

Journal of Materials Chemistry A

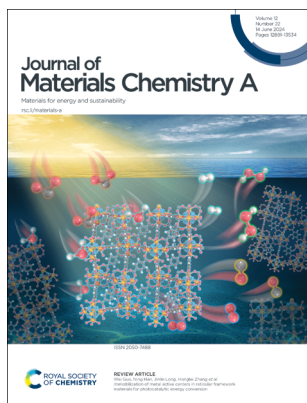
Materials for energy and sustainability

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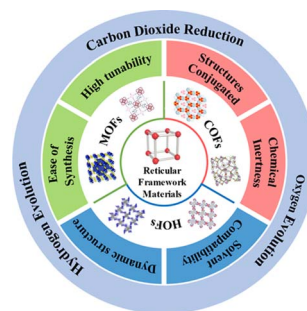
See Wei Guo, Ning Han, Jinlin Long, Honglei Zhang *et al.*, pp. 12907–12925. Image reproduced by permission of Honglei Zhang from *J. Mater. Chem. A*, 2024, **12**, 12907.

REVIEWS

12907

Immobilization of metal active centers in reticular framework materials for photocatalytic energy conversion

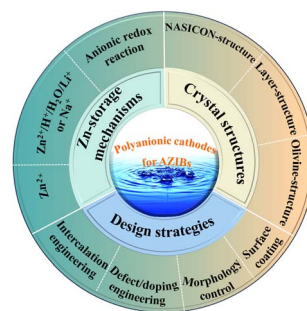
Shuo Wang, Wei Guo,* Chao Li, Bo Weng, Shuai Liu, Ning Han,* Jinlin Long* and Honglei Zhang*



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Advanced polyanionic cathode materials for aqueous zinc-ion batteries: from crystal structures, reaction mechanisms, design strategies to future perspectives

Can Jin, Qiuyu Shen, Long Zhang,* Shengwei Li, Xuanhui Qu, Lifang Jiao and Yongchang Liu*



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Soft-oxometalates (SOMs): crafting the pillars of a sustainable future

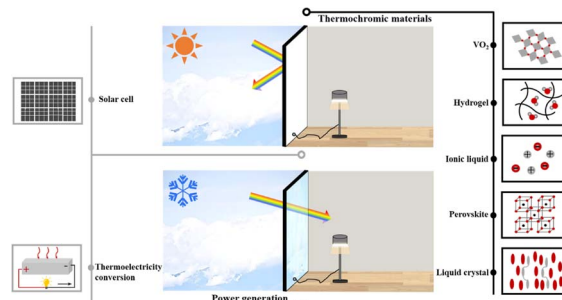
Nidhi Kumari and Soumyajit Roy*



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Multifunctional thermochromic smart windows for building energy saving

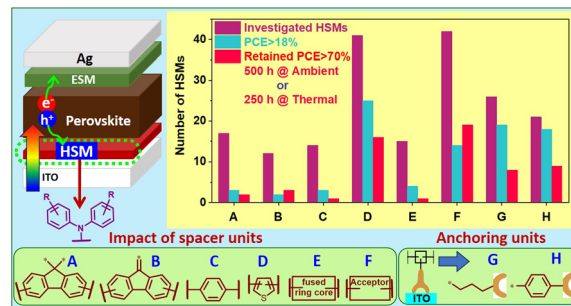
Dingkun Wang, Guoqi Chen and Jun Fu*



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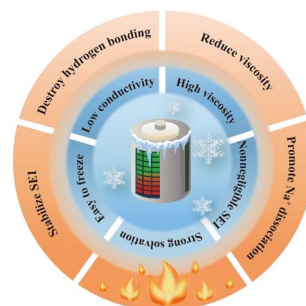
Paramaguru Ganesan, Mohammad Khaja. Nazeeruddin and Peng Gao*



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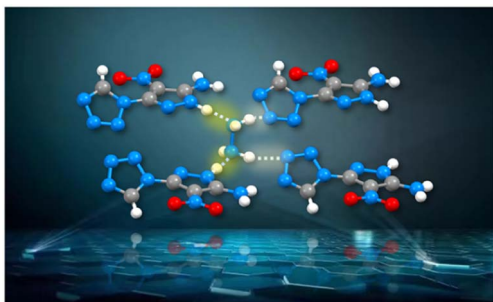
Status and strategies of electrolyte engineering for low-temperature sodium-ion batteries

Su Yang, Kaipeng Cheng* and Zhenjiang Cao*



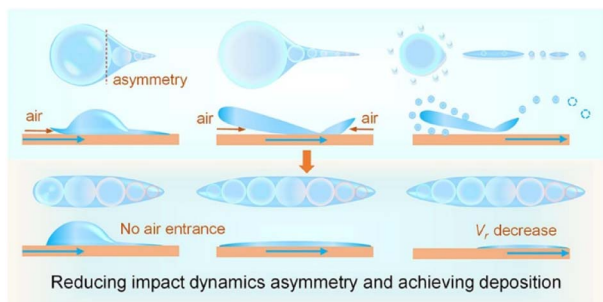
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**Trapping molecular hydrazine in a cocrystal via hydrogen bonding**

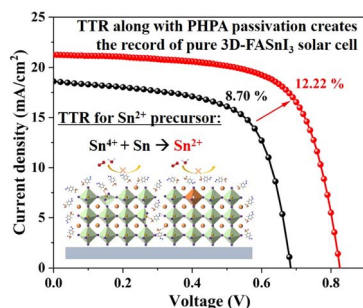
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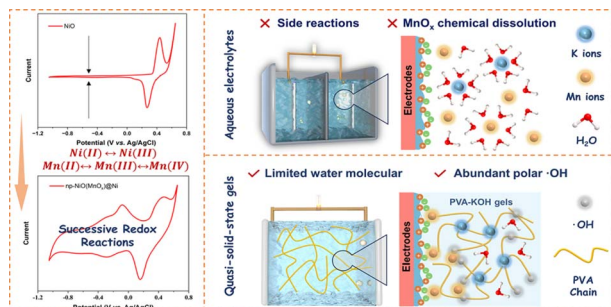
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Ziying Shi, Enzuo Liu, Biao Chen, Junwei Sha, Lihua Qian, Zhijia Zhang, Xiaopeng Han, Wenbin Hu, Chunnian He, Naiqin Zhao and Jianli Kang*

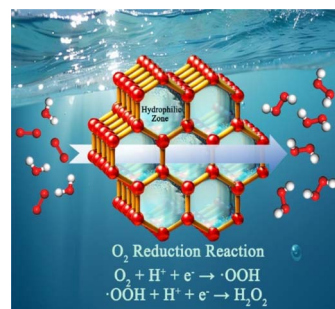


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Superhydrophilic covalent organic frameworks accelerate photocatalytic production of hydrogen peroxide through proton channels

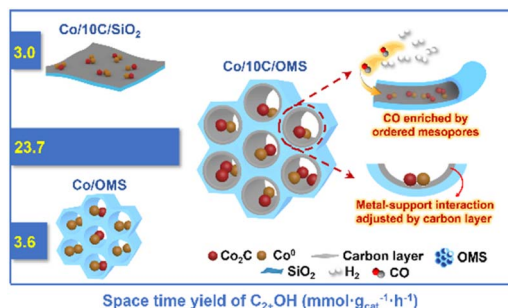
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Co–Co₂C catalysts supported on carbon-coated ordered mesoporous silica with promoted CO insertion and C–C coupling for higher alcohol synthesis from syngas

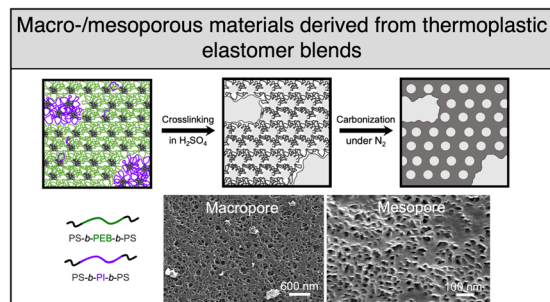
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A general strategy to prepare macro-/mesoporous materials from thermoplastic elastomer blends

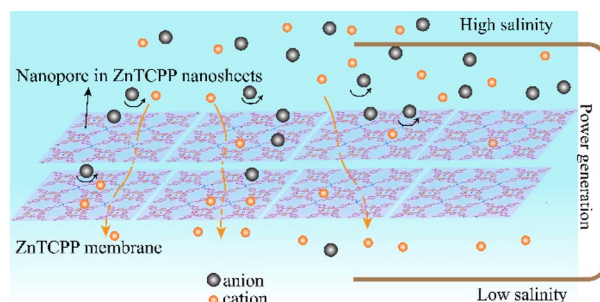
Anthony Griffin, Mark Robertson, Parker Frame, Guorong Ma, Kevin A. Green, Zhiqian Han, Sarah E. Morgan, Xiaodan Gu, Meng Wang and Zhe Qiang*



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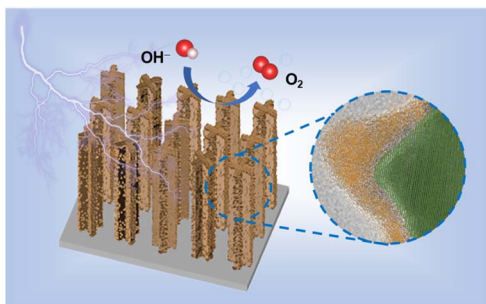
Self-assembled two-dimensional metal–organic framework membranes as nanofluidic osmotic power generators

Yuyu Su, Jue Hou, Chen Zhao, Qi Han, Jian Hu and Huacheng Zhang*



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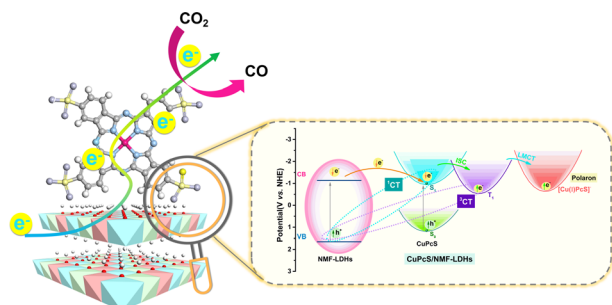
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NiFeCo–OH/NiTe nanoarrays with amorphous/crystalline interfaces for highly efficient oxygen evolution reaction

Jing Liu, Da Liu, Xiaoxiao Yan, Peifang Guo, Hongbin Xu, Peng Chen and Renbing Wu*

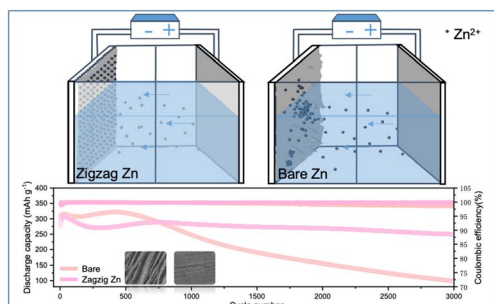
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Molecular-polaron-coupling-enhanced photocatalytic CO₂ reduction on copper phthalocyanine/NiMgFe layered double hydroxide nanocomposites

Yuexian Li, Wenli Su, Xiaoyan Wang, Jun Lu,* Wenkai Zhang* and Shuo Wei*

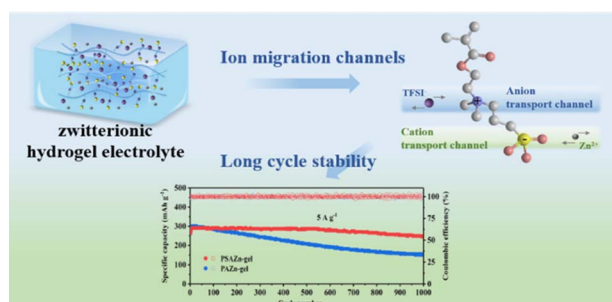
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Electric field distribution regulation of a zinc anode toward long cycle life zinc metal batteries

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Self-adhesive polyelectrolyte hydrogel electrolytes for long-life flexible zinc-ion batteries

Yahui Xu, Bin Xu Lan, Yin Cheng, Liangjing Shi, Jing Sun, Shijiao Sun* and Ranran Wang*

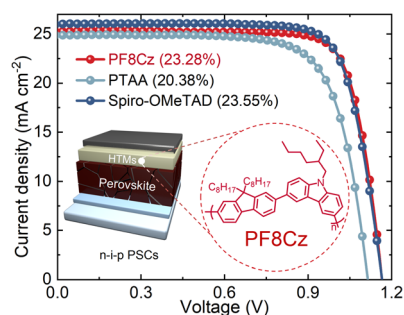


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A fluorene–carbazole conjugated polymer hole conductor for efficient and stable perovskite solar cells

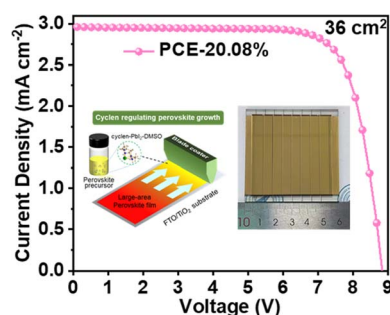
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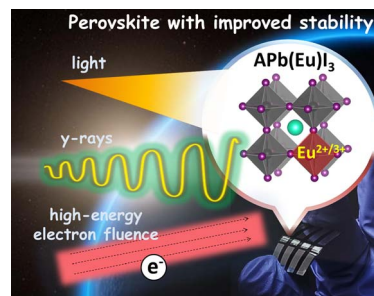
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A europium shuttle for launching perovskites to space: using $\text{Eu}^{2+}/\text{Eu}^{3+}$ redox chemistry to boost photostability and radiation hardness of complex lead halides

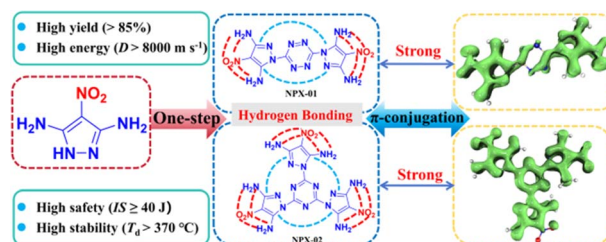
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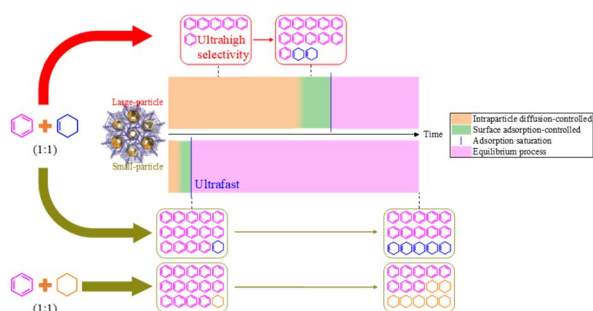
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Achieving ultra-high heat resistance of novel energetic materials through a hydrogen bonding and extended π -conjugation strategy

Xiue Jiang, Dangyue Yin, Siwei Song, Yi Wang,* Mingren Fan, Ruihui Wang and Qinghua Zhang*



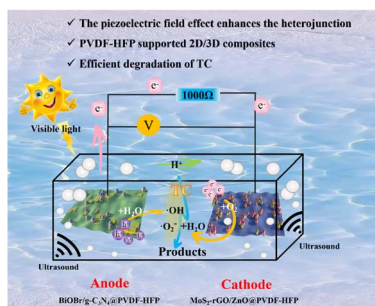
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Fast adsorption and kinetic separation of benzene and cyclohexane/cyclohexene in a microporous metal azolate framework

Ze-Hao Qiu, Jing-Hong Li, Bai-Xun He, Pei-Qin Liao, Mu-Yang Zhou, Pei-Xian Li, Rui-Biao Lin,^{*} Jie-Peng Zhang^{*} and Xiao-Ming Chen

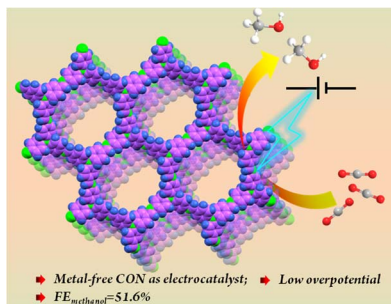
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The construction of a photocatalytic fuel cell based on piezoelectric-enhanced dual heterojunctions of PVDF-HFP supported 2D/3D composites toward photocatalytic degradation of tetracycline

Tingting Yu,^{*} Bing Yang, Ran Deng, Tao Yang and Jizhou Jiang^{*}

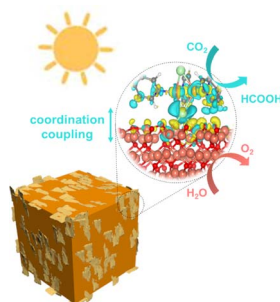
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Redox-active covalent organic nanosheets (CONs) as a metal-free electrocatalyst for selective CO₂ electro-reduction to the liquid fuel methanol

Soumitra Barman, Anupam Dey, Faruk Ahamed Rahimi, Vasudeva Rao Bakuru, Rohan Jena, Adrija Ghosh and Tapas Kumar Maji^{*}

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Coupling doped halogen sites in copper(I)-organic frameworks with cuprous oxide for high selectivity CO₂ photoreduction with H₂O

Jing Liang, Shengfu Huang, Yuan Chang, Andreas Terfort, Junfeng Gao^{*} and Jinxuan Liu^{*}

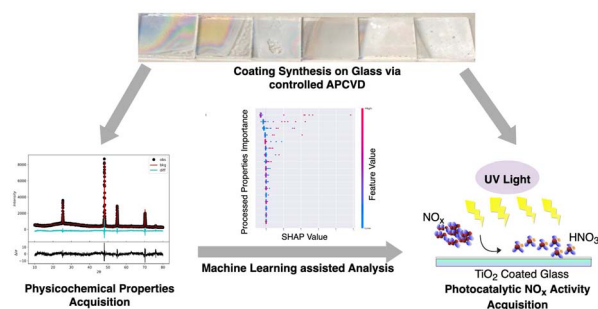


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Insights from experiment and machine learning for enhanced TiO₂ coated glazing for photocatalytic NO_x remediation

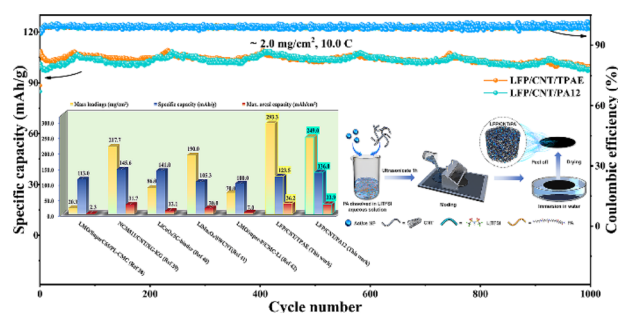
Zhi-Peng Lin,^{*} Yuankai Li, Saif A. Haque, Alex M. Ganose and Andreas Kafizas



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Nylon binder enables high-performance flexible ultra-thick electrode preparation in a water-based environment

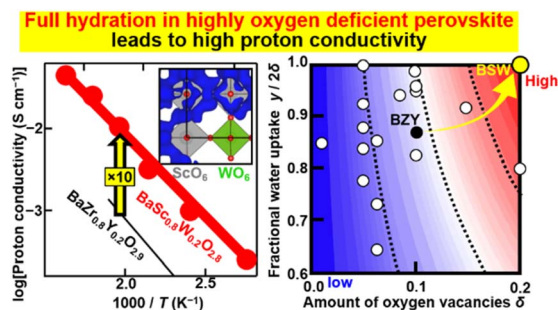
Li Jiang, GuoJing Zang, Xiu Liu, Ling Chen, Yaoguang Chen, Jinghao Xie, Zhongxin Liang, Fuzhen Li and Zishou Zhang^{*}



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High proton conduction by full hydration in highly oxygen deficient perovskite

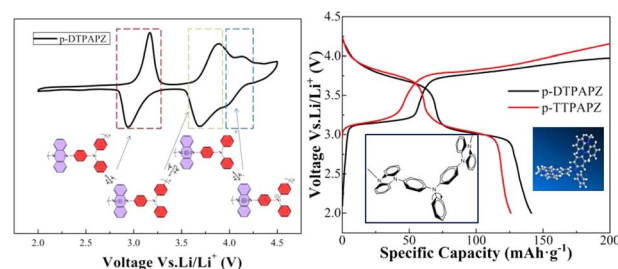
Kei Saito, Kensei Umeda, Kotaro Fujii, Kazuhiro Mori and Masatomo Yashima^{*}



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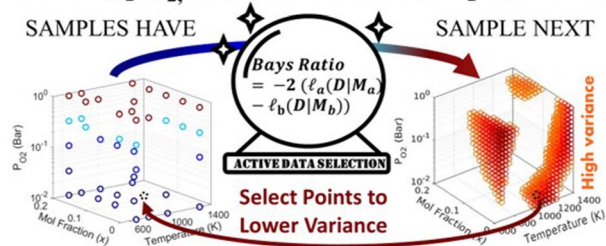
Triphenylamine-containing dihydrophenazine copolymers with adjustable multi-electron redox characteristics and their application as cathodes in lithium-organic batteries

Lihuan Xu, Qiang Fei, Lin Yao and Chang Su^{*}



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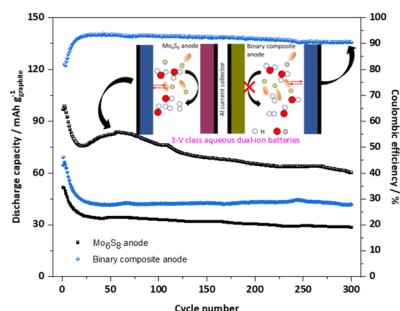
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What T, pO₂, and X should be sampled next?

A Bayesian method for selecting data points for thermodynamic modeling of off-stoichiometric metal oxides

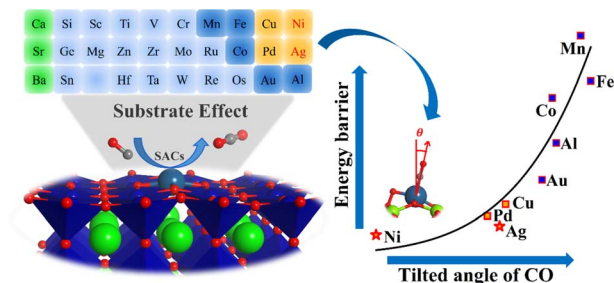
Steven A. Wilson and Christopher L. Muhich*

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Nanocomposite of Nb-based binary phase for lowering the activation energy of Li⁺ intercalation as an anode for high-performance aqueous dual-ion batteries

Dengyao Yang,* Junko Matsuda, Jun Tae Song, Motonori Watanabe and Tatsumi Ishihara*

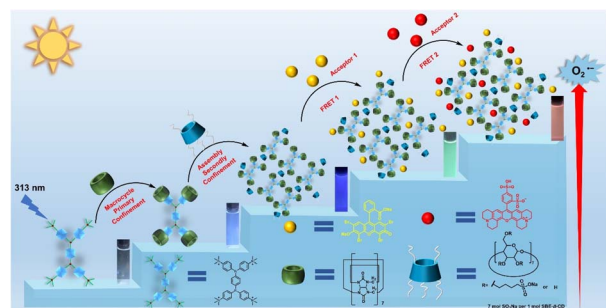
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Substrate-dependent catalytic activity of single-atom Pt for CO oxidation

Yuyao Huang, Lu Wang* and Youyong Li*

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A supramolecular cascade assembly with a two-step sequential energy transfer process for enhanced photocatalytic performance

Guang-Lu Li, Kai-Kai Niu, Xuan-Zong Yang, Hui Liu, Shengsheng Yu* and Ling-Bao Xing*

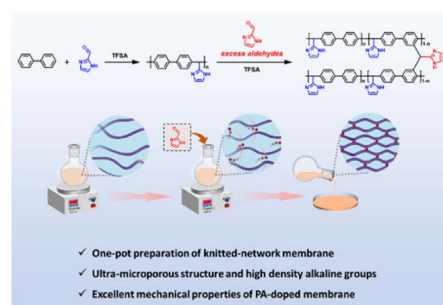


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One-pot preparation of crosslinked network membranes via knitting strategy for application in high-temperature proton-exchange membrane fuel cells

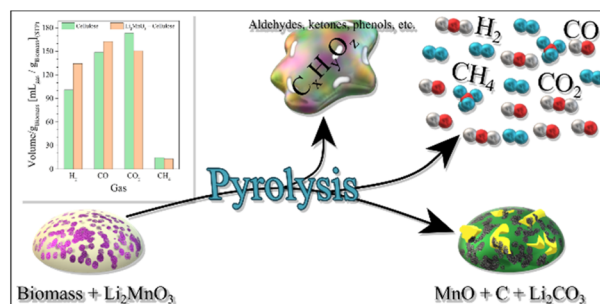
Lei Huang, Qian Wang, Zimo Wang, Xi Sun, Jiayu Guan, Jifu Zheng,* Shenghai Li and Suobo Zhang*



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Enhanced hydrogen production via assisted biomass gasification using lithium manganate as a bifunctional material

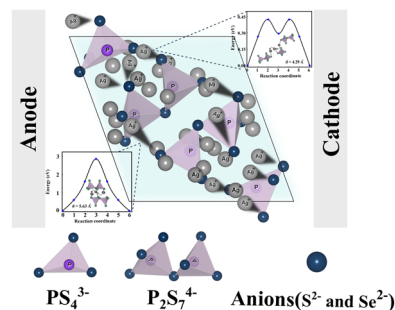
Carlos Hernández-Fontes, Nan Wang, Nayeli Gómez-Garduño and Heriberto Pfeiffer*



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A comprehensive investigation of $\text{Ag}_7\text{P}_3\text{X}_{11}$ ($\text{X} = \{\text{O}, \text{S}, \text{and Se}\}$) solid-state silver superionic conductors

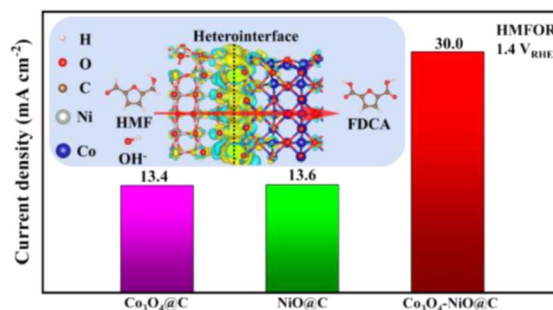
Amin Niksirat, Maryam Soleimani, Ali Lashani Zand and Mahdi Pourfath*



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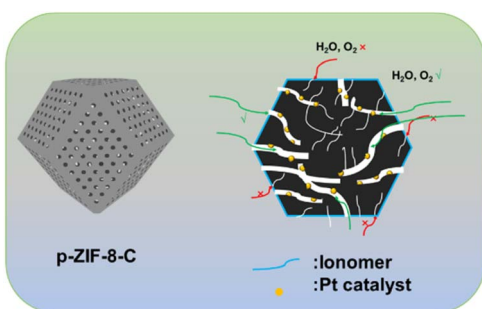
Carbon layer confined Co–Ni bimetallic oxide heterojunctions for high-efficiency electrosynthesis of 2,5-furandicarboxylic acid

Zhong Cheng, Jing Hu, Wenjing Zhou, Wenfang Deng,* Ming Ma* and Yueming Tan*



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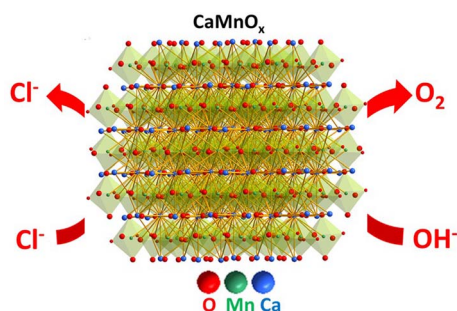
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A cooperative template strategy to control the pore structure of ZIF-derived carbon for fuel cell cathodes

Zhihong Huang, Mingjia Lu, Sucheng Liu, Longhai Zhang, Yangyang Chen, Lecheng Liang, Jiaxi Zhang, Huiyu Song, Li Du and Zhiming Cui*

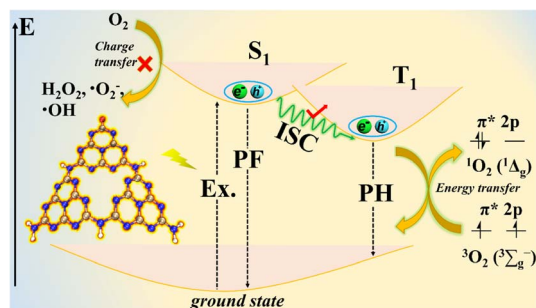
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Stabilizing oxygen-deficient Mn sites active in seawater oxidation

Tanveer ul Haq,* Mourad Smari, Aleena Tahir and Yousef Haik*

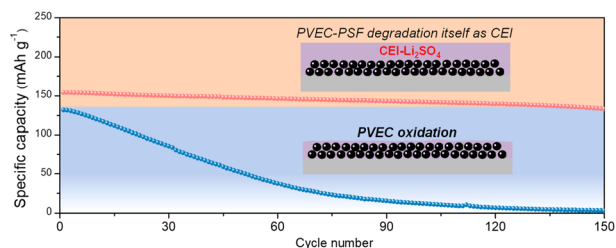
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Unveiling the mechanism on photocatalytic singlet oxygen generation over rationally designed carbonylated carbon nitride

Wei Liu, Huinan Che, Bin Liu and Yanhui Ao*

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Self-degrading functional unit introduction for anti-oxidation ability enhancement of a poly(vinyl ethylene carbonate) electrolyte

Zhiyuan Lin, Fang Chen, Xin Yin, Peipei Ding, Yonggao Xia,* Xianwei Guo* and Haijun Yu

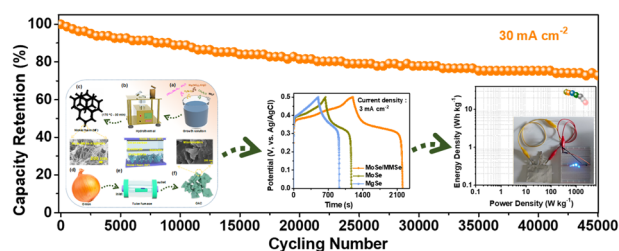


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Binder-free MoSe/MMSe composite and onion-derived activated carbon electrode materials for high-performance hybrid supercapacitors

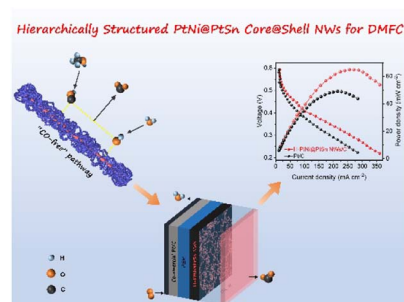
Manchi Nagaraju, Bhimanaboina Ramulu, Ampasala Surya Kiran and Jae Su Yu*



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Hierarchical platinum–nickel@platinum–tin core@shell nanowires achieve efficient fuel cell catalysis

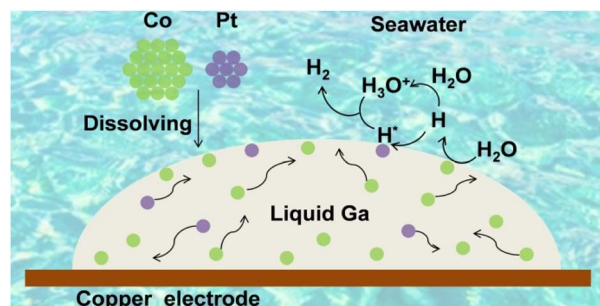
Liyuan Wang, Changhong Zhan, Wei Yan, Yunhua Li* and Lingzheng Bu*



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Dynamic dual-atom synergistic catalysis boosted by liquid metal for direct seawater electroreduction

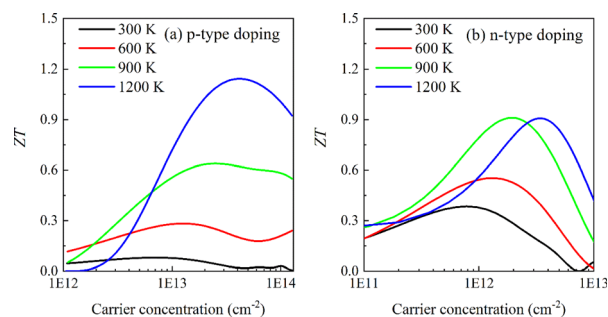
Haoxuan Li, Jinghui Wang,* Mei Cui, Renliang Huang,* Wei Qi and Rongxin Su*



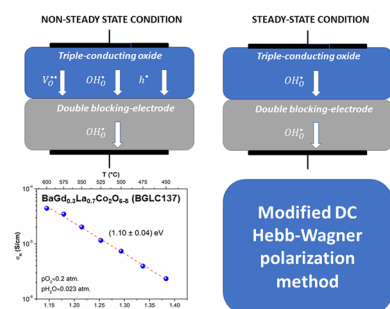
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A theoretical prediction of thermoelectrical properties for novel two-dimensional monolayer ZrSn₂N₄

Shan Feng, Hangbo Qi, Wenguang Hu, Xiaotao Zu and Haiyan Xiao*



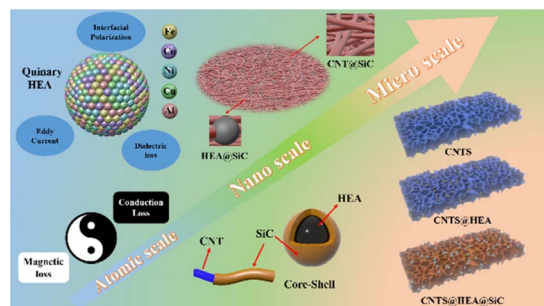
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A modified DC Hebb–Wagner polarization method for determining the partial protonic electrical conductivity in mixed-conducting $\text{BaGd}_{0.3}\text{La}_{0.7}\text{Co}_2\text{O}_{6-\delta}$

Tadeusz Miruszewski,^{*} Ragnar Strandbakke, Kacper Dzierzgowski, Iga Szpunar, Aleksandra Mielewczyk-Gryń, Sebastian Wachowski and Maria Gazda

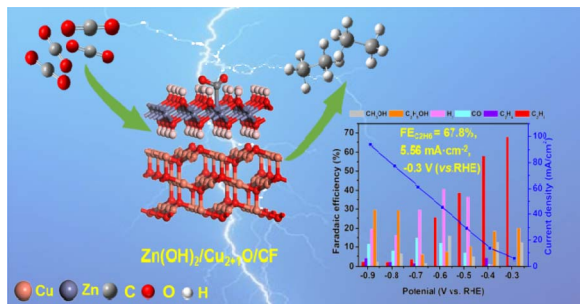
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High-entropy alloy nanoparticles combined with an SiC coating synergistically boost the electromagnetic shielding performance of a carbon nanotube sponge

Ying Zhang, Chengqing Tang, Yaoqieyu Song, Sheng Zhang, Zhi Hong Hang,^{*} Xiaohua Zhang,^{*} Yitan Li^{*} and Zhaohui Yang^{*}

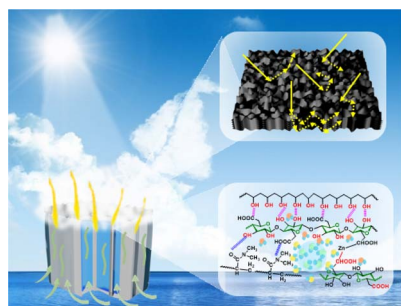
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Highly selective electrocatalytic reduction of CO_2 to ethane over a petal-like $\text{Zn}(\text{OH})_2/\text{Cu}_{2+}\text{O}/\text{Cu}$ foam catalyst at low overpotentials

Hui-Hui Cao, Zhen-Hong He,^{*} Yue Tian, Yue-Xia Yang, Xin Wang, Kuan Wang, Weitao Wang, Huan Wang, Jiajie Liu and Zhao-Tie Liu^{*}

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A bioinspired hydrogel with tailored nano-topography and desired mechanical performance for highly efficient solar-driven water purification

Wenjing Ma, Wenxuan Cao, Min Cui, Qinwei Fan, Ranhua Xiong and Chaobo Huang^{*}

