

Journal of Materials Chemistry A

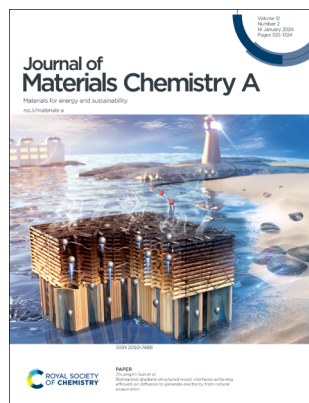
Materials for energy and sustainability

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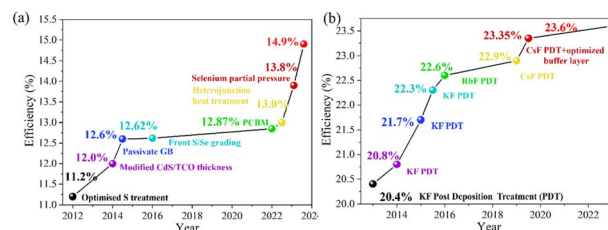
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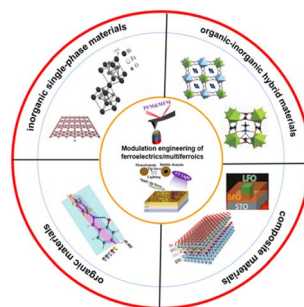
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Xinqiu Deng, Yuying Wu,* Zhangran Gao and Gang Zhou*



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REVIEWS

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Recent advances in metal-free electrocatalysts for the hydrogen evolution reaction

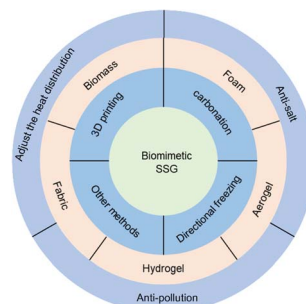
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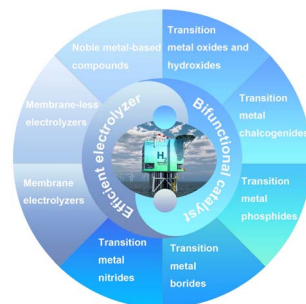
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Recent advances of bifunctional electrocatalysts and electrolyzers for overall seawater splitting

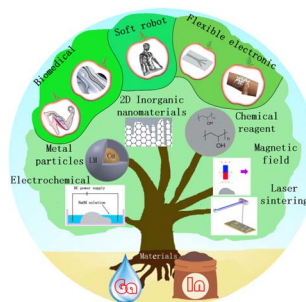
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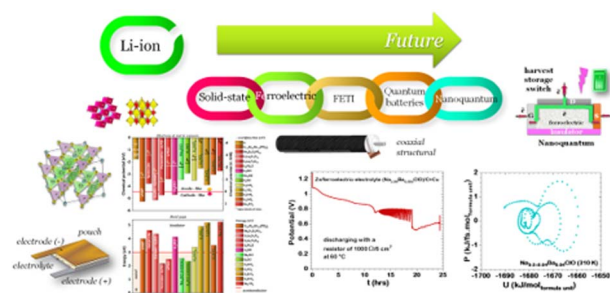
Recent progress in eutectic gallium indium (EGaIn): surface modification and applications

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PERSPECTIVE

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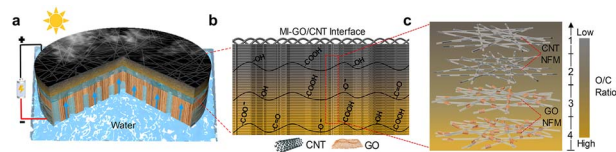


A perspective on the building blocks of a solid-state battery: from solid electrolytes to quantum power harvesting and storage

Beatriz Moura Gomes, J. Francisco Ribeiro Moutinho and Maria Helena Braga*

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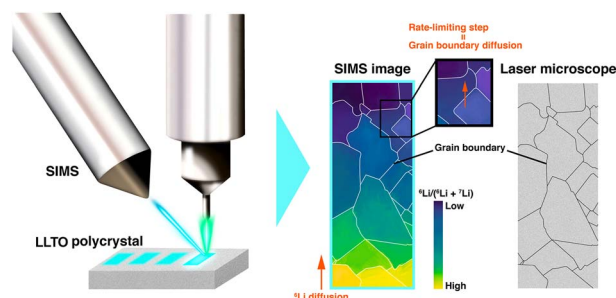
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Bioinspired gradient-structured wood interfaces achieving efficient ion diffusion to generate electricity from natural evaporation

Chuanlong Han, Ziqi Bai, Huihong Sun, Lintao Mi and Zhuangzhi Sun*

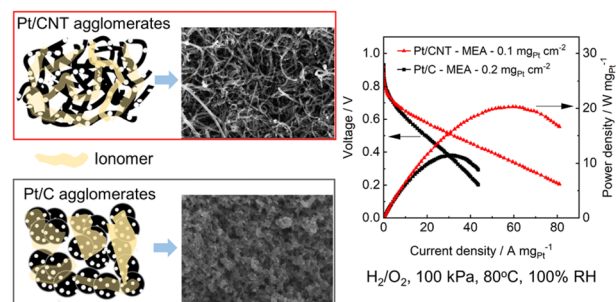
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Visualization and evaluation of lithium diffusion at grain boundaries in $\text{Li}_{0.29}\text{La}_{0.57}\text{TiO}_3$ solid electrolytes using secondary ion mass spectrometry

Gen Hasegawa, Naoaki Kuwata,* Tsuyoshi Ohnishi and Kazunori Takada

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Controllable construction of Pt/CNT catalyst layers to improve Pt utilization in PEMFCs

Yabiao Pei, Weikang Zhu, Runfei Yue, Lianqin Wang, Ran Li,* Junfeng Zhang* and Yan Yin*

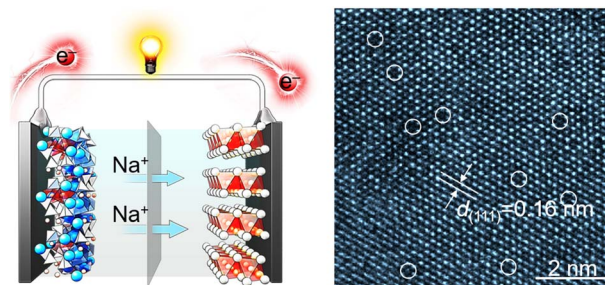


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Defect and interlayer spacing engineering of vanadium selenide for boosting sodium-ion storage

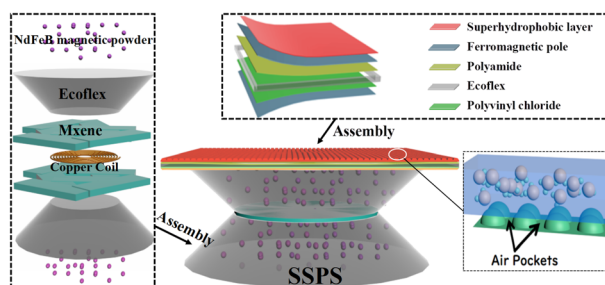
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Design of a self-powered and superhydrophobic-pressure sensor with stable human motion monitoring

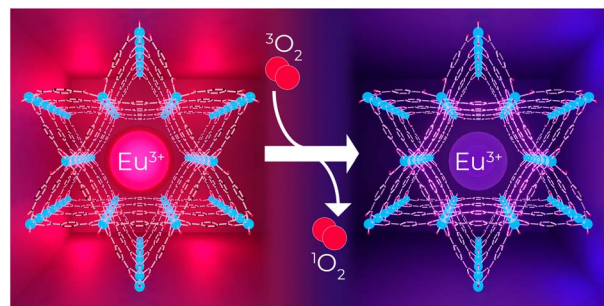
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On the validity of rapid optical sensing of dioxygen by means of sensitivity, stability, and reversibility for archetype MOFs post-synthetically modified with Eu^{3+}

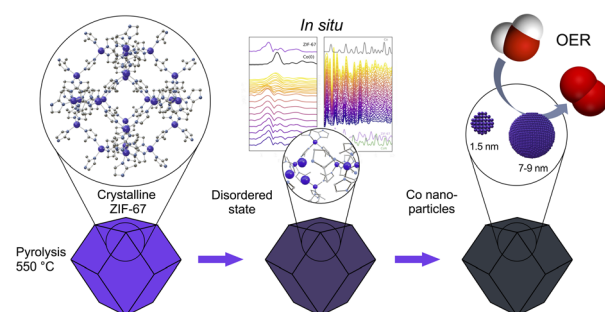
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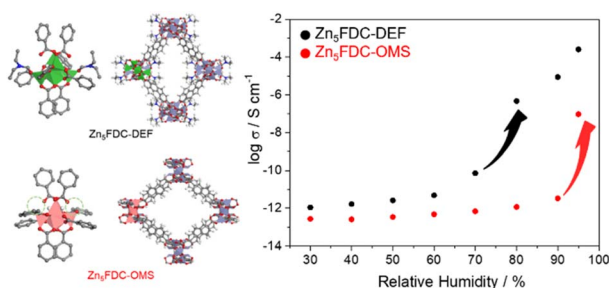
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Correlating the structural transformation and properties of ZIF-67 during pyrolysis, towards electrocatalytic oxygen evolution

Sara Frank, Mads Folkjær, Mads L. N. Nielsen, Melissa J. Marks, Henrik S. Jeppesen, Marcel Ceccato, Simon J. L. Billinge, Jacopo Catalano* and Nina Lock*



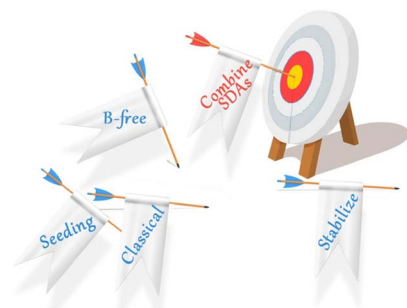
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Moisture-triggered proton conductivity switching in metal-organic frameworks: role of coordinating solvents

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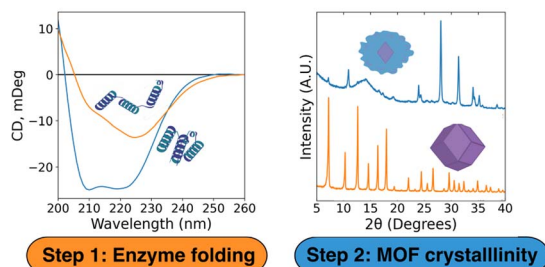


ADOR zeolite with $12 \times 8 \times 8$ -ring pores derived from IWR germanosilicate

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A guide to active enzyme@MOFs

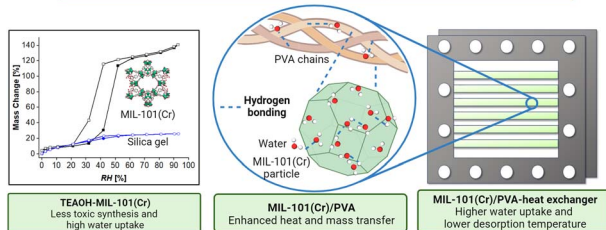


The role of protein folding in prenucleation clusters on the activity of enzyme@metal-organic frameworks

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MIL-101(Cr)-coated heat exchanger for enhanced water sorption

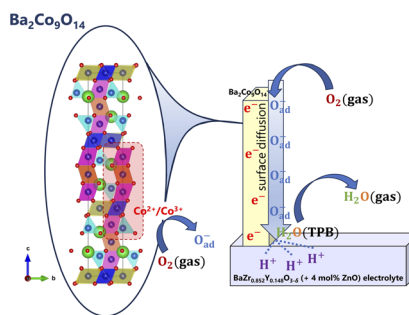


Enhanced moisture sorption through regulated MIL-101(Cr) synthesis and its integration onto heat exchangers

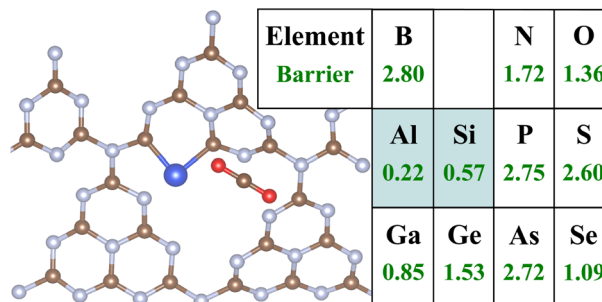
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Allan J. M. Araújo,* Vanessa C. D. Graça, Rafael A. Raimundo, Antonio C. L. Filho, Daniel A. Macedo and Francisco J. A. Loureiro*

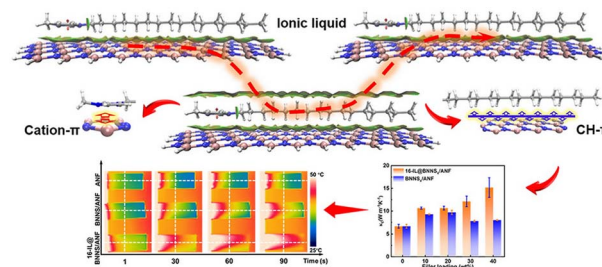


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and Yuchen Ma^{*}

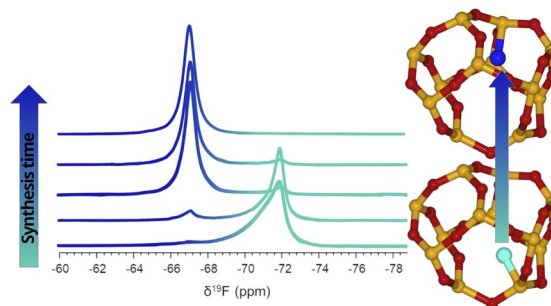
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Xu Li, Bin Wu,* Ying Lv, Ru Xia and Jiasheng Qian*

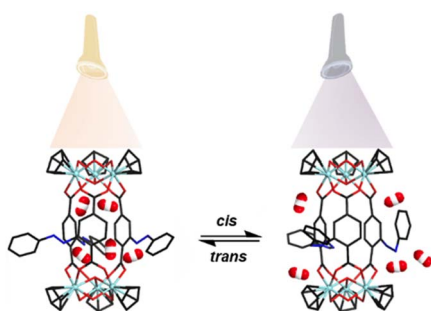


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Vincent Sarou-Kanian, Mercedes Boronat, Teresa Blasco*
and Fernando Rey*



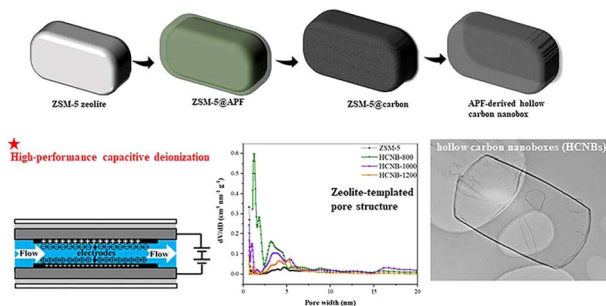
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A metal–organic cage with light-switchable motifs for controllable CO₂ adsorption

Yao Jiang,^{*} Tao Yang, Xiao-Qin Liu, Peng Cui and Lin-Bing Sun^{*}

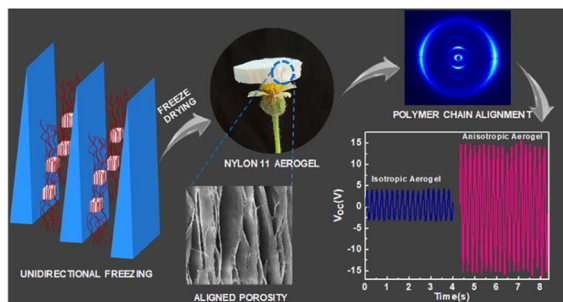
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Synthesis of nitrogen-doped carbon nanoboxes with pore structure derived from zeolite and their excellent performance in capacitive deionization

Keyang Li, Shaoqing Zhu, Shunan Zhao, Ming Gong, Xiaohuan Zhao, Jie Liang, Jianning Gan, Yilun Huang,^{*} Ming Zhao, Daming Zhuang and Qianming Gong^{*}

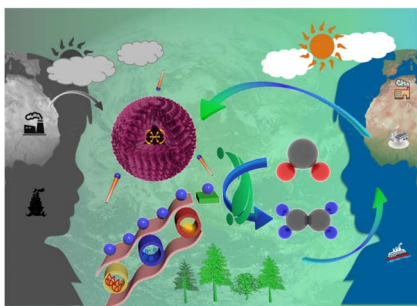
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Directional freezing-induced self-poled piezoelectric nylon 11 aerogels as high-performance mechanical energy harvesters

Ashitha George, Harris Varghese, Achu Chandran,^{*} Kuzhichalil Peethambharan Surendran^{*} and E. Bhoje Gowd^{*}

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Highly selective photothermal conversion of CO₂ to ethylene using hierarchical boxwood ball-like Weyl semimetal WTe₂ catalysts

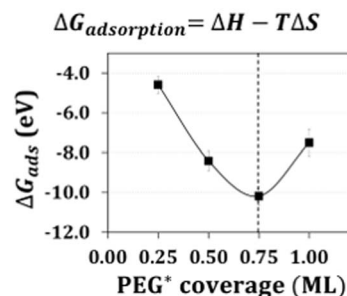
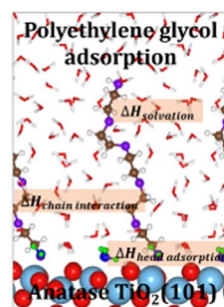
Xiaoyue Zhang, Chaoran Dong, Yong Yang,^{*} Yingjie Hu, Lizhi Wu, Yu Gu, Kan Zhang and Jinyou Shen^{*}



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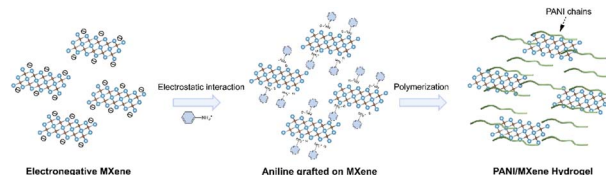
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Elucidation of polyethylene glycol adsorption at the solid–H₂O(l) interfaces of anatase TiO₂(101) using density functional theory and molecular dynamics simulations

Hee-Joon Chun,^{*} Kang-Sahn Kim and Giwoong Ha^{*}

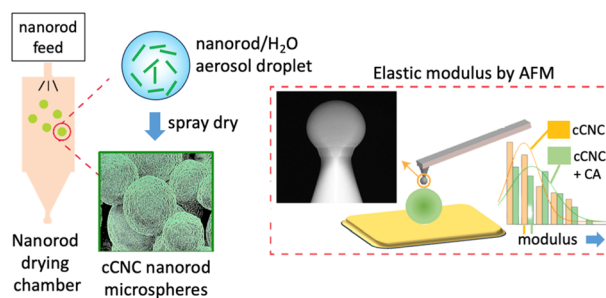
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3D nanostructured conductive PANI/MXene hydrogels for durable aqueous Zn-ion batteries

Yalei Wang, Jun Song^{*} and Wai-Yeung Wong^{*}

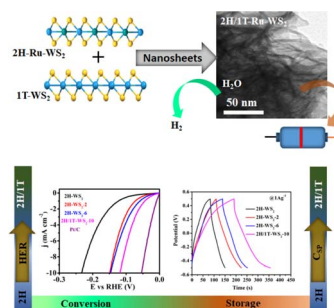
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Mechanical, morphological and comparative properties of microbeads assembled from carboxylated cellulose nanocrystals

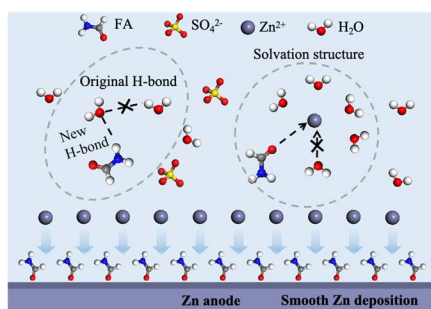
Junqi Wu and Mark P. Andrews^{*}

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Enhanced hydrogen evolution and symmetric supercapacitor performance of a Ru-doped multiphase WS₂ electrode

Pamula Siva and Kuraganti Vasu^{*}

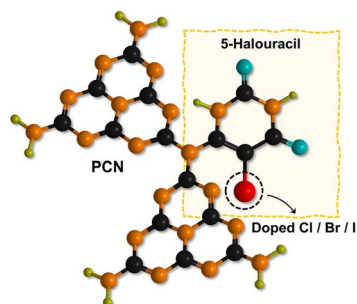
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Solvation structure regulation of an organic small molecule additive for dendrite-free aqueous zinc-ion batteries

Xiaomin Li, Jinwei Miao, Fulong Hu, Kang Yan, Lin Song, Huiqing Fan, Longtao Ma and Weijia Wang*

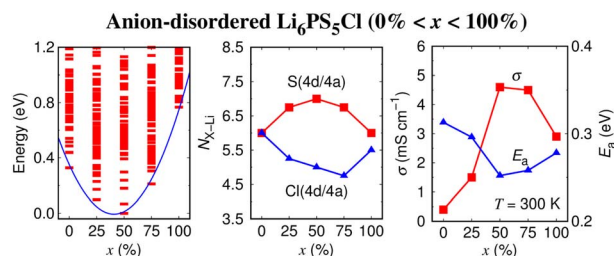
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Counterion chemistry of 5-halo (X: Cl, Br, I)-uracil derived carbon nitride: unlocking enhanced photocatalytic performance

Toshali Bhoyar, B. Moses Abraham, Akanksha Gupta, Dong Jin Kim, Nilesh R. Manwar, Kedhareswara Sairam Pasupuleti, Devthade Vidyasagar* and Suresh S. Umare*

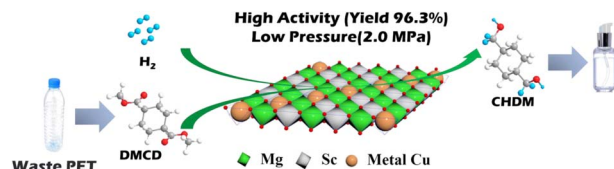
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Understanding the anion disorder governing lithium distribution and diffusion in an argyrodite $\text{Li}_6\text{PS}_5\text{Cl}$ solid electrolyte

Taegon Jeon, Gyeong Ho Cha and Sung Chul Jung*

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Synthesis of $\text{Cu}_1\text{Mg}_3\text{Sc}_2(\text{OH})_{12}\text{CO}_3$ layered double hydroxide and its derived catalyst for hydrogenation of DMCD to CHDM

Zhili Chang, Boyong Ye, Zixin Zhong, Songlin Wang, Han Wang, Weichen Du and Zhaoyin Hou*

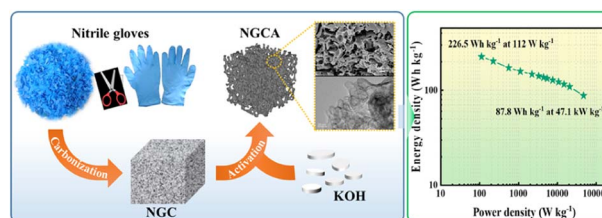


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From wasted polymers to N/O co-doped partially graphitic carbon with hierarchical porous architecture as a promising cathode for high performance Zn-ion hybrid supercapacitors

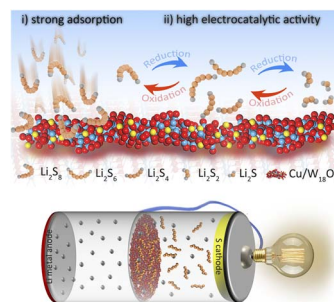
Huan Liu,* Xiuli Huang, Wei Chen, Lei Ding, Yiming Ren, Zongcheng Miao,* Maodong Xu and Jiang Zhu*



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Fast redox conversion in lithium–sulfur batteries enabled by Cu-doped $W_{18}O_{49}$ with abundant oxygen defects

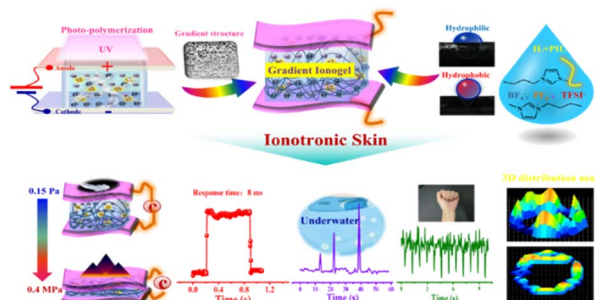
Guilin Meng, Guojun Dong, Yanfei Yang,* Yingpu Bi* and Junping Zhang*



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Skin-inspired gradient ionogels induced by electric field for ultrasensitive and ultrafast-responsive multifunctional ionotronics

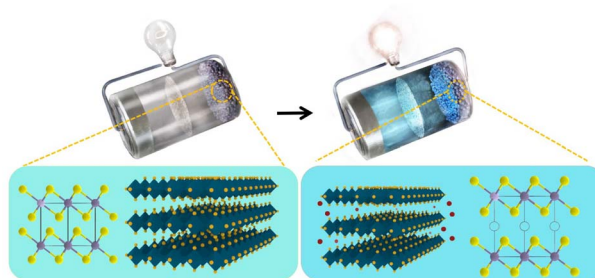
Min Xu, Xuchao Shen, Shuaijie Li, Hongnan Zhu, Yan Cheng, Hongying Lv, Zhuoer Wang, Cunguang Lou* and Hongzan Song*



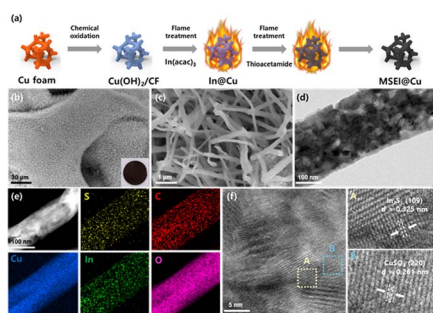
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Improving the performance of a SnS_2 cathode with interspace layer engineering using a Na^+ insertion/extraction method for aqueous zinc ion batteries

Ali Molaei Aghdam,* Nima Mikaeili Chahartagh, Shahriar Namvar, Mahshid Ershadi, Farshad Boorboor Ajdari* and Ehsan Delfani



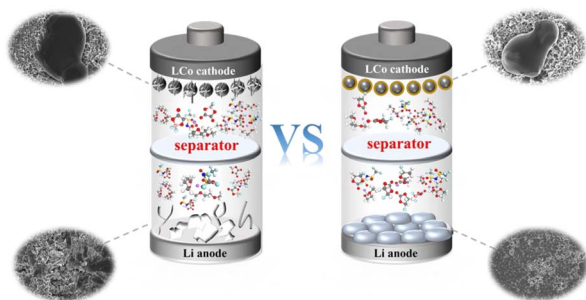
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Establishing a multifunctional solid electrolyte interphase on a 3D host by an ultra-fast double coating strategy for stable lithium metal batteries

Ji Young Maeng, Minjun Bae, Yonghwan Kim, Dohyeong Kim, Yujin Chang, Seungman Park, Juhyoung Choi, Eunji Lee, Jeongyeon Lee* and Yanzhe Piao*

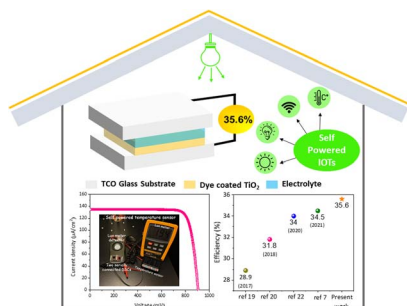
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Inorganic/organic composite fluorinated interphase layers for stabilizing ether-based electrolyte in high-voltage lithium metal batteries

Qimeng Ren, Qinglei Wang,* Li Su, Guodong Liu, Yan Song, Xuehui Shangguan* and Faqiang Li*

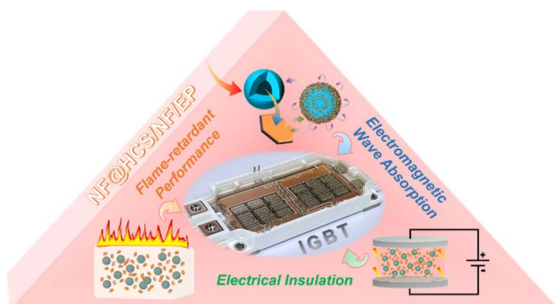
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Asymmetric dual species copper(II/I) electrolyte dye-sensitized solar cells with 35.6% efficiency under indoor light

Sruthi Meledath Meethal, Sourava Chandra Pradhan, Jayadev Velore, Sunil Varughese, Renjith S. Pillai, Frédéric Sauvage, Anders Hagfeldt and Suraj Soman*

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High electromagnetic wave absorption and flame retardancy performance from NF@HCS/NF-filled epoxy-based electronic packaging material

Tianshun Xiong, Yubo Luo,* Yongxin Qian, You Li, Junwei Li, Luyao Wang, Wenyan Ma and Junyou Yang*



Tri-layer high-temperature all-organic films with superior energy-storage density and thermal stability

[illegible]

MXene–MOF architectural hybrid-supported nickel single-atom catalysts for hydrogen evolution reactions

A zinc porphyrin-based halogen-bonded organic framework with the heavy atom effect as a highly efficient photocatalyst for oxidative coupling of amines

Ameliorating electrochemical performance of Li-rich Mn-based cathodes for Li-ion batteries by Fe substitution

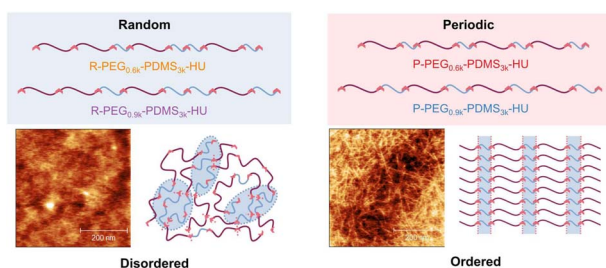
Bare Li_2MnO_3 **Fe-substituted Li_2MnO_3**

(a) Cyclic voltammetry (CV) curves for 1.5Mn0.5Fe and 1.5Mn0.4Fe at 0.1 mA cm⁻². The redox peak is at 4.20 V.

(b) Rate capability plot showing the discharge capacity (mAh g⁻¹) versus the scan rate (mV s⁻¹) for 1.5Mn0.5Fe and 1.5Mn0.4Fe. The 1.5Mn0.5Fe sample shows a higher capacity and better rate performance than the 1.5Mn0.4Fe sample.

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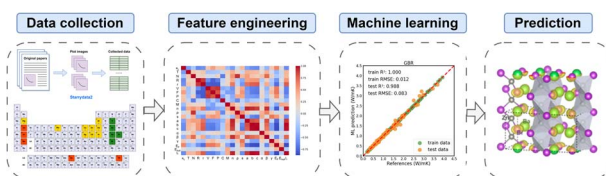
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Sequence-dependent self-assembly of supramolecular nanofibers in periodic dynamic block copolymers

Jason K. Phong, Christopher B. Cooper,^{*} Lukas Michalek, Yangju Lin, Yuya Nishio, Yuran Shi, Huaxin Gong, Julian A. Vigil, Jan Ilavsky, Ivan Kuzmenko and Zhenan Bao^{*}

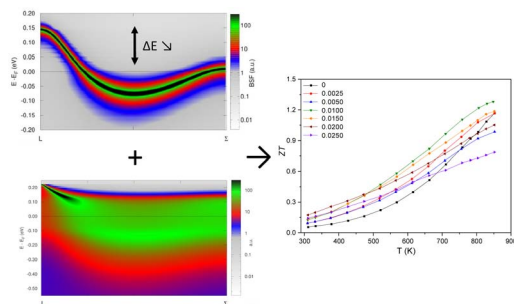
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Machine-learning-assisted discovery of 212-Zintl-phase compounds with ultra-low lattice thermal conductivity

Qi Ren, Dali Chen, Lixiang Rao, Yingzhuo Lun, Gang Tang^{*} and Jiawang Hong^{*}

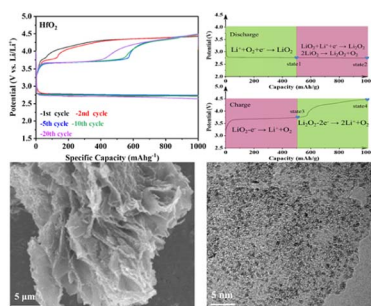
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Unravelling the need for balancing band convergence and resonant level in $\text{Sn}_{1-x-y}\text{In}_x\text{Mn}_y\text{Te}$ for high thermoelectric performance

Shantanu Misra, Bartłomiej Wiendlocha,^{*} Soufiane El Oualid, Anne Dauscher, Bertrand Lenoir and Christophe Candolfi^{*}

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Oxygen defect regulation, catalytic mechanism, and modification of HfO_2 as a novel catalyst for lithium-oxygen batteries

Liwei Su,^{*} Lei Zhang, Xingyi Zhan, Yifan Zhang, Lianbang Wang^{*} and Yuanhao Wang^{*}



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The Mott–Schottky $\text{Co}_2\text{P}/\text{Co}$ heterocatalyst encapsulated by N,P-doped graphene/carbon nanotubes as high-efficiency trifunctional electrocatalysts for cable-type flexible Zn–air batteries and water splitting

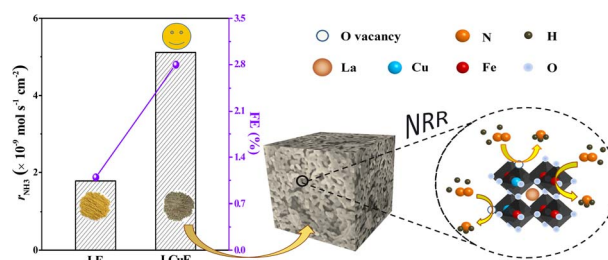
Quynh Phuong Ngo, Thanh Tuan Nguyen, Manjinder Singh, Nam Hoon Kim* and Joong Hee Lee*



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Ammonia synthesis via a protonic ceramic electrolysis cell (PCEC) using $\text{LaCu}_{0.1}\text{Fe}_{0.9}\text{O}_{3-\delta}$ catalyst

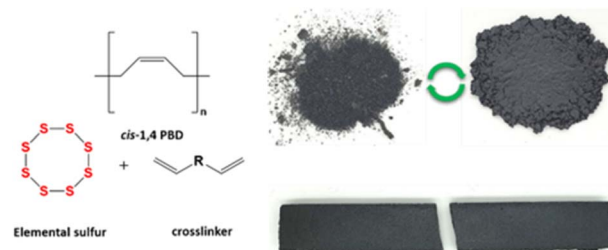
Wenhua Guo, Yawei Li, Si-Dian Li, Zongping Shao and Huili Chen*



1211

Liquid polybutadiene reinforced inverse vulcanised polymers

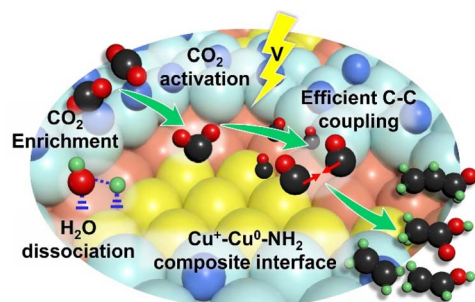
Veronica Hanna*, Michael Graysmark, Helen Willcock and Tom Hasell*



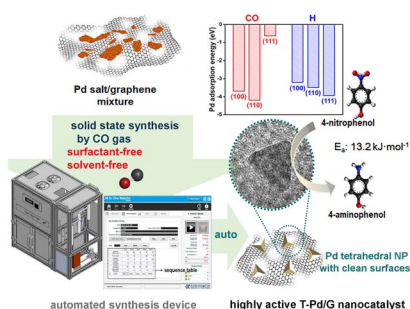
1218

SiO_2 assisted $\text{Cu}^0\text{--Cu}^+\text{--NH}_2$ composite interfaces for efficient CO_2 electroreduction to C_{2+} products

Zi-Yang Zhang, Hao Tian, Han Jiao, Xin Wang, Lei Bian, Yuan Liu, Nithima Khaorapapong, Yusuke Yamauchi and Zhong-Li Wang*



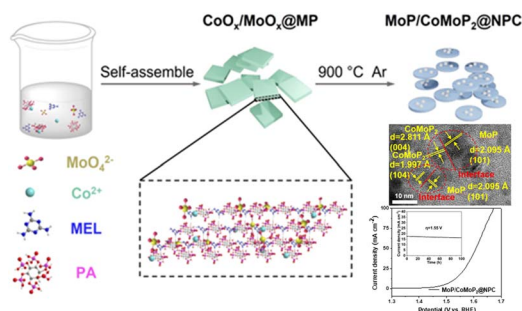
1233



Novel solid-state synthesis of surfactant- and solvent-free Pd tetrahedron nanocatalysts

Kyung Hee Oh, Kwangsoo Kim, Jin Gyu Lee, Nahyun Park, Hack-Keun Lee, Shin Wook Kang, Jung-Il Yang, Byeong-Seon An, Kang Hyun Park, Chang Seop Hong,* Byung-Hyun Kim* and Ji Chan Park*

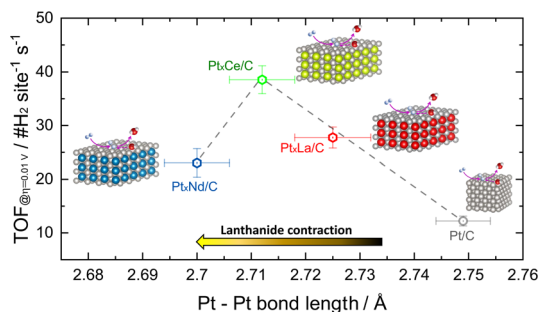
1243



Heterostructured MoP/CoMoP₂ embedded in an N, P-doped carbon matrix as a highly efficient cooperative catalyst for pH-universal overall water splitting

Luyao Zheng, Cong Liu, Wenbiao Zhang, Boxu Gao, Tianlan Yan, Yahong Zhang, Xiaoming Cao, Qingsheng Gao* and Yi Tang*

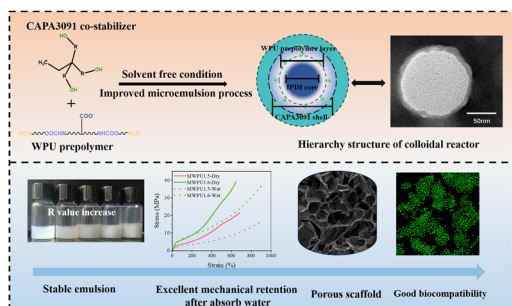
1253



Lanthanide contraction effect on the alkaline hydrogen evolution and oxidation reactions activity in platinum–rare earth nanoalloys

Carlos A. Campos-Roldán,* Raphaël Chattot, Frédéric Pailloux, Andrea Zitolo, Jacques Rozière, Deborah J. Jones and Sara Cavaliere*

1259



Synthesis of completely solvent-free biomedical waterborne polyurethane with excellent mechanical property retention and satisfactory water absorption

Ao Zhen, Guanyu Zhang, Ao Wang, Feng Luo, Jiehua Li,* Hong Tan* and Zhen Li

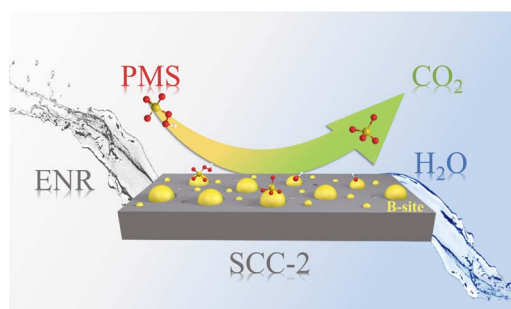


PAPERS

1274

Switching the adsorption sites of PMS on SrCoO_{2.52} to enhance catalytic performance

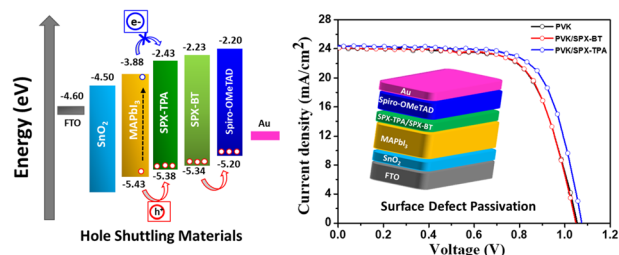
Dan Yu, Jiahong He,* Taiping Xie, Qiang Xu, Houyang Chen and Bin Xiang*



1284

Spiro[fluorene-9,9'-xanthene]-based hole shuttle materials for effective defect passivation in perovskite solar cells

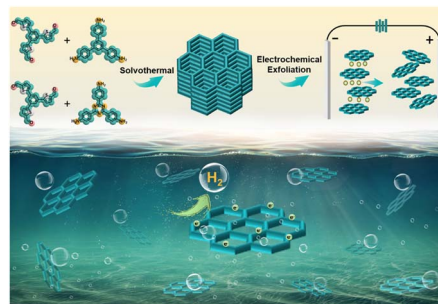
Bommaramoni Yadagiri, Sanjay Sandhu, Ashok Kumar Kaliyamurthy, Francis Kwaku Asiam, Jongdeok Park, Appiagyei Ewusi Mensah and Jae-Joon Lee*



1292

Electrochemically exfoliated covalent organic frameworks for improved photocatalytic hydrogen evolution

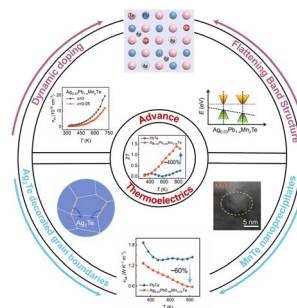
Ting Wang, Ruijuan Zhang, Pengda Zhai,* Mingjie Li,* Xinying Liu and Chaoxu Li*



1300

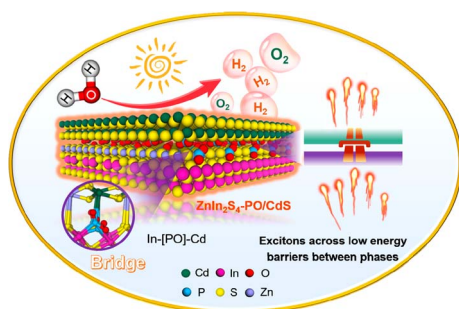
Synergistic carrier and phonon transport advance Ag dynamically-doped n-type PbTe thermoelectrics via Mn alloying

Wei Yuan, Qian Deng, Dong Pan, Xiang An, Canyang Zhao, Wenjun Su, Zhengmin He, Qiang Sun* and Ran Ang*



PAPERS

1309



Interfacial phosphate-like "bridge" mediates bulk charge and surface oxygenated-intermediate migration for efficient photoelectrochemical water splitting

Cheng Wang, Wei Zhang, Shuo Gu, Shengdong Sun, Meng Zhou,* Wei Chen and Shikuo Li*

EXPRESSION OF CONCERN

1317

Expression of concern: Interfacial adsorption study of nitrogen based inhibitors in silane nanocontainers as anticorrosive and self-healing material for steel in strong acid solution

Darris M. S. and S. M. A. Shibli

CORRECTIONS

1318

Correction: Hierarchical Co/MoNi heterostructure grown on monocrystalline CoNiMoO_x nanorods with robust bifunctionality for hydrazine oxidation-assisted energy-saving hydrogen evolution

Zehao Xiao, Jie Wang, Hongxiu Lu, Yinyin Qian, Qiang Zhang, Aidong Tang* and Huaming Yang*

1320

Correction: Synthesis of TiC nanotube arrays and their excellent supercapacitor performance

Tongxiang Ma, Yuzheng Pan, Junyu Chen, Zhiming Yan,* Buxin Chen, Lang Zhao, Liwen Hu, Liangying Wen and Meilong Hu*

