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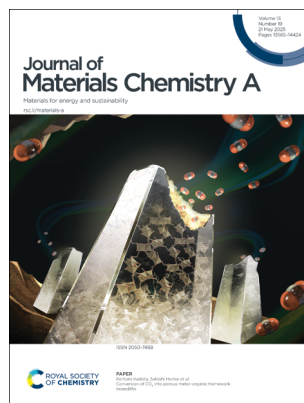
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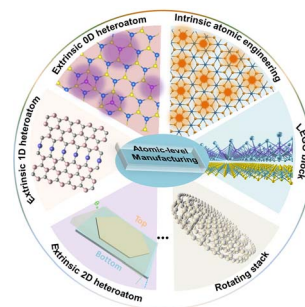
See Kentaro Kadota, Satoshi Horike *et al.*, pp. 13743–13749. Image reproduced by permission of Kentaro Kadota from *J. Mater. Chem. A*, 2025, 13, 13743.

REVIEWS

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Recent progress in atomic-level manufacturing of two-dimensional transition metal dichalcogenides beyond exfoliation and restacking

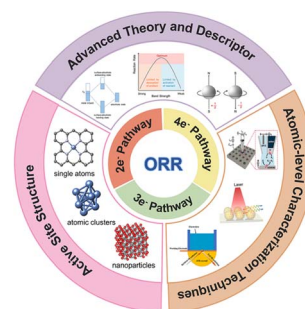
Huihui Lin* and Yang Meng



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Recent progress of selectivity regulation and reaction mechanism of atomically dispersed metal catalysts for oxygen reduction electrocatalysis

Shiyu Zhang, Minjie Yao,* Zanyu Chen, Kang Liao, Xin Wang, Wenbin Hu and Xiaopeng Han*



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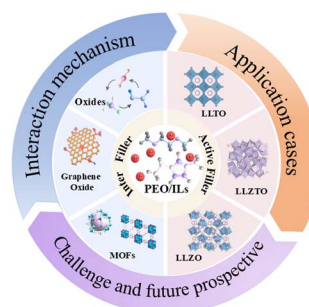
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Advances in the application of ionic liquids in PEO-based lithium-ion solid-state electrolytes: from the perspective of fillers

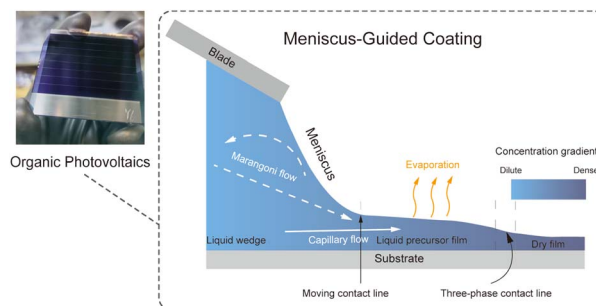
Changchun Ai, Yilei Shu, Ziheng Zhao, Huijuan Guo, Shangqing Chen* and Qun Yi*



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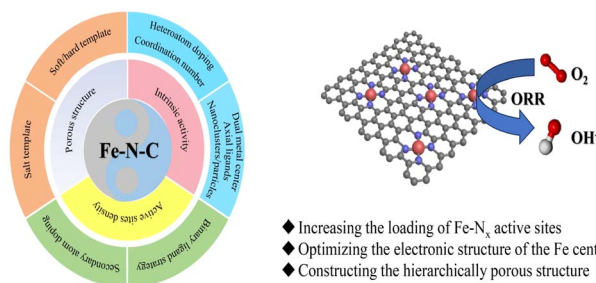
Wenye Xu, Yue Yu, Yong Cui* and Jianhui Hou*



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Research progress of atomically dispersed iron, nitrogen co-coordinated carbon catalysts for oxygen reduction: a mini-review

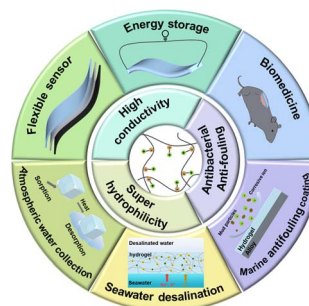
Hao Xu,* Ruopeng Li,* Yaqiang Li,* Xiangyu Lu, Huan Liu, Peixia Yang and Jie Bai*



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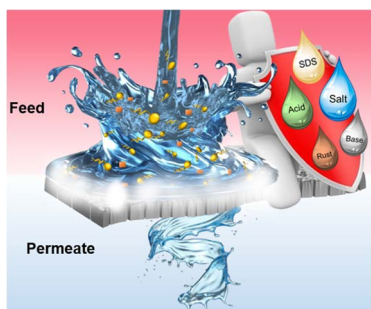
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Zihui Wang, Xinjuan Liu,* Mengni Zhu, Jiaqi Yang, Shengyu Tao, Zhiwei Gong, Min Xu* and Likun Pan*



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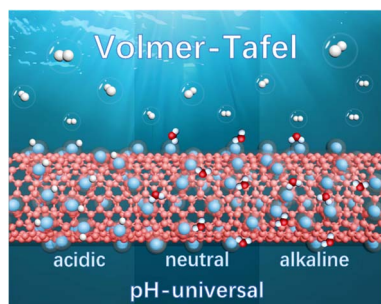
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Swarnamayee Behera, Kalyan Raidongia* and K. K. R. Datta*

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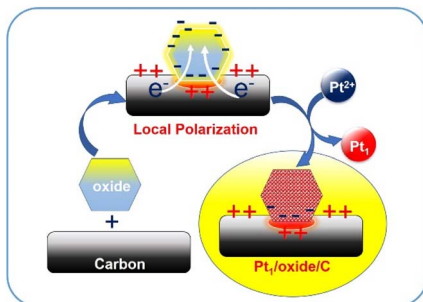


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Xin Wang, Yongjie Wang, Zhongqing Jiang, Binglu Deng and Zhong-Jie Jiang*

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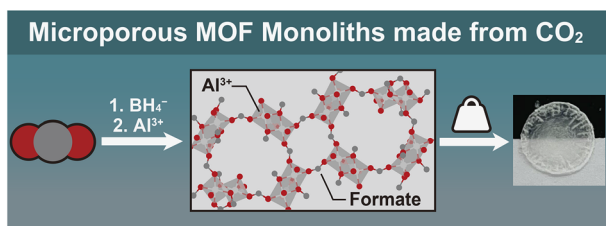
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Spontaneous deposition of high-density Pt single atoms on oxides via charge polarization between oxides and carbon

Jing-Fang Huang,* Liang-Jhu Chen, Bo-Zhao Yang and Jeng-Lung Chen

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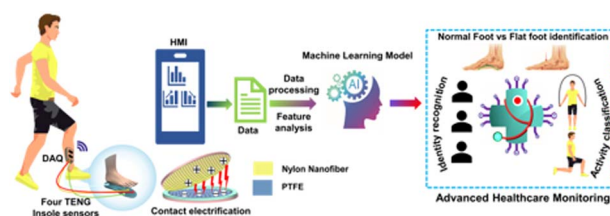
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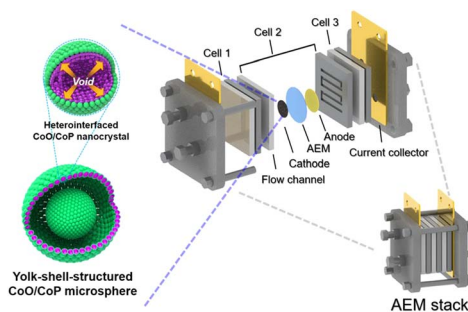
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Yolk-shell structured microspheres consisting of CoO/CoP hetero-interfaced nanocomposites as highly active hydrogen evolution reaction electrocatalysts for AEM electrolyzer stacks

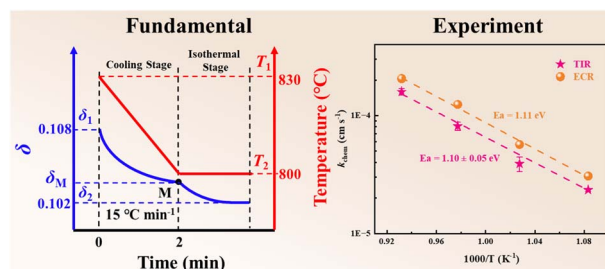
In Tae Kim, Tae Ha Kim, Seong Jun Moon, Gi Dae Park* and Yoo Sei Park*



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Temperature-induced relaxation for determining oxygen transport kinetics of nonstoichiometric oxides: fundamentals and experiments

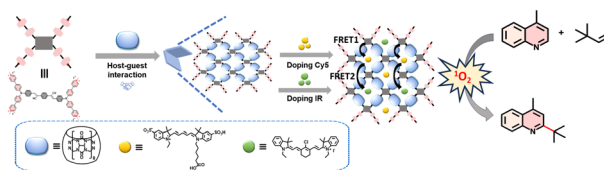
Hairui Han, Shuhan Kou, Guanwei Guo and Changrong Xia*



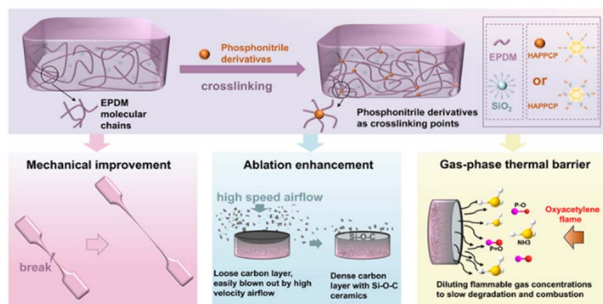
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Supramolecular organic framework nanosheets for efficient singlet oxygen generation: a multilevel energy transfer approach for photocatalytic Minisci reactions

Jian-Yue Liu, Rong-Zhen Zhang, Ning Han,* Hui Liu* and Ling-Bao Xing*



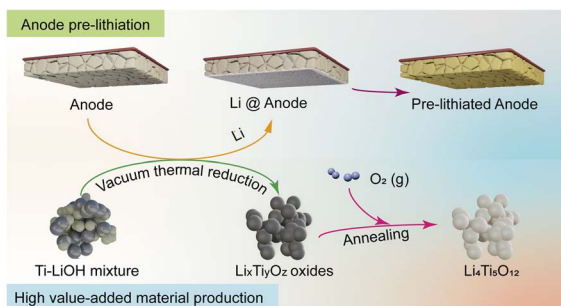
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Construction of phosphonitrile derivative-hybridized EPDM dense crosslinked networks for enhanced mechanics and ablation resistance

Shumeng Wang, Jian Wang, Xutao Ma, Zhaoqi Niu, Zongwu Zhang, Peibo Xu, Beixi Chen, Xiaoyan Ma,* Shishan Yang and Xiao Hou

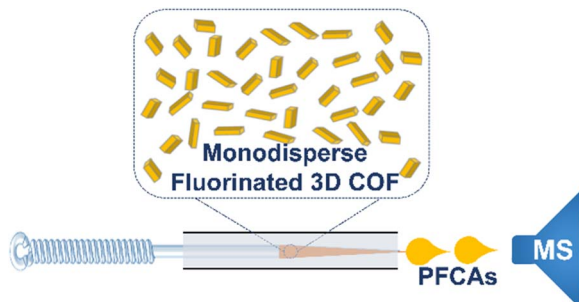
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Enabling economic and safe anode pre-lithiation with high value-added material production via vacuum thermal reduction

Yu-Ke Wang, Jia Lu, Wang-Qi Dai, Xin-Yu Cheng, Huan-Hao Lei, Jin-Ning Zuo, Hui-Kang Xia and Zheng-Wen Fu*

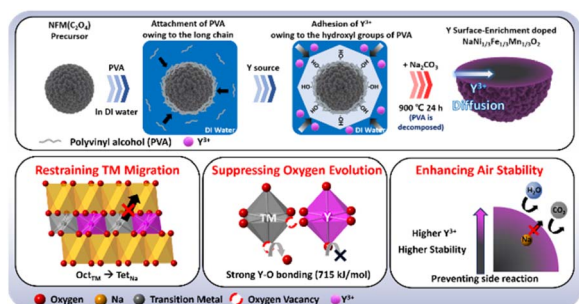
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Monodisperse fluorinated 3D covalent organic frameworks for enhanced adsorption and extraction of perfluorocarboxylic acids

Xu-Qin Ran, Can Zhu, Qian-Ying Mao, Shu-Ting Xu, Shuang-Ping Liu, Peng Gu, Yun Jiang, Xiu-Ping Yan and Hai-Long Qian*

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Polymer-assisted yttrium surface-enrichment doping of O3-type $\text{NaNi}_{1/3}\text{Fe}_{1/3}\text{Mn}_{1/3}\text{O}_2$ cathodes to enhance high voltage and air stability in sodium-ion batteries

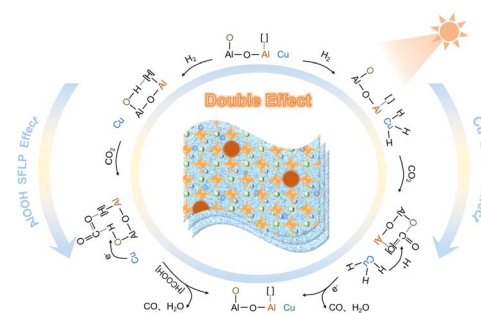
Yeonghun Park, Yunho Noh and Wonchang Choi*



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Synergetic effect of surface frustrated Lewis pair and localized surface plasmon resonance on tuning the catalyst from inert to highly reactive for photocatalytic CO₂ hydrogenation

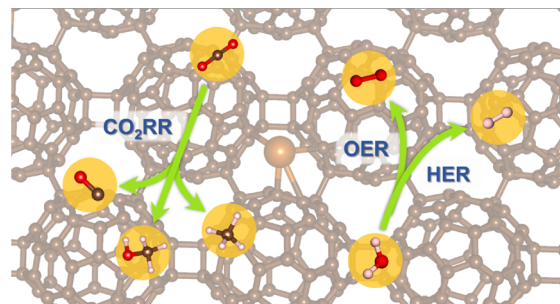
Guirong Yu, Na Li,* Xiao Li, Yuhao Guo and Tingjiang Yan*



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Single-atom photocatalysis based on 2D fullerene structures for water splitting and CO₂ reduction

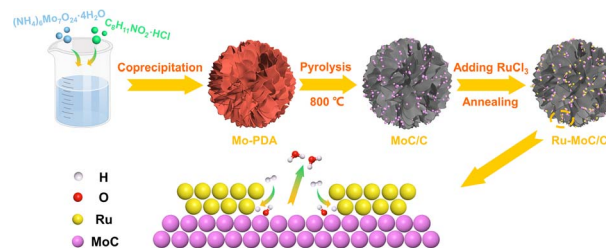
Miao Cheng, Kang Li, Naixu Li* and Jie Guan*



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A Ru–MoC heterostructure electrocatalyst for efficient and stable hydrogen oxidation reaction in alkaline media

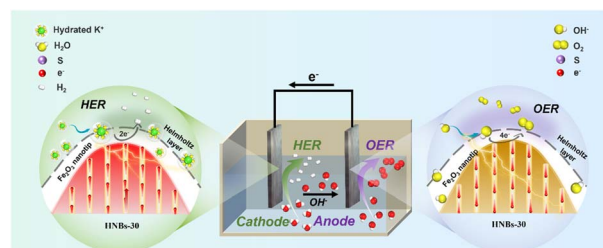
Pengcheng Wang, Yang Yang,* Hongda Shi, Jiahe Yang, Xingyan Chen, Xi Lin, Qianwang Chen and Mingzai Wu*



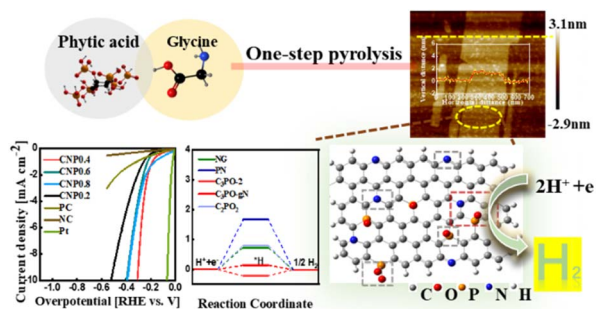
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Hematite nanobelts with ordered oxygen vacancies for bifunctional electrocatalytic water splitting

Xueli Zhang, Shihao Ding, Qianqian Shen, Shilong Feng, Jinlong Li, Zhe Sun, Chengkun Lei, Jinbo Xue* and Min Liu*



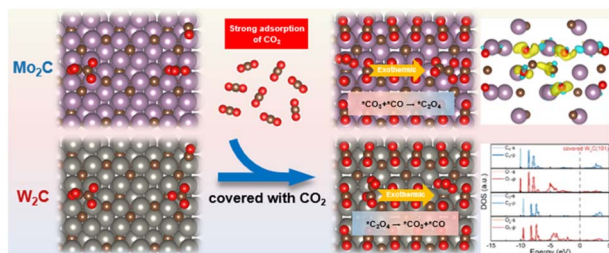
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Undemanding synthesis of N,P co-doped carbon nanosheets for the hydrogen evolution reaction: combining experimental quantitative analysis and DFT calculation corroboration

Xinran Yang, Ryuji Takada, Xinyu Li, Kotaro Narimatsu, Koji Miyake,* Yoshiaki Uchida and Norikazu Nishiyama

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Unveiling the reaction selectivity mechanism of molybdenum and tungsten carbides as cathode catalysts for Li-CO₂ batteries

Haonan Xie, Biao Chen, Chunnian He, Chunsheng Shi, Enzuo Liu* and Naiqin Zhao*

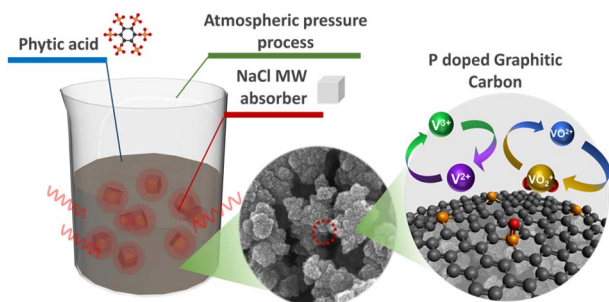
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Fast plasma nanomodification of graphitic carbon nitride by amide and carboxyl groups for enhanced sulfamethoxazole degradation in wastewater: detailed experimental and DFT study

František Zažímal,* Shalu Atri, Dušan Plašienka, Lukáš Vrána, Aleš Stýskalík, Aleš Vlček, Mária Čaplovičová, Mojmir Šob, Olivier Monfort and Tomáš Homola

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Microwave and NaCl driven synthesis of P-doped graphitic carbon at atmospheric pressure for long-life vanadium redox flow batteries

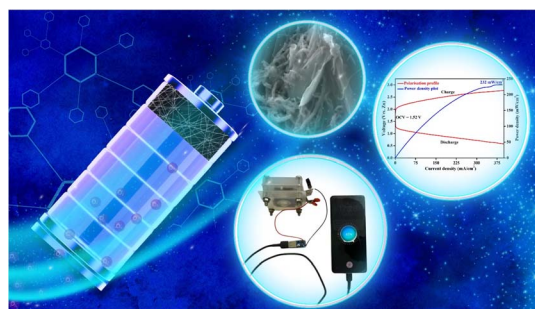
Heeyeon An, Sieun Jeon, Junseo Park and Yongjin Chung*



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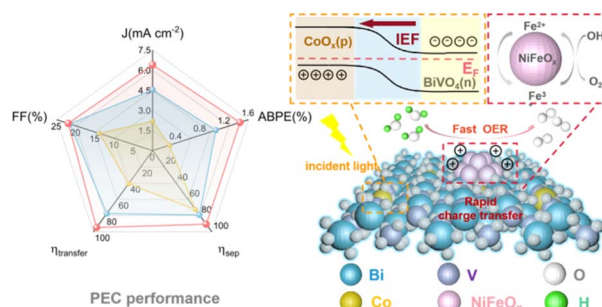
Nadar Allwyn, Mukkattu Kuniyil Nikhil Chandran, Venkatraman Maithreyan, Maria Antony Shalom and Marappan Sathish*



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Unravelling the charge transfer and kinetics of BiVO_4 by Co dopant and NiFeO_x co-catalyst for efficient photoelectrochemical water splitting

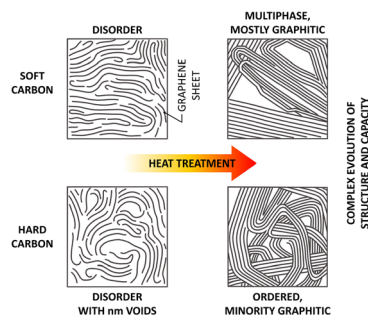
Li Fu,* Zhiwei Li, Xiaoying Shang and Ying Zheng*



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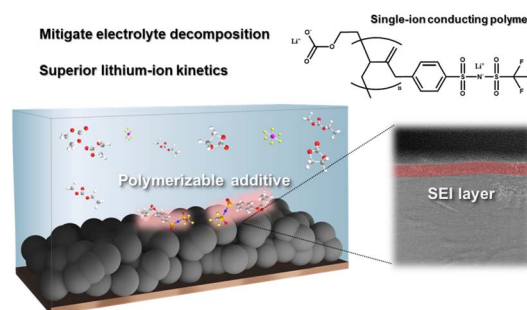
Jugo Okabe, Yuan Fang, Isamu Moriguchi and István Furó*



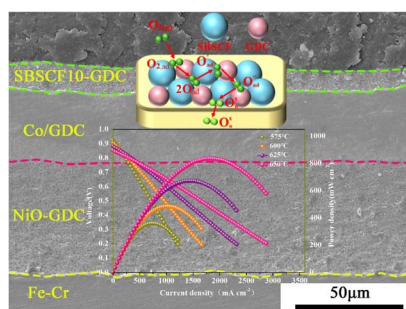
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A single lithium-ion conducting monomer as a SEI-forming additive for lithium-ion batteries

Jin-Hong Seok, Seongjae Lee, Da-Ae Lim, Kyoung Ho Ahn, Chul Haeng Lee, Kyeounghak Kim and Dong-Won Kim*



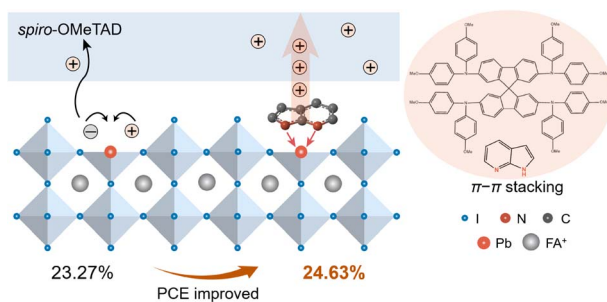
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Demonstration of a 650 °C operating high-performance metal-supported solid oxide fuel cell using a Gd-doped CeO₂ electrolyte, Ni anode and Sm(Ba_{0.5}Sr_{0.5})Co_{2-x}Fe_xO_{5+δ}-Ce_{0.9}Gd_{0.1}O_{2-δ} cathode

Fei-Fei Lu, Jia-Hong Li, Qi Ma, Chang-Jiu Li, Venkataraman Thangadurai* and Cheng-Xin Li*

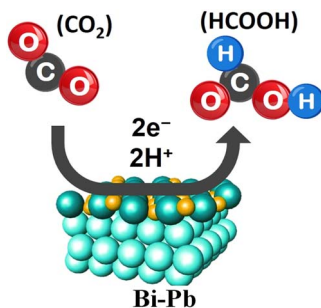
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Interface regulation via bidentate π -chelators for high-performance perovskite solar cells

Mengting Han, Aiqing Sun, Yingke Ren, Zhiqian Yang, Zhaoqian Li, Li'e Mo,* Hong Zhang, Xianxi Zhang, Yang Huang* and Linhua Hu*

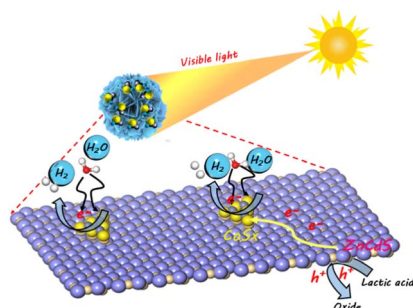
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Electronic and structural programming via electrochemical dealloying to generate Bi–Pb electrocatalysts for CO₂ reduction to formate

Samina Farid,* Ashi Rashid, Khurram Saleem Joya* and Farhat Yasmeen

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Regulating d-band electrons of sulfur-enriched CoS_x to weaken the S–H_{ads} bond in CoS_x/ZnCdS ohmic heterojunctions for enhanced photocatalytic hydrogen evolution

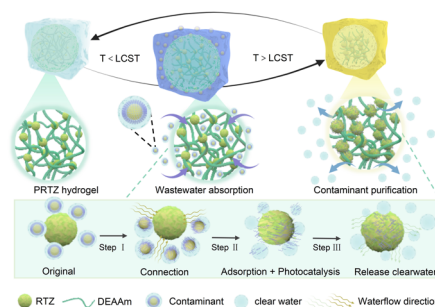
Jiaqi Yang, Yuanjin He, Yuqiang Hao, Xuqiang Hao* and Zhiliang Jin



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A solar-driven heterojunction hydrogel with reversible phase transition for efficient photocatalytic decontamination and freshwater generation

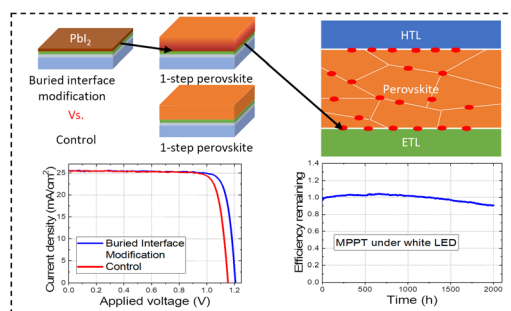
Jangyang Mei, Yong Jin,* Kun Huang, Haonan Chen, Rong Zhou, Zhexion Mao and Hailong Yang



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Universal buried interface modification with lead iodide for efficient and stable perovskite solar cells

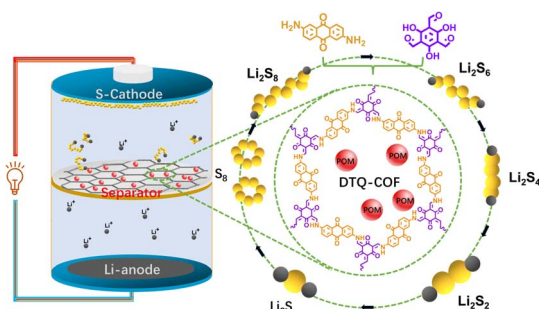
Dang-Thuan Nguyen,* Anh Dinh Bui, Daniel Walter, Khoa Nguyen, Hualin Zhan, Xuan Minh Chau Ta, Grace Dansoa Tabi, Thành Trần-Phú, Li-Chun Chang, Keqing Huang, Minh Anh Truong, Atsushi Wakamiya, Sunita Gautam Adhikari, Hieu Nguyen, Anne Hagren, Viqar Ahmad, Thanh-Tung Duong, Nguyen Duy Cuong, Heping Shen, Kylie Catchpole, Klaus Weber, Thomas White and The Duong*



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A Keggin-type polyoxometalate/COF thin separator for improving the performance of lithium-sulfur batteries

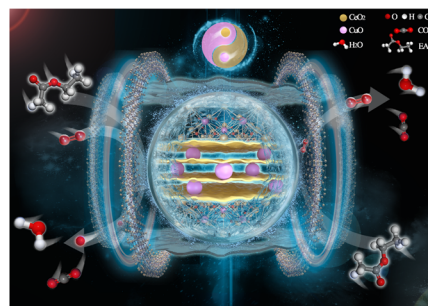
Wenhui Liu, Bo Sun, Yingkai Guan, Wei Xie, Chan Yao and Yanhong Xu*



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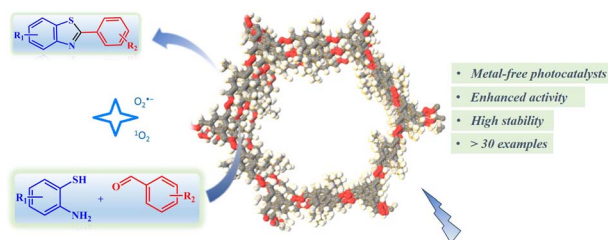
Sintering-resistant CuO/CeO₂ catalysts prepared via the reversed impregnation method for ethyl acetate oxidation

Yuchuan Ye, Zhouhao Zhu, Wanjin Yu, Shaohong Zang, Yingtang Zhou, Liuye Mo* and Lei Jiao*



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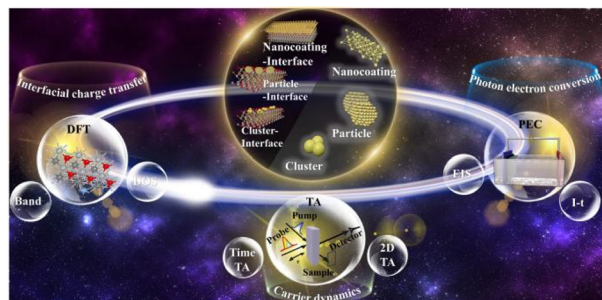
Covalent organic framework-based photocatalysts



Hydrazone-based covalent organic frameworks for efficient photocatalytic redox reactions

Jing Feng, Bingjie Yang, Pei Fan, Yongchao Lu, Qing Su,* Boai Li, Qingru Yang, Meng Lei, Hao Ren and Qiaolin Wu*

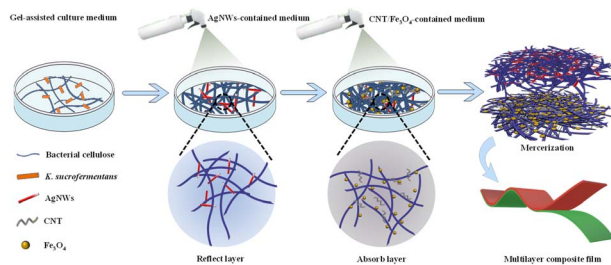
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Controlled interfacial charge transfer and photon-electron conversion of Ag/Cu-supported MXene heterostructures for applications as PEC anode materials

Yi-Tong Pang, Zi-Han Liu, Xiao-Yu Chen, Yuan Zhao, Di-Gen Wei, Jing-Yi Wangchen and Cheng-Bao Yao*

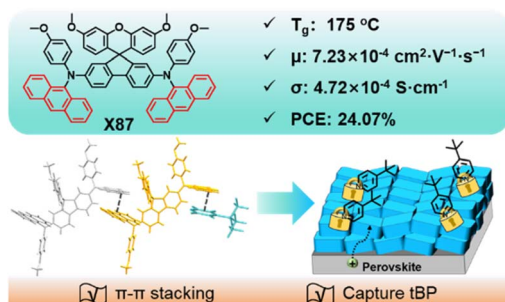
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An ultra-strong multilayer structural bacterial cellulose film by biosynthesis for high-performance electromagnetic interference shielding

Guoqiang Chen, Yibing Zhang, Ying Han, Qingtao Li,* Lei Wang* and Haibo Zhang*

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Immobilizing tBP via tailor-made π -conjugated hole transport materials for efficient and stable perovskite solar cells

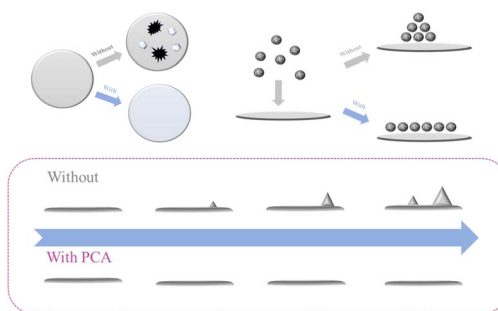
Daqing Zhang, Qianxin Long, Bihui Sun, Xin Luo, Guorong Zhou, Jinhai Huang, Zhiyun Zhang,* Jianhua Su and Bo Xu*



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A biomimetic pyrimidine derivative for stabilizing a zinc anode characterized by zinc ion deposition kinetics study and *in situ* optical imaging

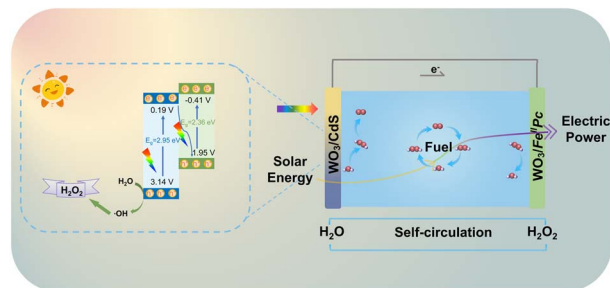
Jiangwei Tan, Lu Yang, Xue Yi, Shengtao Zhang, Hongru Li,* Zhiyong Wang* and Fang Gao*



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A constructed 3D porous hierarchical micro-flower WO₃/CdS S-scheme heterojunction for boosting photocatalytic H₂O₂ production and photoelectrochemical cell performance

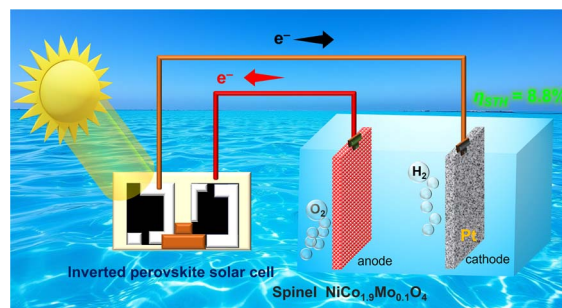
Yutong Liu, Rui Wang, Ningning Huang, Yingying Guan, Meiyu Yang, Jiali Yang, Shiyu Wang, Yang Zhao,* Bolong Jiang and Huan Wang*



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Trimetallic spinel NiCo_{2-x}Mo_xO₄ oxygen evolution catalyst enabling bias-free solar water splitting with inverted perovskite solar cells

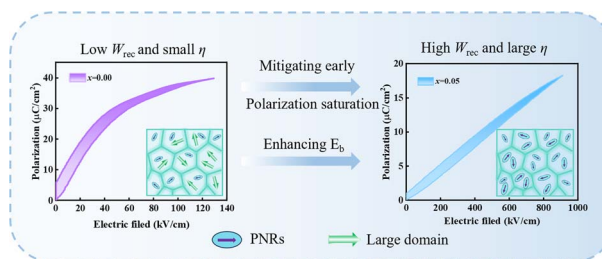
Mahmoud G. Ahmed, Yi Fei Phang, Ying Fan Tay, Anupam Sadhu, Prithish Mishra, Akhmad Herman Yuwono and Lydia H. Wong*



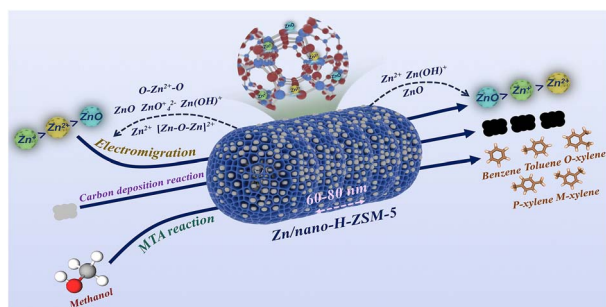
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Realizing high energy storage performance in (Bi_{0.5}Na_{0.5})_{0.7}Sr_{0.3}TiO₃ ceramics *via* phase structure adjustment

Meiling Cao, Xin Zhang, Shiyu Yang, Yiyang Zhou, Shize Zhao, Xiuli Chen,* Xu Li* and Huanfu Zhou



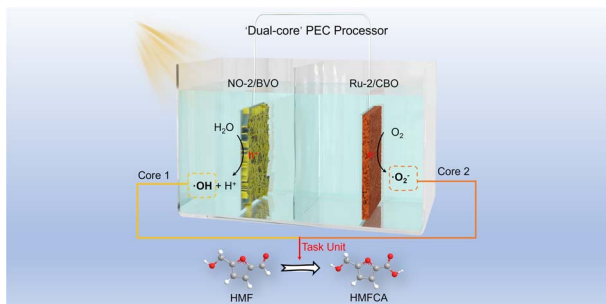
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Crafting Zn/nano-H-ZSM-5 catalysts for methanol-to-aromatics conversion: tailoring crystal size and modifying surface electron density

Yang Zhou, Jiayun Tang, Ruizhi Chu,* Shuang Hu, Shaobo Chen, Rongrong Nie, Xiaofeng Jiang, Weisong Li, Xiao Li, Cheng Wei, Huili Liu and Xianliang Meng*

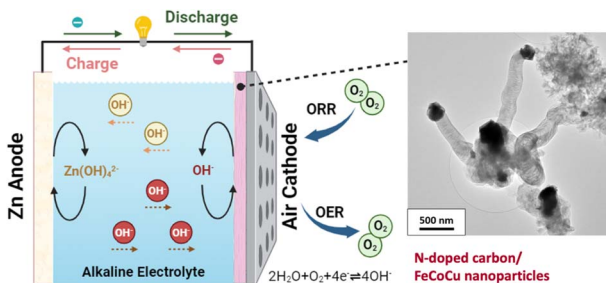
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Unbiased photoelectrochemical tandem reaction for concurrent oxidations with ultra-high overall faradaic efficiency

Haoyue Sun, Rui Tang, Xingmo Zhang, Sibe Zou, Yuhang Liang, Namuerkesaihan Namuerkesaihan, Qinfen Gu, Alfons Baiker and Jun Huang*

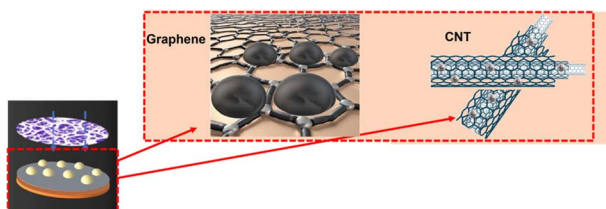
14216



Stable oxygen reduction catalysts for enhancing rechargeability for zinc-air batteries: FeCoCu nanoparticles embedded in N-doped carbon matrices

Wen Zhao, Tianli Wu,* Inosh Prabasha Perera, Yanliu Dang, Isaac T. Olowookere, Qiang Luo, Haiyan Tan, Dilshan Silva and Steven L. Suib*

14229



Single-step electrodeposition of CNT/GO-Zn composites for enhanced stability in AFLBs

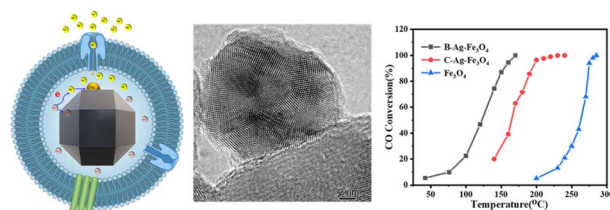
Pooria Afzali, Eugenio Gibertini, Saraswathy Venugopal and Luca Magagnin*



14242

A biological pathway to synthesize Ag/Fe₃O₄ heterostructures with high catalytic performance

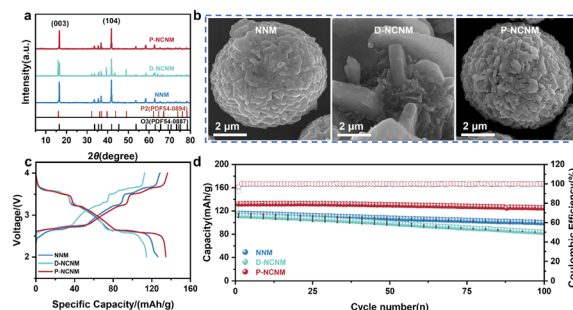
Ye Xiao, Jian Zhang, Junjie Xu, Tianli Liu, Yanhao Dong, Jiasheng Tian* and Chang-An Wang*



14251

Na layer pillar ion post-doping facilitates diffusion kinetics and structural stability in NaNi_{0.5}Mn_{0.5}O₂

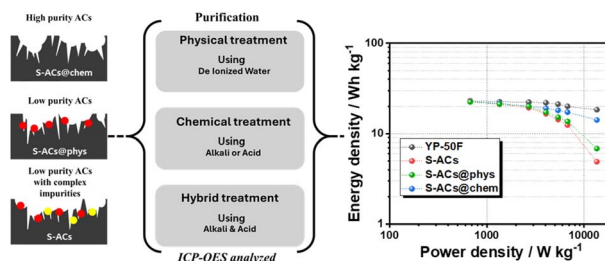
Rui Jin, Shihao Li, Wei Zhou, Yi Zhang, Ziyue Qiu, Yuhang Zhang, Huiru Wang, Jie Li, Yanqing Lai and Zhian Zhang*



14262

Effect of impurities in different activated carbon materials and their in-depth electrochemical analysis in supercapacitor coin-cell devices with organic electrolyte

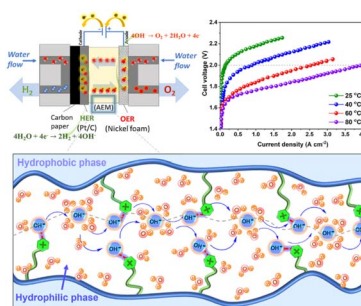
Kye-yeol Lee, Il Yeong Jeong, Jeong-Woo Kim, Seungmin Yu, Hye-Min Lee, Sivaprakasam Radhakrishnan and Byoung-Suhk Kim*



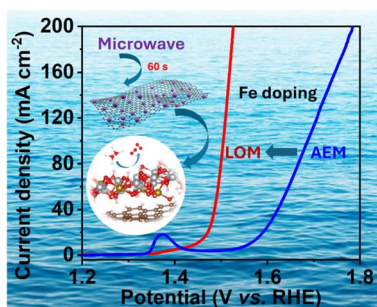
14280

Enhanced ionic conductivity and chemical stability of anion exchange membranes prepared from ether-free poly(biphenyl alkylene piperidinium) with alkyl spacers for water electrolysis

Thi Cam Thach To, Anh Le Mong and Dukjoon Kim*



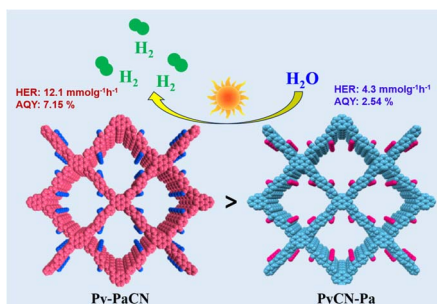
14293



Rapid synthesis of Fe doped Ni_xP/reduced graphene oxide for enhanced oxygen evolution reaction activity in alkaline freshwater and seawater

Qing Ye, Jialin Wang, Peng Guan, Yun Liu, Deshuang Xu, Yanxia Zhao* and Yongliang Cheng*

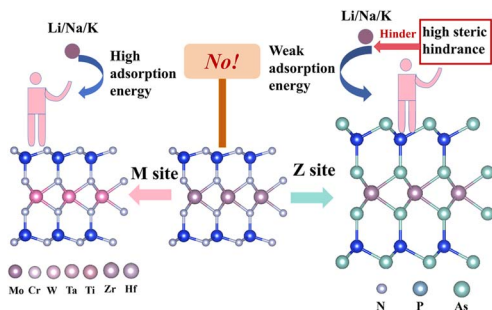
14304



Isomeric cyano-vinylene-linked covalent organic frameworks and their impact on photocatalytic hydrogen evolution

Amit Nagar, Akhtar Alam, Pradip Pachfule and C. M. Nagaraja*

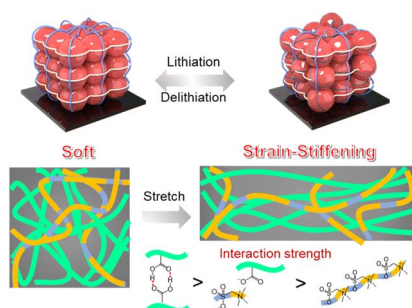
14314



Unraveling structure–performance relationships: tailored d-band centers in monolayer MSi₂N₄ and MoSi₂Z₄ by atomic substitution

Xuerui Shi, Mingjun Li, Guozhao Fang, Anqiang Pan, Shuquan Liang and Mengqiu Long*

14324



A mechano-responsive elastomeric binder toughened using a supramolecular zwitterionic network for silicon microparticle anodes

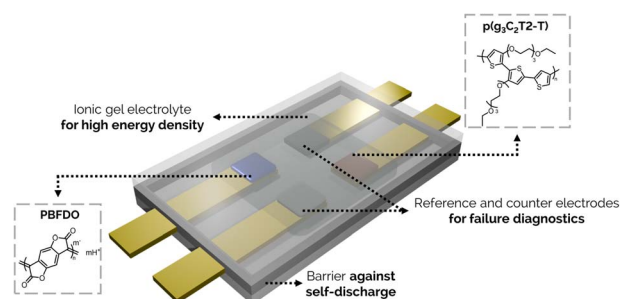
Wenqi Li, Yingdong Chen, Tao Chen,* Jing Zhao, Qianjin Zhang, Wei Chen, Mingchang Zhang, Haitao Gu* and Jiajun Fu*



14335

A polymeric mixed conductor-based solid state charge storage device

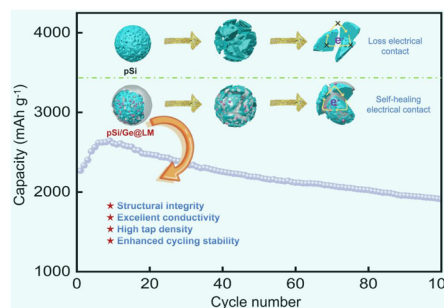
Prem D. Nayak, David Ohayon, Luca Salvigni, Sumana Bhattacharjee, Danilo Arcangeli, Tania Cecilia Hidalgo Castillo, Adel Hama, Johana Uribe, Rajendar Sheelamanthula, Haoran Tang, Iain McCulloch, Fei Huang and Sahika Inal*



14346

Synergistic engineering of micron-sized porous silicon anodes via Ge doping and liquid metal alloy modification for high-energy-density lithium-ion batteries

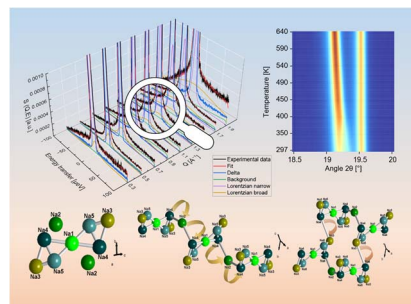
Lin Sun,* Lijun Wang, Yang Liu, Hongyu Wang and Zhong Jin*



14353

Understanding the structure and mechanism of Na⁺ diffusion in NASICON solid-state electrolytes and the effect of Sc- and Al/Y-substitution

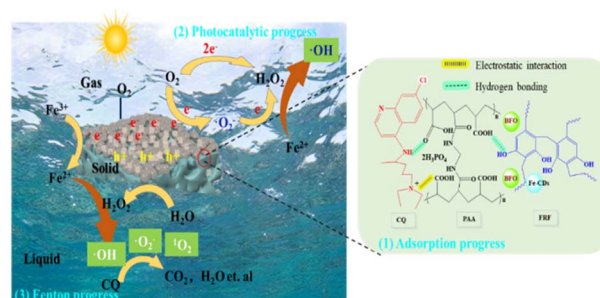
Ivana Pivarníková,* Stefan Seidlmayer, Martin Finsterbusch, Gerald Dück, Niina Jalarvo, Peter Müller-Buschbaum and Ralph Gilles



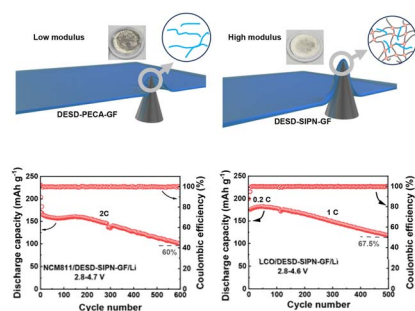
14372

Boosting hydroxyl radical production via floatable S-scheme heterojunction-integrated polyacrylic acid hydrogels as a photo-self-Fenton catalyst for pollutant removal

Yuanyuan Yang, Tingting Luo, Min He,* Jie Yu, Xiao Wu, Mingze An, Ting Lei, Qingqing Qin and Shuhao Qin*



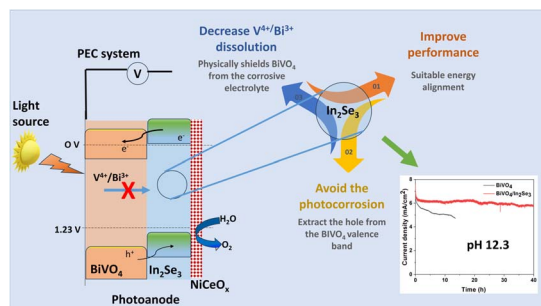
14392



A deep eutectic solvent-based semi-interpenetrating polymer electrolyte for high-voltage stable lithium-metal batteries

Tianhui Cheng, Weixing Min, Mingli Wang, Shuangshuang Zhu, Lengwan Li, Shilun Gao, Zhenxi Li, Jia Tian, Dandan Yang, Huabin Yang* and Peng-Fei Cao*

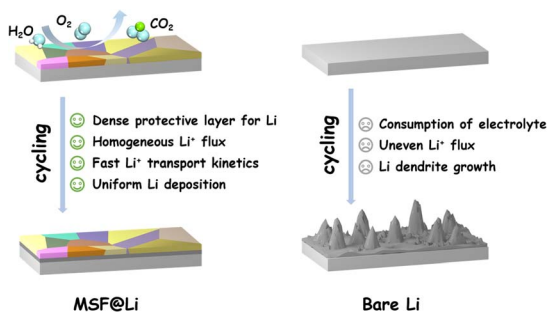
14401



Facile 2D In_2Se_3 protection for enhanced BiVO_4 stability in highly alkaline photoelectrochemical water splitting

Neway Belachew, Qitao Liu, Weilong Qin, Muhammad Bilal Akbar, Jing Gao, Hao Wang, Jiabo Le, Qinglu Liu and Yongbo Kuang*

14411



In situ generated air-stable inorganic-rich SEI of lithium anodes for dendrite-free lithium metal batteries

Wenhao Tang, Yanlin Zhang, Xinquan Zhang, Shun Yao and Ruiping Liu*

CORRECTION

14420

Correction: Colloidal synthesis of Au nanomaterials with a controlled morphology and crystal phase via the [Au(I)-oleyamine] complex

Gang Wang, Chen Ma, Long Zheng and Ye Chen*

