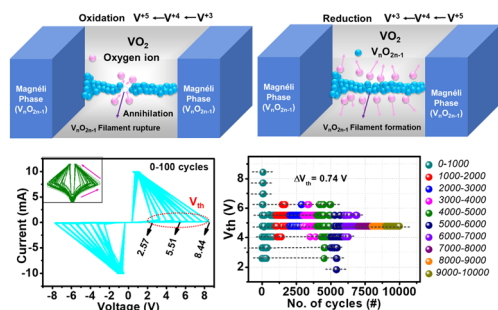
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Affective computing for human-machine interaction via a bionic organic memristor exhibiting selective *in situ* activation

Bingjie Guo, Xiaolong Zhong, Zhe Yu,* Zhilong He, Shuzhi Liu, Zhixin Wu, Sixian Liu, Yanbo Guo, Weilin Chen, Hongxiao Duan, Jianmin Zeng, Pingqi Gao, Bin Zhang, Qian Chen, Haidong He, Yu Chen* and Gang Liu*

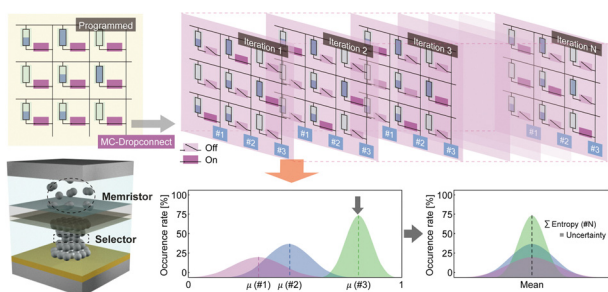
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Origin of discrete resistive switching in chemically heterogeneous vanadium oxide crystals

B. Raju Naik, Yadu Chandran, Kakunuri Rohini, Divya Verma, Shriram Ramanathan and Viswanath Balakrishnan*

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Memristive Monte Carlo DropConnect crossbar array enabled by device and algorithm co-design

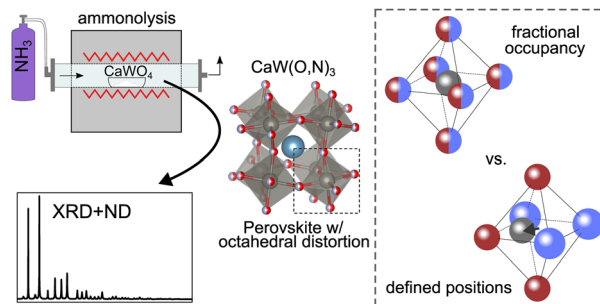
Do Hoon Kim, Woon Hyung Cheong, Hanchan Song, Jae Bum Jeon, Geunyoung Kim and Kyung Min Kim*



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Synthesis and symmetry of perovskite oxynitride $\text{CaW}(\text{O},\text{N})_3$

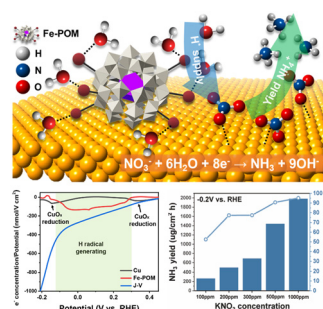
Matthew E. Sweers, Tzu-chen Liu, Jiahong Shen, Bingzhang Lu, John W. Freeland, Christopher Wolverton, Gabriela B. Gonzalez Aviles and Linsey C. Seitz*



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A hydrogen radical pathway for efficacious electrochemical nitrate reduction to ammonia over an Fe-polyoxometalate/Cu electrocatalyst

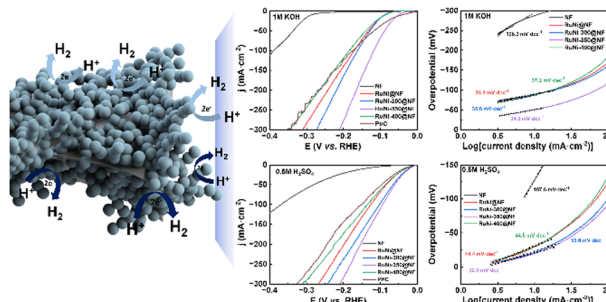
Heebin Lee, Keon-Han Kim, Reshma R. Rao, Dong Gyu Park, Won Ho Choi, Jong Hui Choi, Dong Won Kim, Do Hwan Jung, Ifan E. L. Stephens, James R. Durrant* and Jeung Ku Kang*



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Partially oxidized inter-doped RuNi alloy aerogel for the hydrogen evolution reaction in both alkaline and acidic media

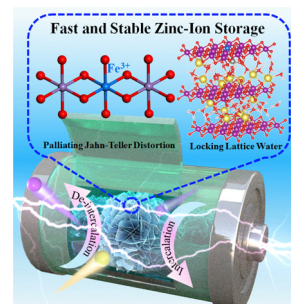
Taehee Kim, Hwapyung Jung, Haryeong Choi, Wonjun Lee, Umakant M. Patil, Vinayak G. Parale, Younghun Kim, Jiseung Kim, Sang-Hyun Kim and Hyung-Ho Park*



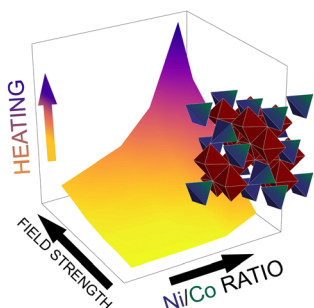
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Suppressing Jahn–Teller distortion and locking lattice water with doped Fe(III) in birnessite toward fast and stable zinc-ion batteries

Xiang Li, Yanchun Sun, Le Zhou, Haiyan Wang,* Binbin Xie,* Wen Lu, Jiqiang Ning and Yong Hu*



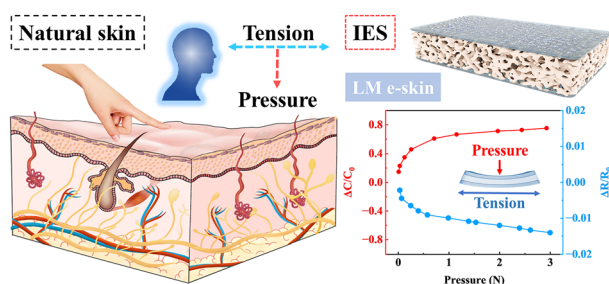
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Performance of ferrite nanoparticles in inductive heating swing adsorption (IHSA): how tailoring material properties can circumvent the design limitations of a system

Maxim De Belder, Alysson F. Morais, Natan De Vos, Luc Van Meervelt, Joeri F.M. Denayer, Johan A. Martens and Eric Breynaert*

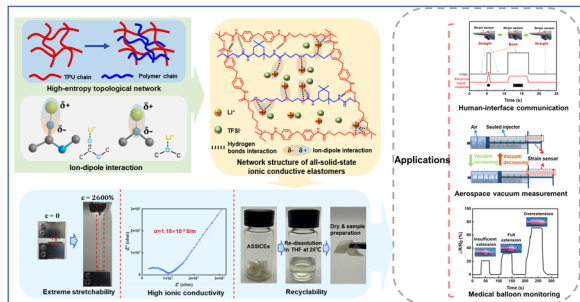
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An integrated electronic skin with biaxial sensitivity from a layered biphasic liquid metal/polymer film

Zixun Chen, Hao Peng* and Jiuyang Zhang*

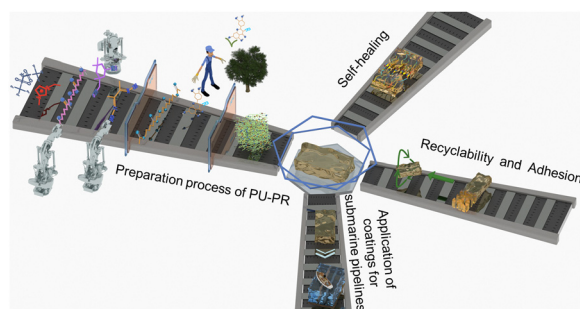
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Flexible iontronics with super stretchability, toughness and enhanced conductivity based on collaborative design of high-entropy topology and multivalent ion–dipole interactions

Wang Zhan, Jianrui Zhang, Qi Zhang, Zhilu Ye, Boyang Li, Cuiling Zhang, Zihao Yang, Li Xue, Zeying Zhang, Feng Ma, Niancai Peng, Yi Lyu, Yaqiong Su, Ming Liu* and Xiaohui Zhang*

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Versatile ionic liquid gels formed by dynamic covalent bonding and microphase separated structures

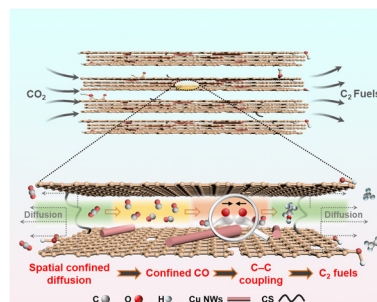
Zeyu Zhang, Xin Zhao, Xing Song, Dejun Peng, Shixue Ren,* Junxue Ren,* Yanli Ma and Shujun Li



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Confined CO in a sandwich structure promotes C–C coupling in electrocatalytic CO₂ reduction

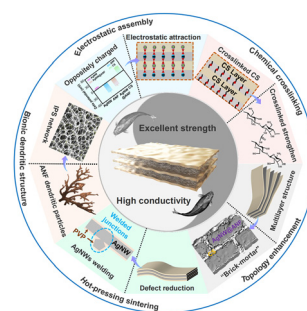
Wenya Fan, Yinghuan Liu, Chengbin Zhang, Xiangdong Chen, Dongpo He, Mengqian Li, Qing Hu, Xingchen Jiao,* Qingxia Chen* and Yi Xie



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A novel strategy to prepare high performance multifunctional composite films by combining electrostatic assembly, crosslinking, topology enhancement and sintering

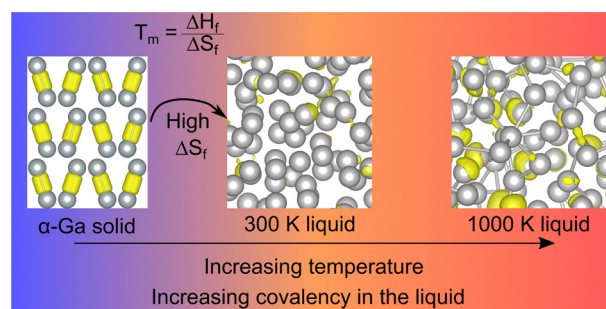
Xuezhong Zhang, Die Wu, Hongju Zhou, Dong Xiang, Haoming Sun, Chuanliang Chen, Dong Li, Yuanpeng Wu, Qiang Fu and Hua Deng*



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Resolving decades of debate: the surprising role of high-temperature covalency in the structure of liquid gallium

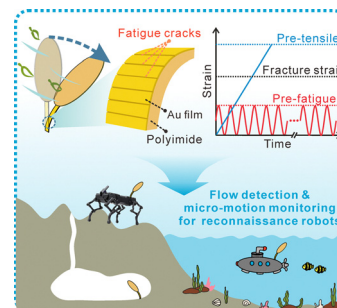
Stephanie Lambie, Krista G. Steenbergen and Nicola Gaston*



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Fatigue crack-based strain sensors achieving flow detection and motion monitoring for reconnaissance robot applications

Xu-Ping Wu, Xue-Mei Luo,* Hong-Lei Chen, Yi Man, Yao-Yao Bai, Tian-Ze Qin, Bin Zhang and Guang-Ping Zhang*



CORRECTION

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Correction: Affective computing for human–machine interaction via a bionic organic memristor exhibiting selective *in situ* activation

Bingjie Guo, Xiaolong Zhong, Zhe Yu,* Zhilong He, Shuzhi Liu, Zhixin Wu, Sixian Liu, Yanbo Guo, Weilin Chen, Hongxiao Duan, Jianmin Zeng, Pingqi Gao, Bin Zhang, Qian Chen, Haidong He, Yu Chen* and Gang Liu*

