

Journal of Materials Chemistry A

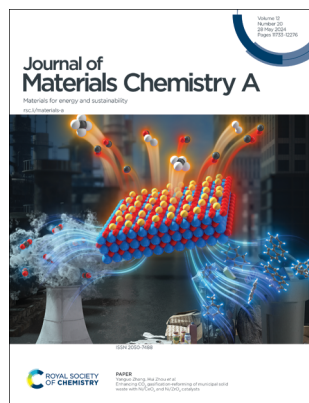
Materials for energy and sustainability

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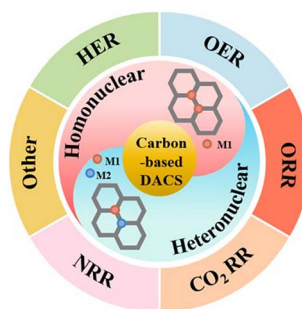
See Yanguo Zhang, Hui Zhou *et al.*, pp. 11848–11856. Image reproduced by permission of Yanguo Zhang from *J. Mater. Chem. A*, 2024, 12, 11848.

REVIEWS

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Carbon-based double-metal-site catalysts: advances in synthesis and energy applications

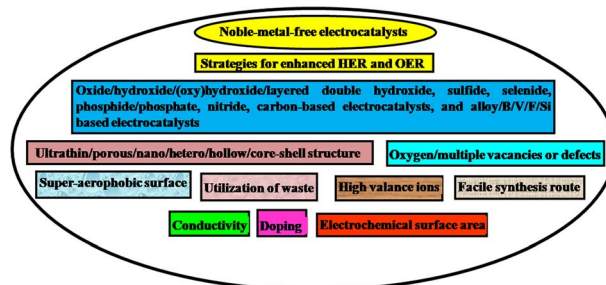
Liping Wang, Zihao Wei, Zhiyi Sun, Linlin Zhu, Yan Gao,* Zhuo Chen,* Shenghua Li and Wenxing Chen*



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Recent advances in noble metal-free electrocatalysts to achieve efficient alkaline water splitting

Mohammed-Ibrahim Jamesh, Dingqin Hu, Jing Wang, Farah Naz, Jianpei Feng, Li Yu, Zhao Cai, Juan Carlos Colmenares, Duu-Jong Lee,* Paul K. Chu* and Hsien-Yi Hsu*



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COMMUNICATIONS

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Bio-inspired sustained entrainment in immiscible liquid–liquid systems for collecting floating oil

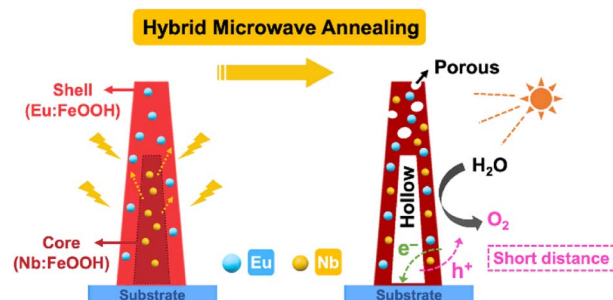
Ziyang Cheng, Tao Shen, Shuaizhong Chen, Cunlong Yu, Panhai Li, Qirong Tian, Chuxin Li, Lei Jiang and Zhichao Dong*



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Inducing hollow and porous hematite nanorod photoanodes by rare earth and transition metal doping for enhanced solar water splitting

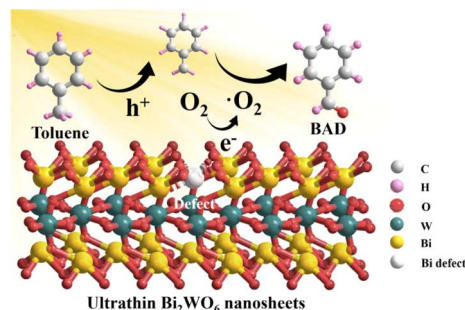
Chenyang Xu, Hongxin Wang, Ke Liang, Yuanming Zhang, Weicong Li and Hemin Zhang*



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Tailoring bismuth defects in Bi₂WO₆ nanosheets for photocatalytic C–H activation

Xinye Li, Luteng Luo, Hele Guo, Bo Weng,* Li Sun, Gangamallai Velpula, Imran Aslam, Maarten B. J. Roeflaers, Qinghua Chen, Lingxing Zeng,* Min-Quan Yang and Qingrong Qian*

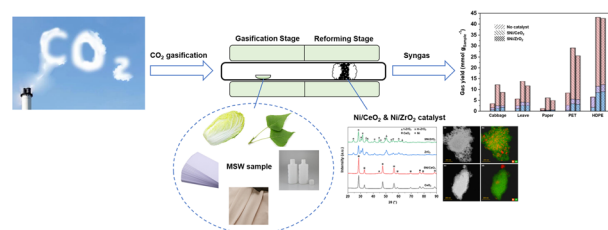


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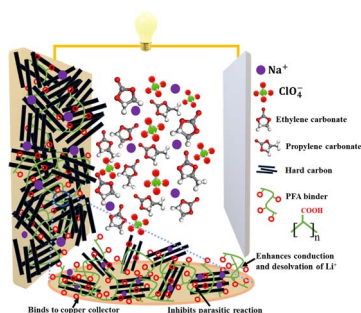
11848

Enhancing CO₂ gasification-reforming of municipal solid waste with Ni/CeO₂ and Ni/ZrO₂ catalysts

Shiyu Zhang, Yibing Peng, Mengna Wu, Qinghai Li, Yanguo Zhang* and Hui Zhou*



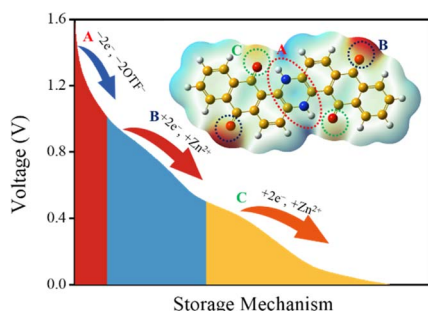
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Water-soluble densely functionalized poly(hydroxycarbonylmethylene) binder for higher-performance hard carbon anode-based sodium-ion batteries

Amarshi Patra and Noriyoshi Matsumi*

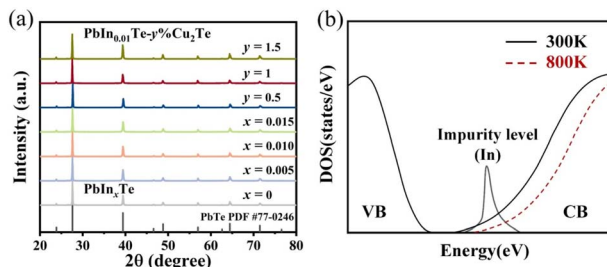
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Multi-electron bipolar-type organic molecules for high-capacity dual-ion zinc batteries

Chengmin Hu, Xiaozhe Yang, Pingxuan Liu, Ziyang Song, Yaokang Lv, Ling Miao,* Mingxian Liu* and Lihua Gan*

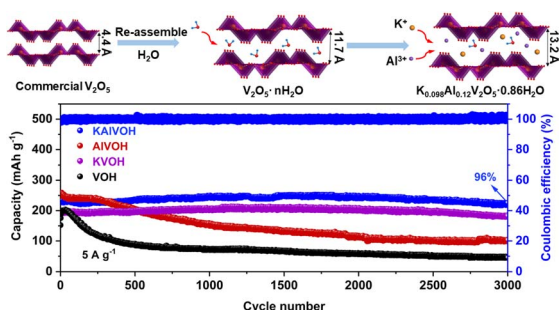
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Thermoelectric performance optimization of n-type PbTe by In and Cu₂Te co-doping and anomalous temperature-dependent transport

Feng Gao, Jianfeng Cai, Mancang Li, Zhiyu Chen, Yu Wang, Zongwei Zhang, Lulu Chen, Ding Hu, Xiaojian Tan, Jiehua Wu, Guoqiang Liu,* Zhenhua Ge* and Jun Jiang*

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Fabrication of a heterovalent dual-cation pre-embedded hydrated vanadium oxide cathode for high-performance zinc ion storage

Wei Liu, Xiaoyu Liu,* Fanghua Ning, Sidra Subhan, Yuyu Liu, Qian Li, Jiujun Zhang, Shigang Lu and Jin Yi*

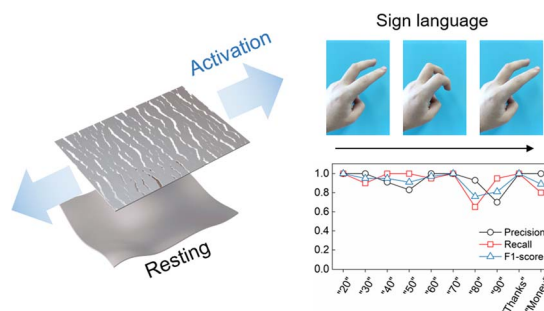


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A flexible silver-nanoparticle/polyacrylonitrile biomimetic strain sensor by patterned UV reduction for artificial intelligence flexible electronics

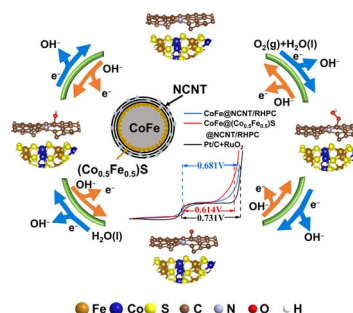
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Heterostructure $\text{CoFe}@\text{(Co}_{0.5}\text{Fe}_{0.5}\text{)S}@\text{NCNT}$ anchored on rice husk-based hierarchical porous carbon as a bifunctional cathode catalyst for Zn–air batteries

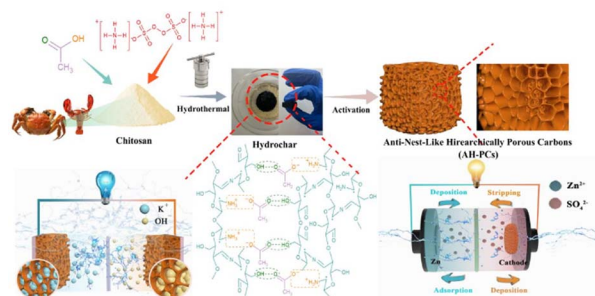
Jin Yang, Jun Shi, Yupeng Wu, Huimin Liu, Zhiqiang Liu, Qinwen You, Xinxin Li, Linchuan Cong, Debo Liu, Fangbing Liu, Yue Jiang, Nan Lin,* Wenli Zhang and Haibo Lin



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Ammonium persulfate assisted synthesis of ant-nest-like hierarchical porous carbons derived from chitosan for high-performance supercapacitors and zinc-ion hybrid capacitors

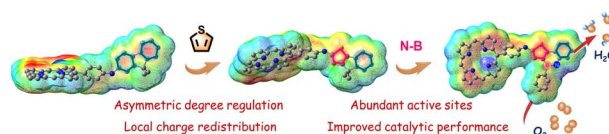
Gui Chen, Shaozhen Chen, Xiaoyan Wu, Caijuan Wu, Yong Xiao, Hanwu Dong, Xiaoyuan Yu, Yeru Liang,* Hang Hu* and Mingtao Zheng*



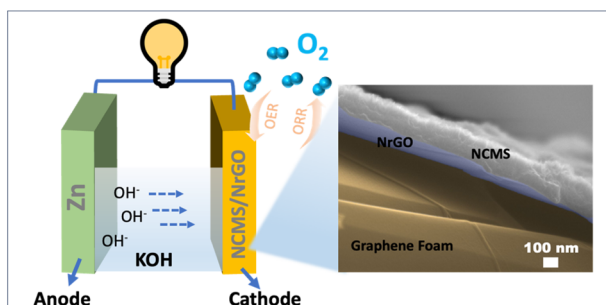
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Porphyrin-containing conjugated microporous polymers with gradient asymmetric design for efficient oxygen reduction

Kunpeng Zheng, Maorong Wang, Binbin Wang,* Meilong Wang, Zhong Wang and Xiaojing Long*



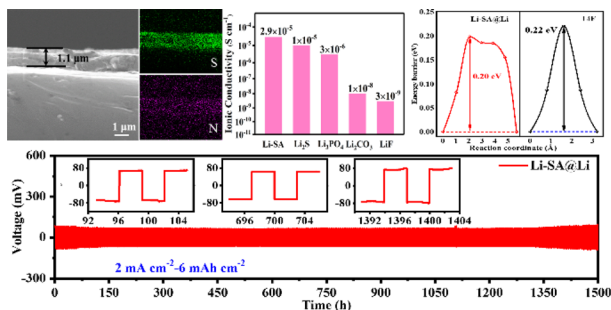
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Versatile electrochemical manufacturing of mixed metal sulfide/N-doped rGO composites as bifunctional catalysts for high power rechargeable Zn–air batteries

Jaime S. Sanchez, Zhenyuan Xia,* Keyvan Mirehbar, Sankar Sasidharan, S. Assa Aravindh, Andrea Liscio, Jinhua Sun, Meganne Christian, Jesus Palma, Vincenzo Palermo* and Rebeca Marcilla*

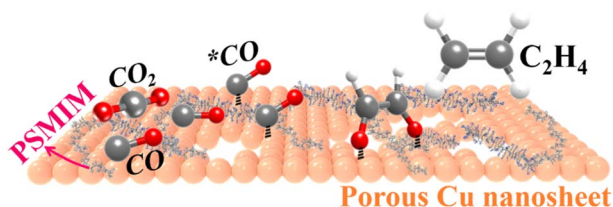
11960



Highly reversible lithium metal anodes enabled by a lithium sulfamate layer with high ionic conductivity and a low surface diffusion barrier

Pinjuan Zou, Wenbin Jiang, Longtao Ma* and Liuzhang Ouyang*

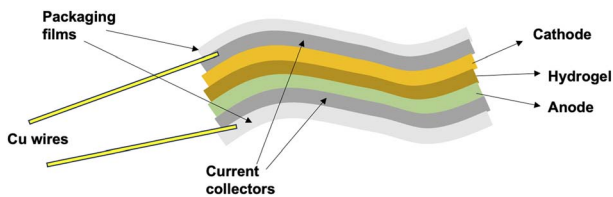
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Regulating the local microenvironment on porous Cu nanosheets for enhancing electrocatalytic CO₂ reduction selectivity to ethylene

Dan Wang, Qingqing Song, Kaibin Li, Yuwei Zhou, Junjun Mao, Chenchen Zhang, Yang Lou, Chengsi Pan, Jiawei Zhang, Yongfa Zhu and Ying Zhang*

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A full metal-free flexible ammonium-ion battery with biodegradable hydrogel electrolyte

Abhishek Paudel, Ajalynn N. Crum and Ying Wang*

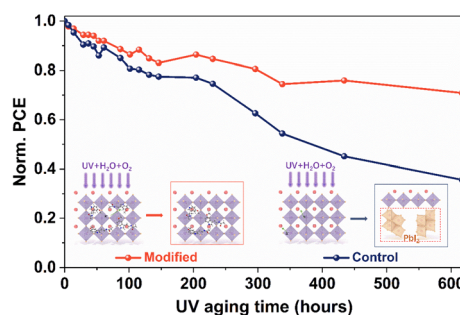


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Melatonin treatment as an anti-aging therapy for UV-related degradation of perovskite solar cells

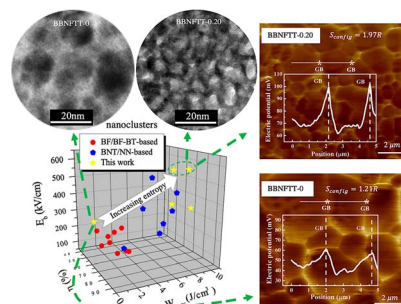
Fei Liu, Agnes Valencia, Yuhua Zhu, Xiangyang Zhang, Weilu Li and Walid A. Daoud*



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Configuration-entropy effects on BiFeO₃–BaTiO₃ relaxor ferroelectric ceramics for high-density energy storage

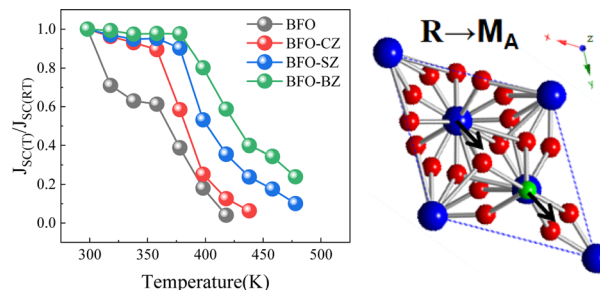
Rhys Montecillo, Cheng-Sao Chen,* Kuei-Chih Feng, R. R. Chien, Pin-Yi Chen* and Chi-Shun Tu*



12009

Highly stable photovoltaic effects in A²⁺–Zr⁴⁺ (A = Ca, Sr, Ba) co-doped BiFeO₃ films with self-polarization

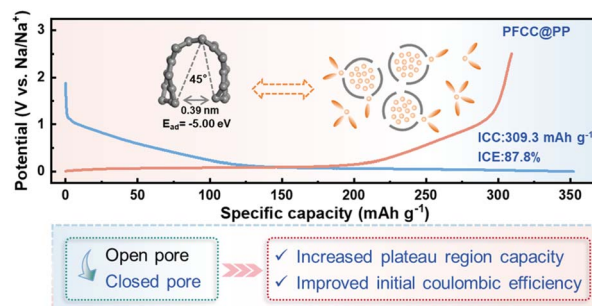
Lei Shi, Wenyue Zhao, Zhao Wang, Wenjing Hua, Xiaoxia Yang, Weidong Fei* and Yu Zhao*



12015

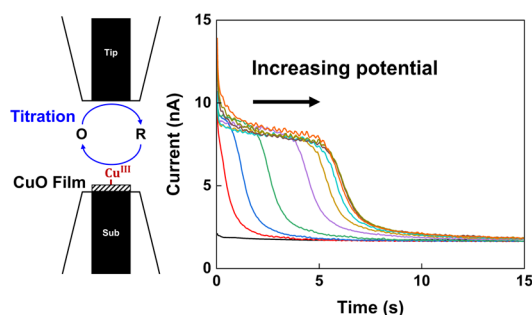
Closed pore structure engineering from ultra-micropores with the assistance of polypropylene for boosted sodium ion storage

Xue Li, Ning Sun,* Shaohong Zhang, Razium Ali Soomro and Bin Xu*



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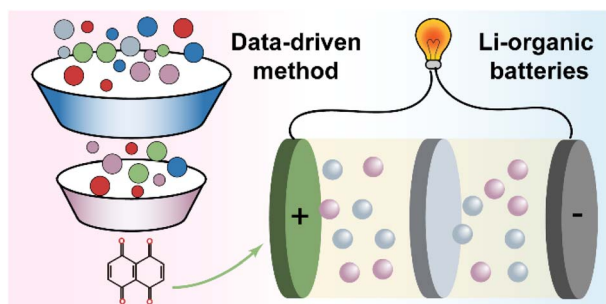
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***In situ* analysis of the oxygen evolution reaction on the CuO film in alkaline solution by surface interrogation scanning electrochemical microscopy: investigating active sites (Cu^{III}) and kinetics**

Seokjun Han, Jinoh Yoo and Won Tae Choi*

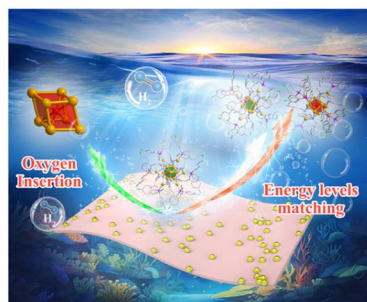
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Data-driven discovery of carbonyl organic electrode molecules: machine learning and experiment

Jiayi Du, Jun Guo, Qiqi Sun, Wei Liu, Tong Liu,* Gang Huang and Xinbo Zhang*

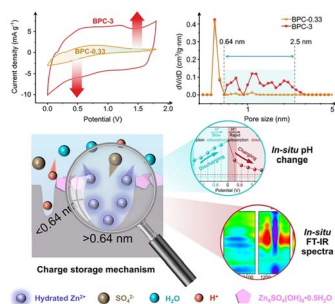
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Oxygen insertion at the cage center: an unconventional tuning strategy for enhancing the photocatalytic performance of atomically precise copper cluster cocatalysts

Yun-Dong Cao, Di Yin, Ming-Liang Wang, Hong Liu,* Yi Feng, Lin-Lin Fan,* Cai-Li Lv and Guang-Gang Gao*

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Toward record high Zn^{2+} storage in carbon electrodes *via* pore confinement engineering

Xiubo Zhang, Chang Yu,* Yuanyang Xie, Jinhe Yu, Yingbin Liu, Yi Yang, Jianjian Wang, Shuqin Lan, Siyi Hou, Kunlun Liu and Jieshan Qiu*

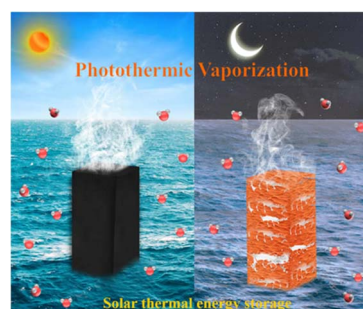


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Harvesting solar energy with a Ni-MOF-based evaporator for efficient solar thermal storage and steam generation

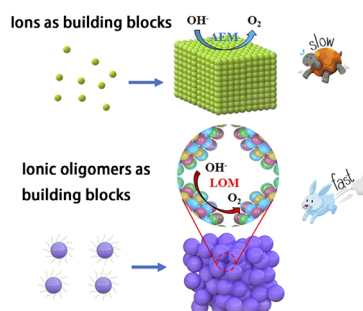
You Xu, Zhengyun Wang, Xianbao Wang, Zhenzhen Guo, Muhammad Sultan Irshad, Naila Arshad, Jiang Gong,* Hongfang Liu* and Guangfang Li*



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Constructing vacancy-rich metal phosphates by the spatial effect of ionic oligomers for enhanced OER activity

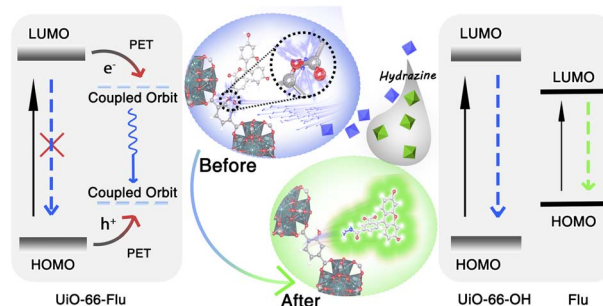
Yida Zhao, Xinyu He, Xiaoming Ma, Zhengxi Guo, Menghui Qi, Zhaoming Liu* and Ruikang Tang*



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Fluorophore branching boosted photo-induced energy transfer in UiO-66 for ultrasensitive and instant hydrazine sensing

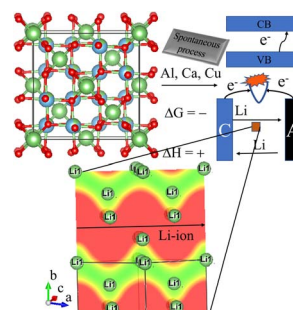
Ying Luo, Da Lei,* Maohua Li, Yuansheng Ge, Jiguang Li, Baiyi Zu, Jun Yao* and Xincun Dou*



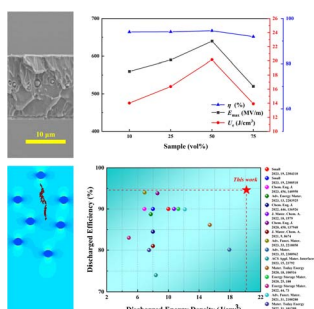
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Charge-discharge mechanism, lithium-ion diffusion in Al, Ca, and Cu doped lithium metatitanate based anodes for Li-ion batteries: first principles study

Kiran Kumar Surthi,* Mamatha Thak and Kamal K. Kar



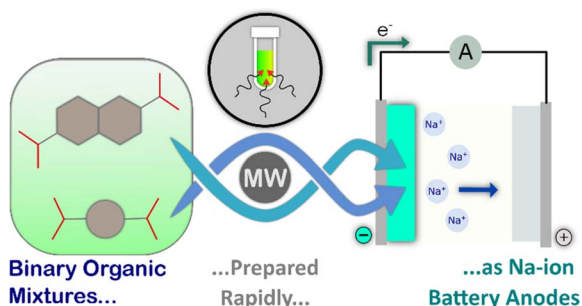
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PEI-based all-organic composite films with simultaneous excellent energy storage density and high efficiency

Yanlong Ma, Ying Lin,^{*} Yongjing Zhang, Zhener Dang, Yi Wang, Qibin Yuan^{*} and Haibo Yang^{*}

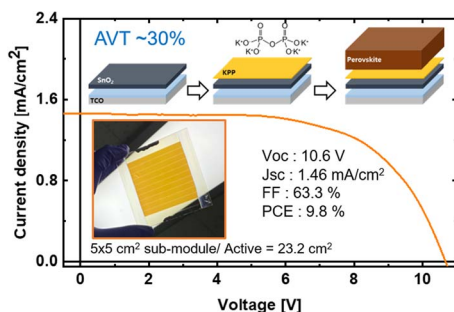
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Rapid preparation of binary mixtures of sodium carboxylates as anodes in sodium-ion batteries

Aamod V. Desai, Romy Ettlinger, Heitor S. Seleghini, Maximilian G. Stanzione, Joel M. Cabañero, Jr, Sharon E. Ashbrook, Russell E. Morris^{*} and A. Robert Armstrong^{*}

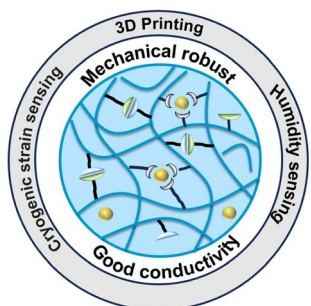
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Pyrophosphate interlayer improves performance of semi-transparent perovskite solar cells

Jason J. Yoo, Jin-Won Lee, Yeonkyeong Ju, Bong Joo Kang, Youngwoong Kim, Beom-Soo Kim, Young Yun Kim, Seong Sik Shin,^{*} Tae Joo Shin^{*} and Nam Joong Jeon^{*}

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Simultaneously enhancing the mechanical robustness and conductivity of ionogels by *in situ* formation of coordination complexes as physical crosslinks

Ning Yu, Yujiang Meng, Rui Li, Dongdong Mai, Shijie Shan, Xionghui Wu, Yaling Lin^{*} and Anqiang Zhang^{*}

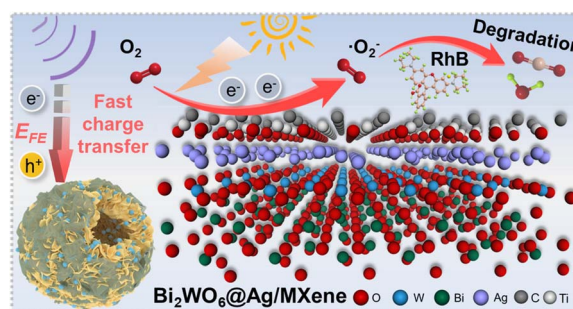


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Design of interfacial dual Schottky junctions to modulate charge transfer for enhanced piezo-assisted photocatalytic degradation RhB performances

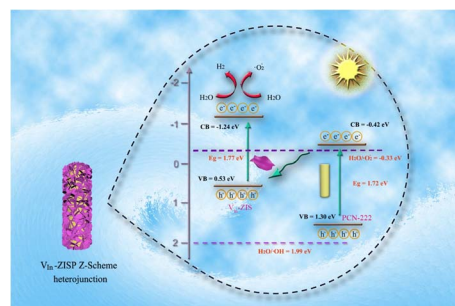
Xiaoqi Jiang, Shengdong Sun, Yuqiao Wang,*
Lebing Zhao, Fangzhi Huang and Shikuo Li*



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Zr-based metal–organic framework PCN-222@defective ZnIn2S4 core–shell Z-scheme heterojunctions toward efficient charge separation and optimized photocatalytic performance

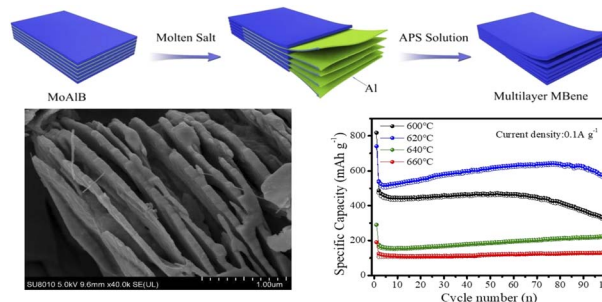
Pingping Liu, Peng Chen,* Zipeng Xing,* Zhenzi Li,
Haixia Liu, Yu Wang, Yi Yang, Yizhu Wang and Wei Zhou*



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Layered Mo_xB_y (MBenes) derived by a molten-salt method and their application in advanced LIB anodes

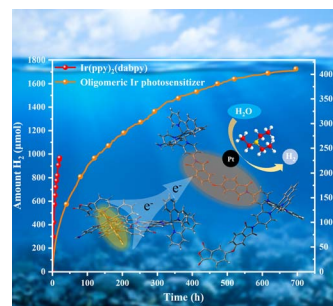
Yi-Zhao Chen, Ting-Ting Mao, Song-Yi Liao,* Selina
X. Yao and Yong-Gang Min*



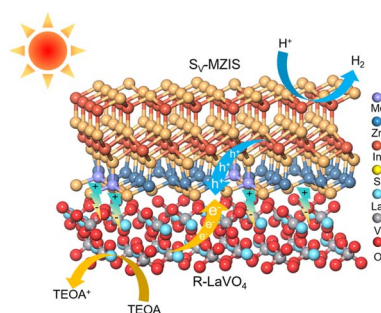
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Aggregation of oligomeric Ir photosensitizers promotes efficient and long-lifetime photocatalytic hydrogen evolution

Yifan Huang, Shihan Liu, Bo Wang, Ying Wang,*
Yifan Zhang* and Pengyang Deng*



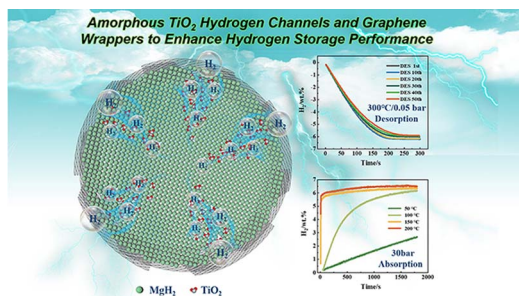
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Efficient photocatalytic hydrogen evolution based on a Z-scheme 2D LaVO₄/2D Mo-doped S_v-ZnIn₂S₄ heterojunction

Wei Guan, Lin Zhang, Peng Wang, Ying Wang, Haoyu Wang, Xingchen Dong, Liyan Yu, Zhixing Gan,^{*} Lifeng Dong^{*} and Lina Sui^{*}

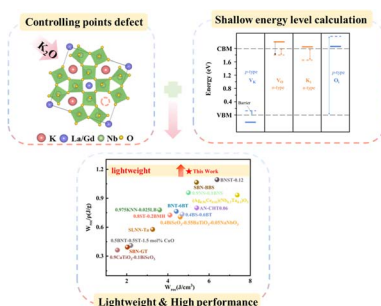
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Fabrication of amorphous TiO₂ hydrogen channels and graphene wrappers to enhance the hydrogen storage properties of MgH₂ with extremely high cycle stability

Fanqi Bu, Ali Wajid, Na Yang, Mengyue Gu, Xuewen Zhao, Lei Huang, Xin Ji, Shujiang Ding, Yonghong Cheng and Jinying Zhang^{*}

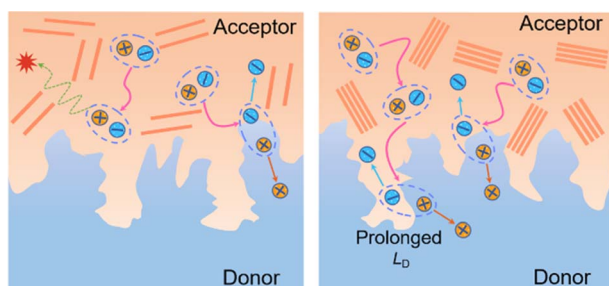
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Achieving high energy density/efficiency in light-metal-element-rich relaxor ferroelectric ceramics by annihilating volatile Schottky defects

Kunjie Lou, Yizheng Bao, Jun Chai,^{*} Jiyue Wu, Yanshuang Hao, Shaozheng Zhang and Genshui Wang^{*}

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Prolonging the exciton diffusion length by manipulating molecular stacking enables pseudo-planar heterojunction organic solar cells to achieve over 19% efficiency

Ke Wang, Fuwen Zhao,^{*} Yufan Zhu, Yi He, Zesheng Liu, Xiao Han, Qi Ai, Xingxing Shen, Bao Li, Jianqi Zhang, Yuze Lin, Chunru Wang and Dan He^{*}

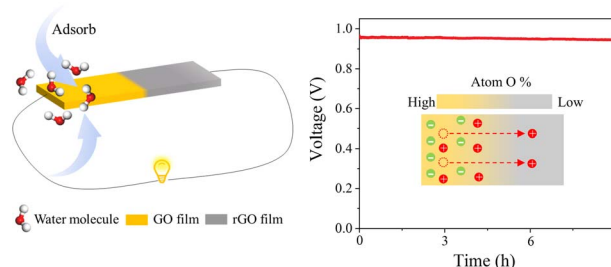


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Scalable preparation of flexible heterogeneous graphene oxide structures for high-performance wet power generation

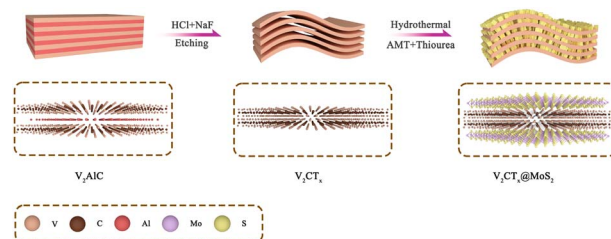
Yu Gao, Xiaoming Cai, Yuzhou Zhao, Wentian Huang, Jian Lv, Jie Wang, Huiming Liang, Zhenliang Hao, Hongling Tan and Jinming Cai*



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Fast response/recovery and sub-ppm ammonia gas sensors based on a novel $V_2CT_x@MoS_2$ composite

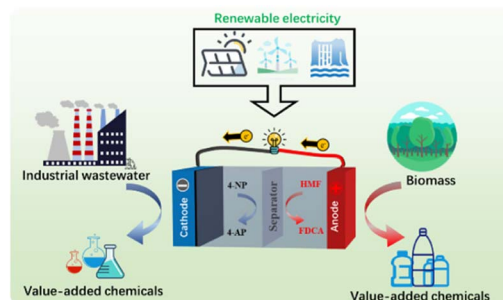
Manyu Luo, Xingpeng Huang, Deshou Xiong, Sijin Cai, Shuang Li,* Zhenhong Jia* and Zhixian Gao*



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Amino-tethered Ni_3S_2/MoS_2 heterojunction for coupling electrochemical 5-hydroxymethylfurfural oxidation with 4-nitrophenol hydrogenation

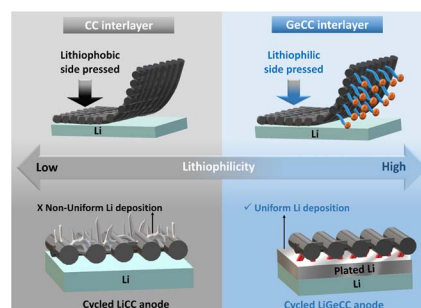
Tao Chen, Yulong Li, Fangpei Ma, Mingdong Sun, Ping Fu, Xiaoling Liu, Yu Zhou* and Jun Wang*

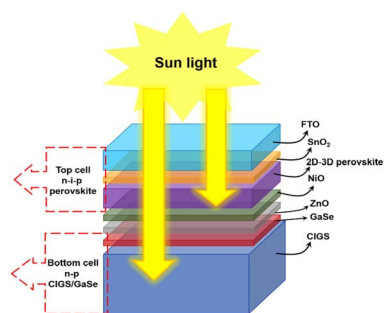


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Lithiophilic interlayer driven 'bottom-up' metal infilling in high current density Li-metal anodes

Syed Abdul Ahad, Janina Drews, Timo Danner, Arnulf Latz and Hugh Geaney*





Possibility of highly efficient 2D–3D perovskite/CIGS tandem solar cells with over 30% efficiency

Eun-Bi Kim, M. Shaheer Akhtar, Cong Liu,^{*}
Yousheng Wang^{*} and Sadia Ameen^{*}

