

Journal of Materials Chemistry A

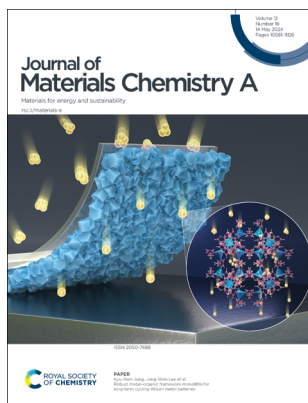
Materials for energy and sustainability

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ISSN 2050-7488 CODEN JMCAET 12(18) 10581–11126 (2024)



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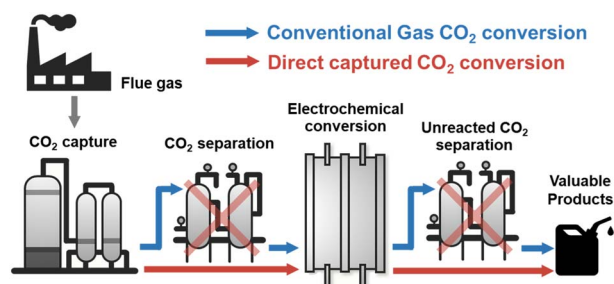
See Kyu-Nam Jung,
Jong-Won Lee *et al.*,
pp. 10686–10694. Image
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Chem. A*, 2024, **12**, 10686.

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Advances in the direct electro-conversion of captured CO₂ into valuable products

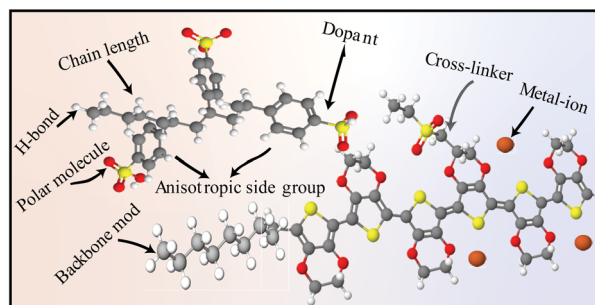
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Sai C. Yelishala, Connor Murphy and Longji Cui*



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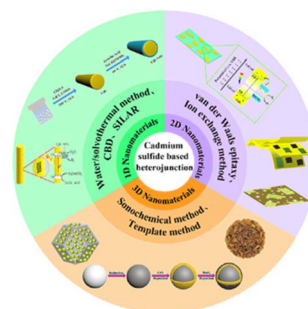
Fundamental questions
Elemental answers

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Recent advances in CdS heterojunctions: morphology, synthesis, performances and prospects

Wenchao Wang, Jing Xue* and Jixian Liu*

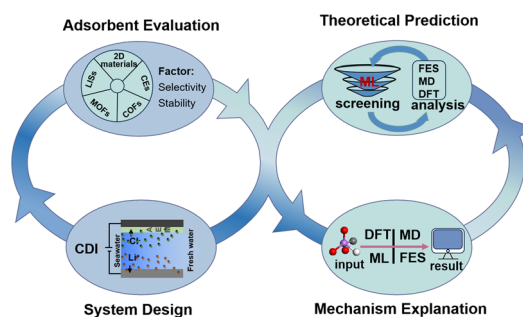


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Insights into adsorbent materials for lithium extraction by capacitive deionization: reconceptualizing the role of materials informatics

Liang Bai, Ruibo Xu, Wenjie Wu,* Chenchen Ma, Sheng Li, Huimin Gao, Dan Luo, Botong Liu, Saad Melhi, Yadong Zhao, Zhong Liu,* Yusuke Yamauchi* and Xingtao Xu*

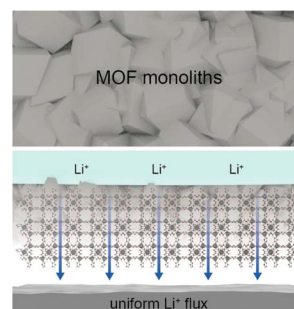


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Robust metal–organic framework monoliths for long-term cycling lithium metal batteries

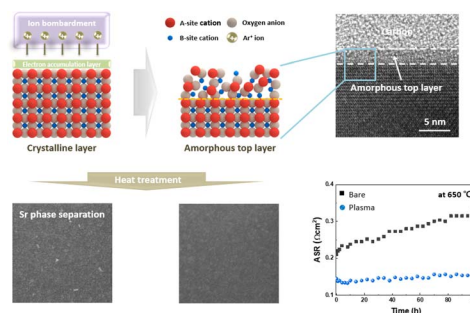
Chaejeong Kim, Wooyoung Jeong, Hong Rim Shin, Kyu-Nam Jung* and Jong-Won Lee*



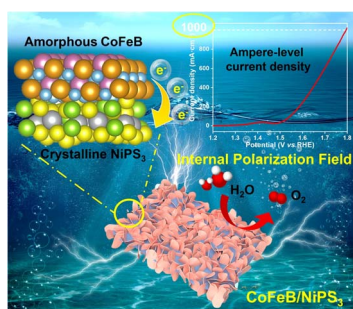
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Enhanced catalytic activity and stability of SOFC electrodes through plasma-driven surface modification

Hyunduck Shin, Jongsu Seo, SungHyun Jeon, Seung Jin Jeong, Jinwook Kim, Siwon Lee, Jeong Jin Lee and WooChul Jung*



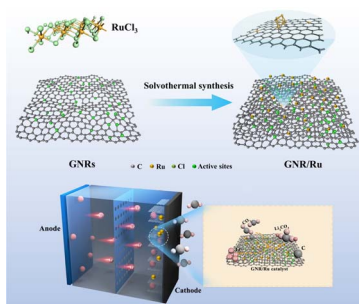
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Amorphous–crystalline CoFeB/NiPS₃ vertical heterostructure with a built-in electric field for robust ampere-level water oxidation

Sijia Zhao, Yaoda Liu,^{*} Ya Chen, Lei Li, Wenfang Zhai, Zhixin Guo and Zhengfei Dai^{*}

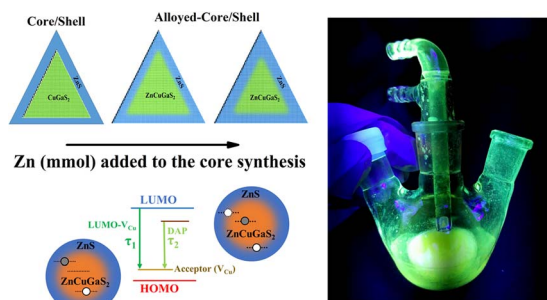
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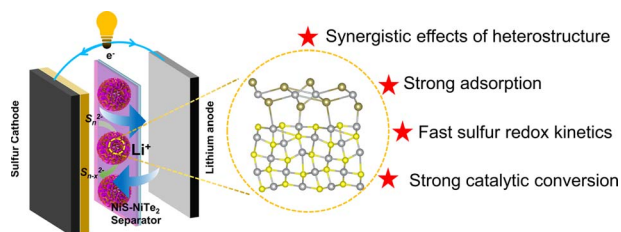
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Zn alloying strategy to improve the photoluminescence of CuGaS₂/ZnS core/shell quantum dots

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Promoting overall sulfur redox kinetics for Li–S batteries via interfacial synergy in a NiS–NiTe₂ heterostructure-modified separator

Jie Xie, Feng Cheng, Ruoyu Chen,^{*} Zhong Jin^{*} and Lin Sun^{*}

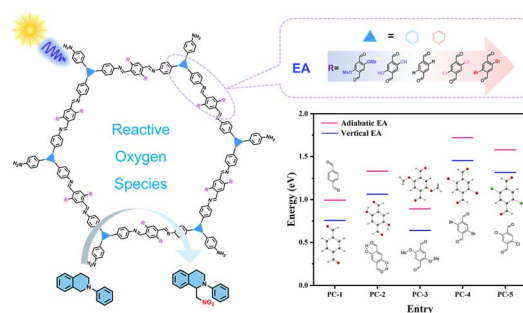


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Functional group substitution strongly influences the performances of covalent organic frameworks in the photocatalytic metal-free oxidase reaction

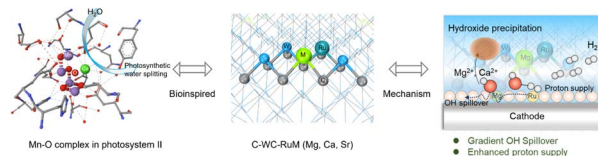
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Alkaline-earth-metal regulated metal carbides with bioinspired gradient OH spillover for efficient and long-lasting direct seawater electrolysis

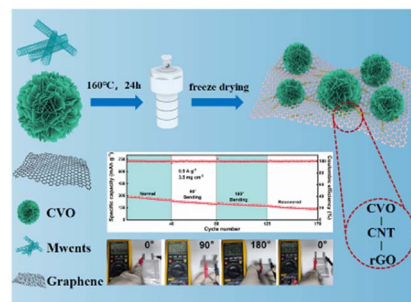
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Foldable chromium vanadate cathodes for high-performance aqueous zinc ion batteries

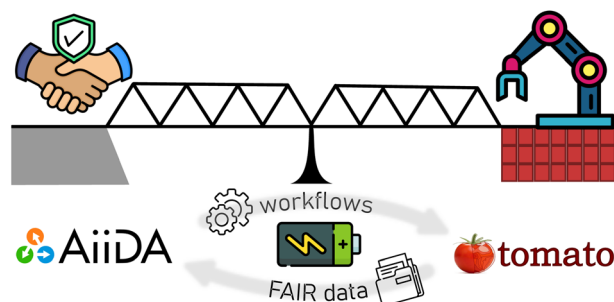
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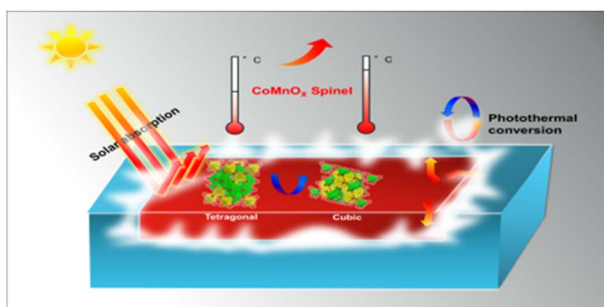
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A bridge between trust and control: computational workflows meet automated battery cycling

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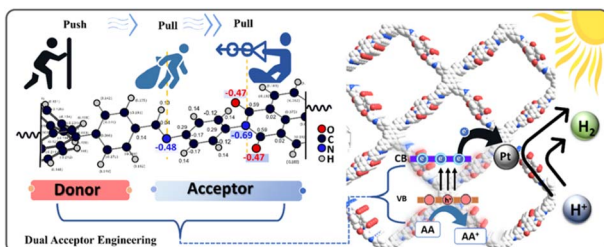
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Crystal phase-dependent optical properties of CoMn-based spinel oxides for solar thermal conversion

Huilan Ma, Shengyang Wang, Qi Ye, Longfei Guo, Entao Wang, Jun Li and Can Li*

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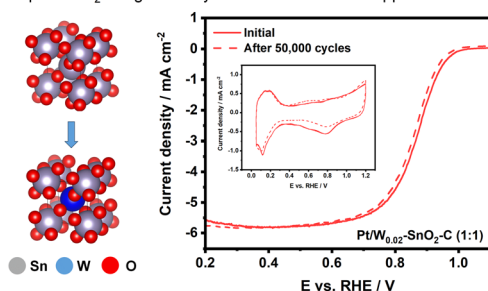


Push–pull–pull interactions of 2D imide–imine-based covalent organic framework to promote charge separation in photocatalytic hydrogen production

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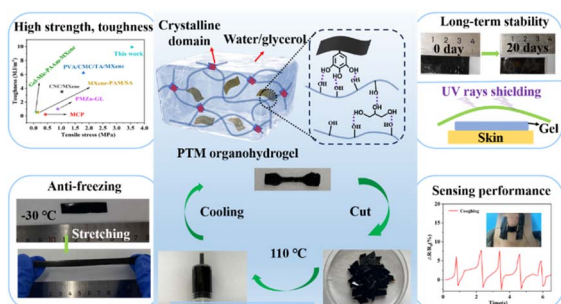
W doped SnO₂ – High stability and water retention support for ORR catalyst



Significantly improved stability and water retention for Pt supported on W-doped SnO₂ to catalyse the oxygen reduction reaction in proton exchange membrane fuel cells

Wei Cao, Yiyang Mao, Bin Hu, Yongqing Yang, Wei Zhou* and Zongping Shao*

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High-strength, ultra-tough and recyclable MXene-composited organohydrogels with integrated multiple functions for wearable sensors

Zhihui Qin,* Yunfeng Li, Xiaoming Wang, Ying Liu, Na Li, Qiuli Xu, Lei Ye and Tifeng Jiao*

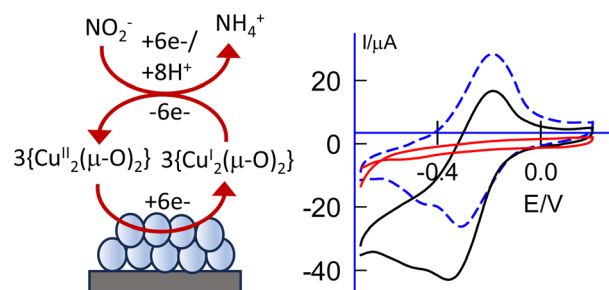


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A (μ -oxo) dicopper complex anchoring graphitized mesoporous carbon surface prepared by an *in situ* electrochemical method for bioinspired electrocatalytic reduction of nitrite to ammonia and sensing

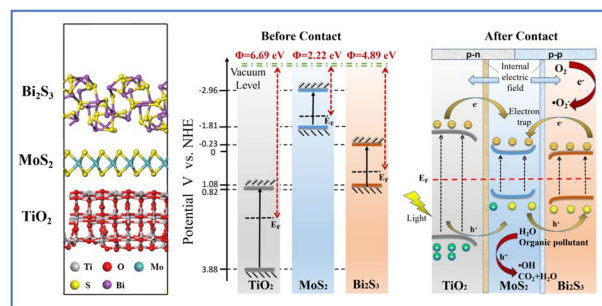
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Improving built-in electric fields for effective photocatalytic activity in the rationally designed electron transfer pathway of $\text{TiO}_2@\text{MoS}_2/\text{Bi}_2\text{S}_3$

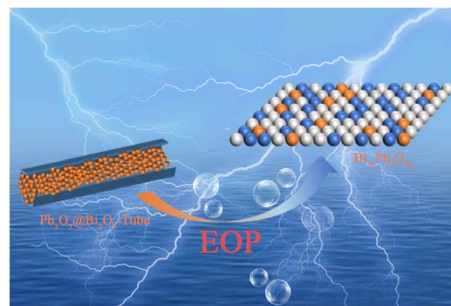
Jianguo Gong,* Yihang Zhang, Ting Yue and Yao Lu



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Regulation of the microenvironment of $\text{Pb}_2\text{O}_3@\text{Bi}_2\text{O}_3$ -tube by structural reconstruction for boosting the electrochemical ozone production performance

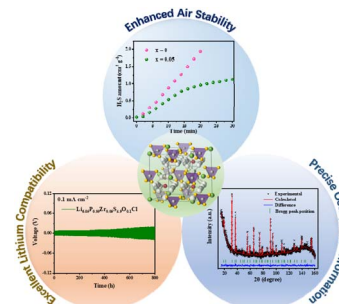
Huaijie Shi, Xiaosa Wang, Xiaoge Peng, Mingzhe Xue, Yufeng Xue, Fengying Gao, Xing Zhong* and Jianguo Wang*



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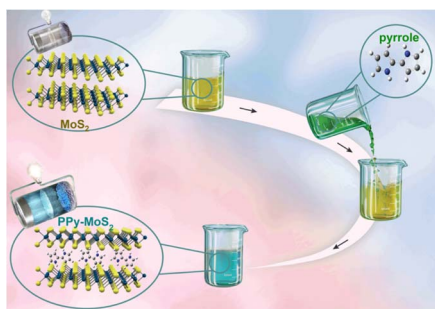
Li-argyrodite solid-state electrolytes with lithium compatibility and air stability for all-solid-state batteries

Daoxi Wang, Haiting Shi, Wenhui Cui, Hao Li, Jiarong Niu, Shuo Wang and Zhiwei Xu*



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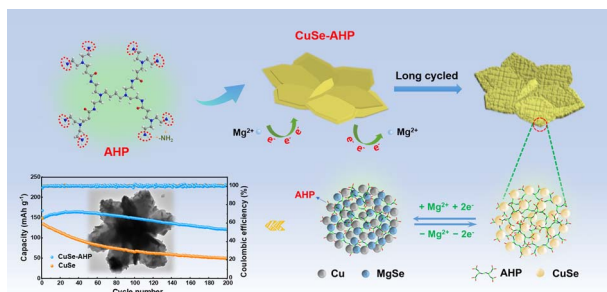
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Enhancing the performance and cyclability of MoS₂ cathodes with interspace layer engineering using polypyrrole

Nima Mikaeili Chahartagh, Ali Molaei Aghdam,^{*} Shahrar Namvar and Mehryar Jafari

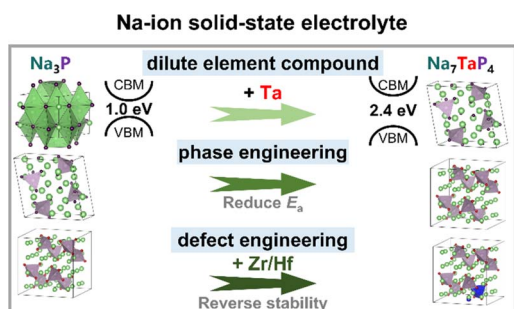
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Copper selenide/amino hyperbranched polymer as an organic/inorganic hybrid composite cathode for rechargeable magnesium batteries

Lin Ran, Hao Li, Fei Xu, Daohong Zhang^{*} and Ting Li^{*}

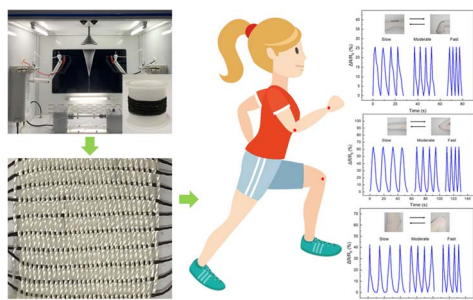
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A hierarchical approach to designing a Na-rich phosphide solid-state electrolyte for Na-ion batteries

Aming Lin, Jing Shi, Su-Huai Wei^{*} and Yi-Yang Sun^{*}

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Highly stretchable GR/TPU strain sensor based on one-step electrospun fibrous yarns for wearable devices

Lei Xing, Linze Li, Yu Liu, Junyi Ren, Guilei Guo, Yifan Chen, Yu Zheng^{*} and Bin Sun^{*}

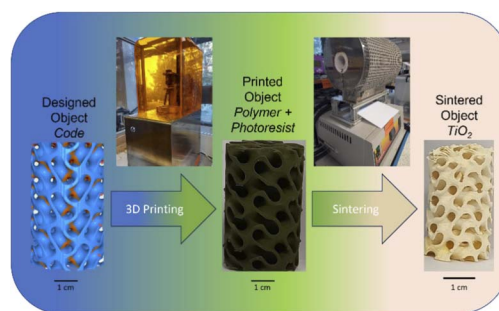


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Mixed-phase titania foams via 3D-printing for pharmaceutical degradation

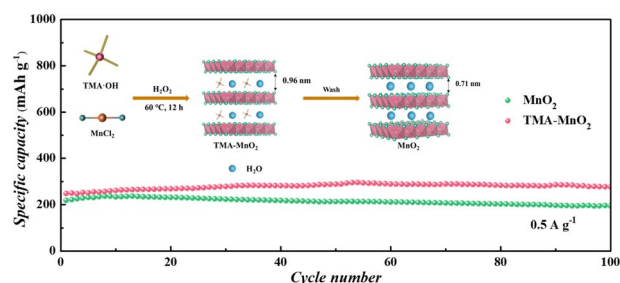
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Ultra-low diffusion barrier tetramethyl ammonium cation-intercalated layered MnO_2 for high-performance aqueous zinc-ion batteries

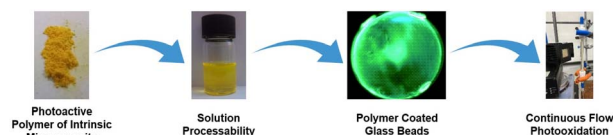
Zixiang Zhou, Jianbo Tong,* Xiaoliang Zou, Yue Wang, Yuxuan Bai, Yifan Yang, Youyong Li, Chao Wang* and Shuling Liu*



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Immobilisation of benzo[*c*][1,2,5]thiadiazole (BTZ) within polymers of intrinsic microporosity (PIMs) for use in flow photochemistry

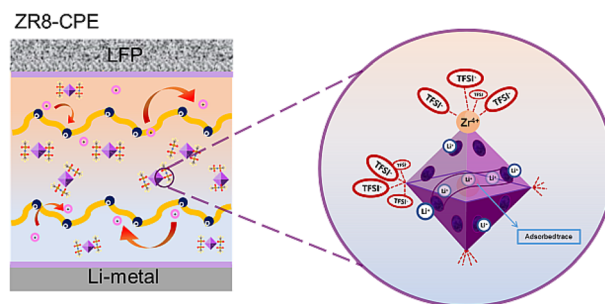
Dominic Taylor, John M. Tobin, Leonardo Amicosante, Andrew W. Prentice, Martin J. Paterson, Scott J. Dalgarno,* Neil B. McKeown* and Filipe Vilela*



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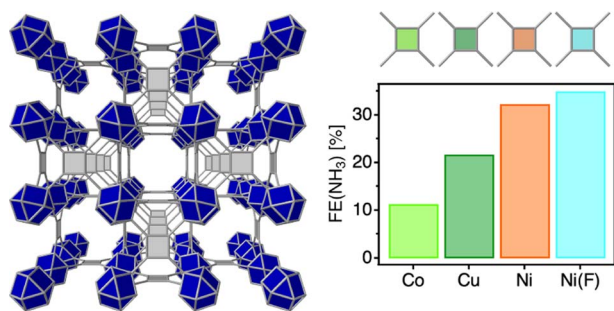
Achieving high durability in all-solid-state lithium metal batteries using metal–organic framework solid polymer electrolytes

Suin Kim, Hasan Jamal, Firoz Khan, Amir Al-Ahmed, Mahmoud M. Abdelnaby, Atif Al-Zahrani, Sang-Eun Chun* and Jae Hyun Kim*



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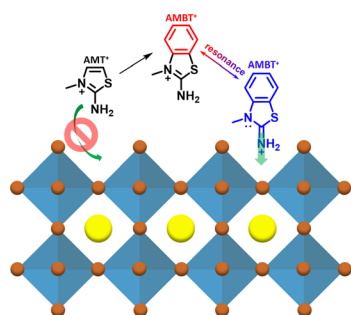
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Tailoring the efficiency of porphyrin molecular frameworks for the electroactivation of molecular N₂

María Romero-Angel, Roumayssa Amrine, Beatriz Ávila-Bolívar, Neyvis Almora-Barrios, Carolina R. Ganivet, Natalia M. Padial, Vicente Montiel, José Solla-Gullón,* Sergio Tatay* and Carlos Martí-Gastaldo*

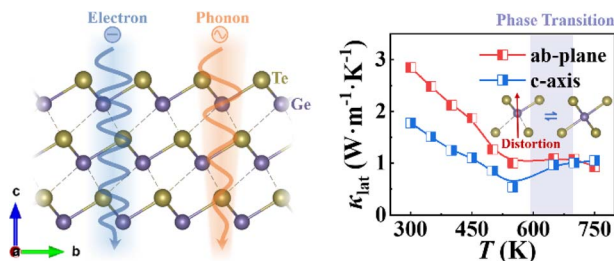
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A resonance spacer cation-based heterostructure enables efficient and stable perovskite solar cells

Zijian Deng, Xichuan Yang,* Qingning Hou, Miao Jiang, Huhu Liang, Shukang Li, Mengde Zhai, Haoxin Wang, Ming Cheng,* Li Zhang and Licheng Sun

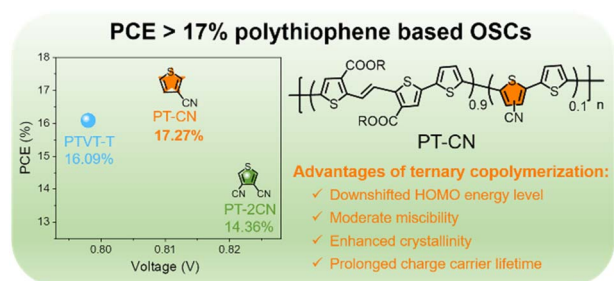
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Anisotropic thermoelectric properties of GeTe single crystals

Hanbing Chen, Qingfeng Song,* Ziming Zhang, Shun Wan, Lidong Chen and Shengqiang Bai*

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Ternary polythiophene enables over 17% efficiency organic solar cells

Qi Ai, Zhihui Lin, Xiangxi Wu, Yufan Zhu, Ke Wang, Xiaojun Li, Jianqi Zhang, Dan He, Yongfang Li and Fuwen Zhao*

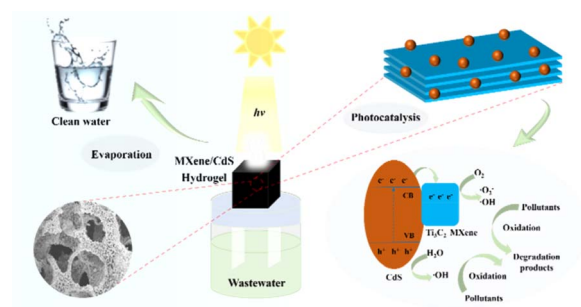


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MXene/CdS photothermal–photocatalytic hydrogels for efficient solar water evaporation and synergistic degradation of VOC

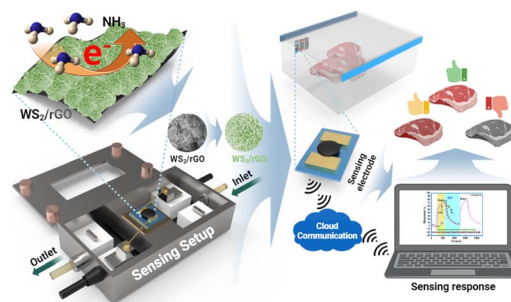
Zhen-Yu Wang, Lei Xu, Cai-Hua Liu, Sheng-Jie Han, Ming-Lai Fu* and Baoling Yuan*



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Live-tracking of beef freshness by sub-ppb level ammonia detection using WS₂/rGO nanoflakes incorporating edge site-enriched acidic sulfur

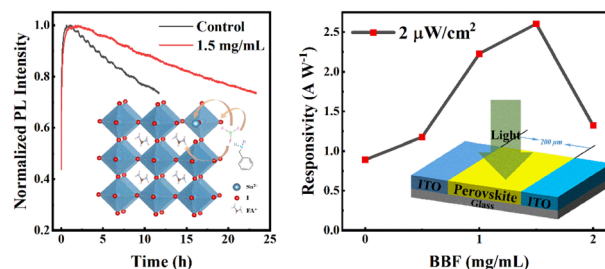
Sonam Sonwal, Kugalur Shanmugam Ranjith, Soobin Han, Young-Kyu Han,* Mi-Hwa Oh* and Yun Suk Huh*



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Photoelectric performance enhancement of Sn-based perovskites by benzylamine boron trifluoride passivation

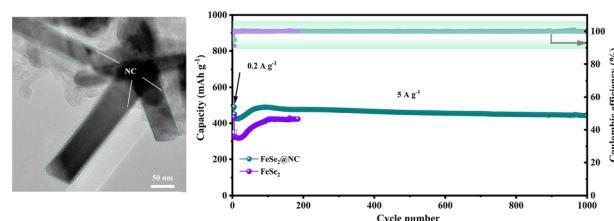
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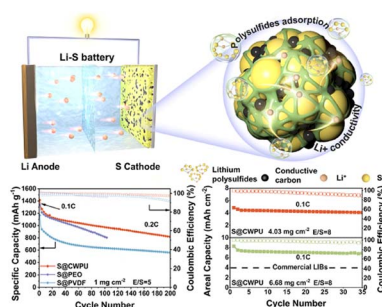
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FeSe₂ micro-nanorods confined in N-doped carbon as an advanced anode for fast sodium ion storage

Shilin Zhou, Rui Jiang, Shige Wang, Lu Yu, Xiaoyan Shi, Lianyi Shao,* Zhipeng Sun* and Lifeng Hang*



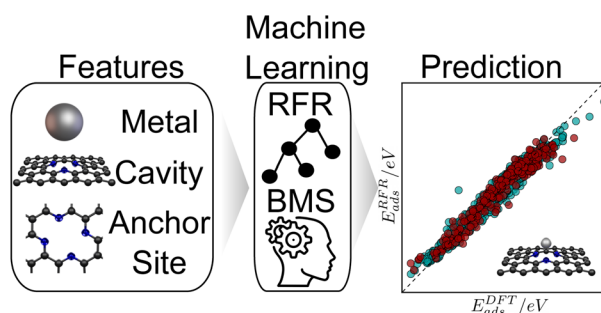
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An interweaving 3D ion-conductive network binder for high-loading and lean-electrolyte lithium–sulfur batteries

Jing Chen, Xin Geng, Chenyang Wang, Xu Hou, Hailong Wang, Qinlang Rong, Nuo Sun, Wei Liu, Linyu Hu, Xiaowei Fu, Jingxin Lei, Zhimeng Liu* and Xin He*

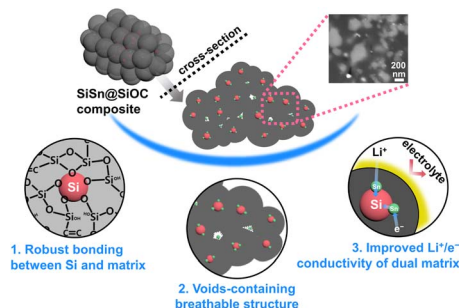
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A generalized model for estimating adsorption energies of single atoms on doped carbon materials

Maria G. Minotaki, Julian Geiger, Andrea Ruiz-Ferrando, Albert Sabadell-Rendón* and Núria López*

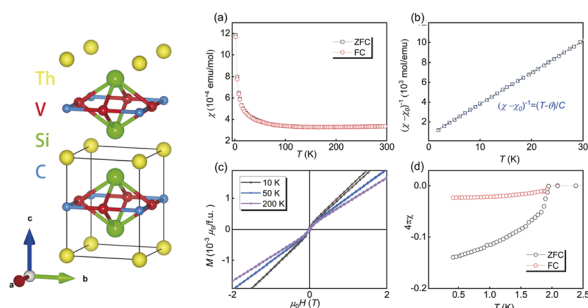
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Covalent-assisted seeding of Si nanoparticles into a dual-matrix design toward advanced Si-based Li-ion batteries

Kwanghyun Do, Changyong Park, Jeonguk Hwang, Sucheol Kim, Yeju Jung, Se Hun Lee, Hee-Dae Lim* and Heejoon Ahn*

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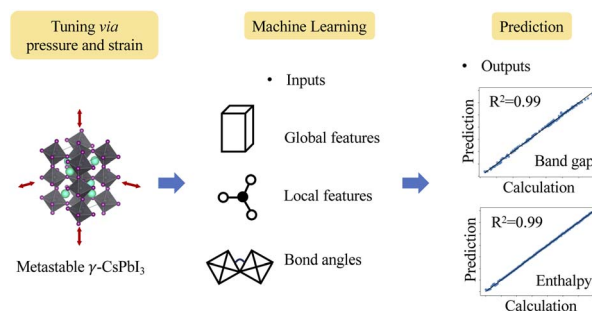
Synthesis, crystal structure and physical properties of ThV₂Si₂C containing V₂C square lattices

Yusen Xiao, Yongliang Chen,* Yong Li, Zhiwei Wen, Yajing Cui, Tao Jia, Shulong Li, Baizhuo Li, Kaixin Wu, Qingchen Duan, Hao Ni, Shaohua Liu, Cao Wang and Yong Zhao*

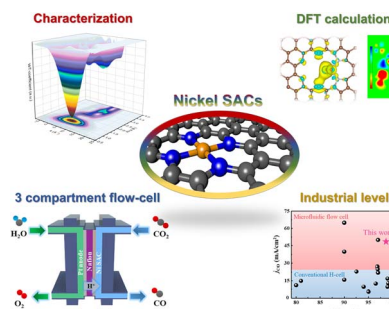


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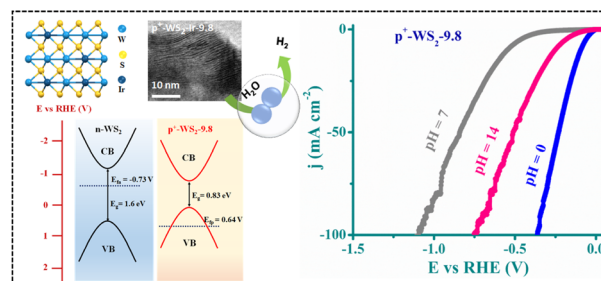
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Machine learning-empowered study of metastable γ -CsPbI₃ under pressure and strainMinkyung Han,^{*} Cheng Peng, Ruyi Song, Feng Ke, Youssef S. G. Nashed, Wendy L. Mao, Chunjing Jia^{*} and Yu Lin^{*}

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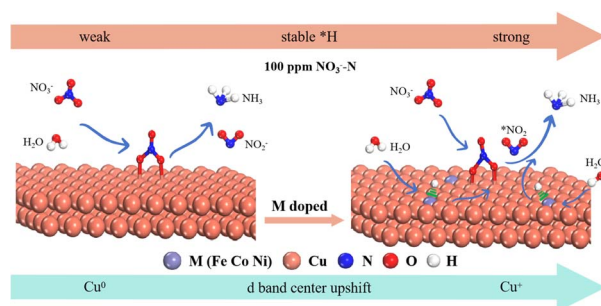
A MOF-derived pyrrolic N-stabilized Ni single atom catalyst for selective electrochemical reduction of CO₂ to CO at high current densityJin Wook Lim, Dong Heon Choo, Jin Hyuk Cho, Jaehyun Kim, Won Seok Cho, Odongo Francis Ngome Okello, Kisoo Kim, Sungwon Lee, Junwoo Son, Si-Young Choi, Jong Kyu Kim, Ho Won Jang,^{*} Soo Young Kim^{*} and Jong-Lam Lee^{*}

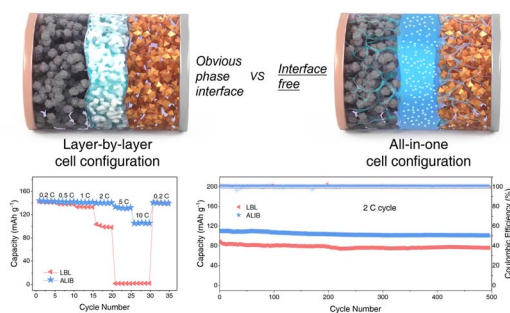
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Efficient hydrogen evolution from degenerate-doped p-type WS₂ electrocatalysts over a wide pH rangePamula Siva and Kuraganti Vasu^{*}

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Structure identification and mechanism exploration of ultralow-content of metal doped Cu for efficient electrochemical production of ammonia in dilute nitrate concentrations

Jiayu Zhan, Lu-Hua Zhang, Yaohua Hong and Fengshou Yu^{*}



A new paradigm for battery structural design towards interface-free, all-in-one cell configuration

Weixing Xiong, Xueying Zheng, Yuchen Li, Zhang Cao, Jiayang Sun, Yan Wang, Linze Lv, Qunting Qu, Wei Luo* and Honghe Zheng*

