

Journal of Materials Chemistry A

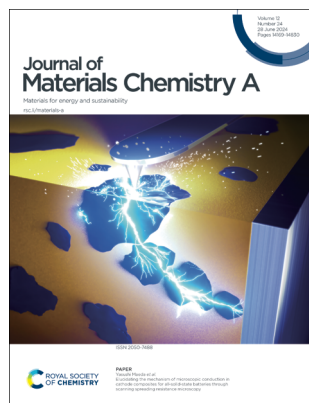
Materials for energy and sustainability

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ISSN 2050-7488 CODEN JMCAET 12(24) 14169–14830 (2024)



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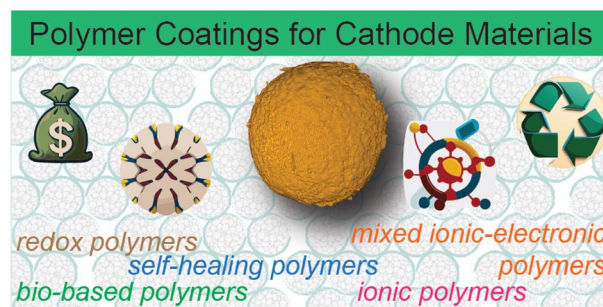
See Yasushi Maeda *et al.*, pp. 14380–14388. Image reproduced by permission of Yasushi Maeda from *J. Mater. Chem. A*, 2024, 12, 14380.

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Prospects of polymer coatings for all solid-state and emerging Li-ion batteries

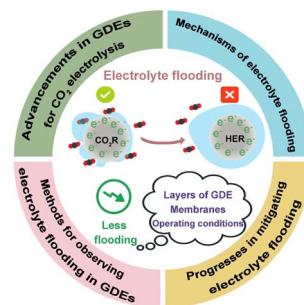
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Insights into electrolyte flooding in flexible gas diffusion electrodes for CO₂ electrolysis: from mechanisms to effective mitigation strategies

Yuming Wu,* Hesamoddin Rabiee, Xiu Song Zhao, Geoff Wang and Yijiao Jiang*



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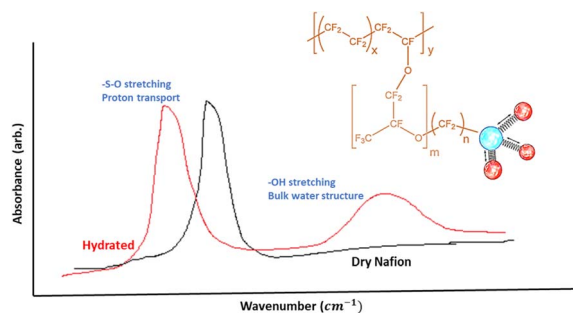


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Infrared spectroscopy for understanding the structure of Nafion and its associated properties

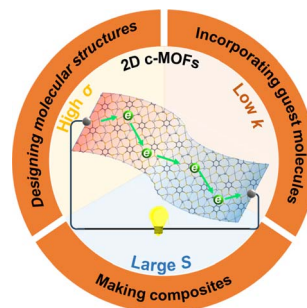
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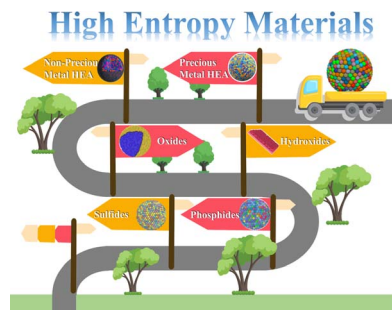
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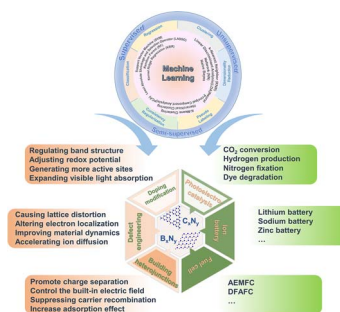
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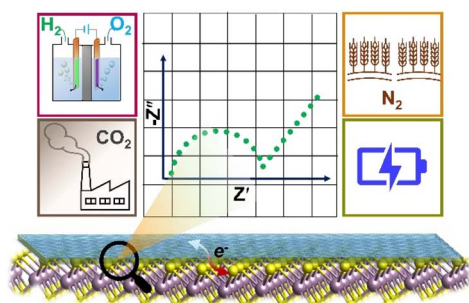
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Qi Wu, YangRui Lin, Yangwenting Ou, Changhua Wang,* He Ma, Rui Wang, Yuanyuan Li and Xintong Zhang*



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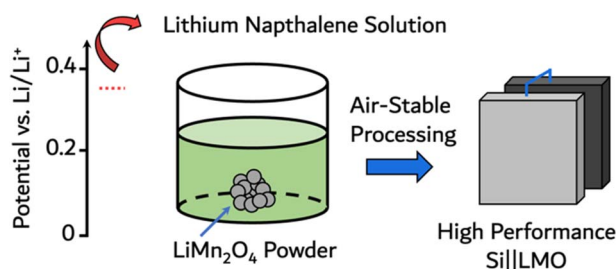


Deciphering interfacial charge transfer mechanisms in electrochemical energy systems through impedance spectroscopy

Karamjyoti Panigrahi, Santanu Mal and Sayan Bhattacharyya*

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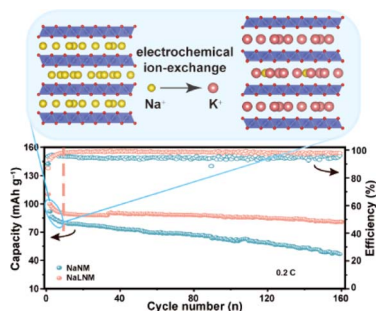
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Chemical pre-lithiation of LiMn_2O_4 balances the low first cycle efficiency of silicon anodes

Jesse S. Ko,* Bing Tan, Matthew W. Logan, Spencer A. Langevin and Konstantinos Gerasopoulos

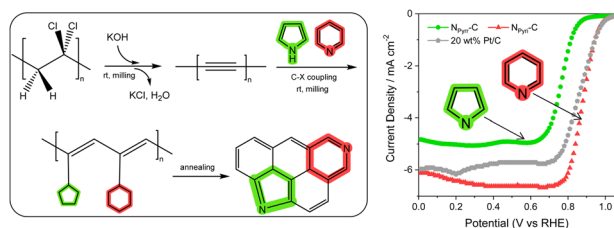
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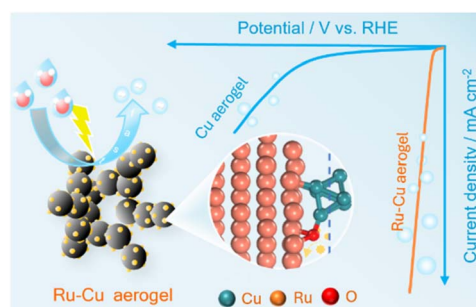
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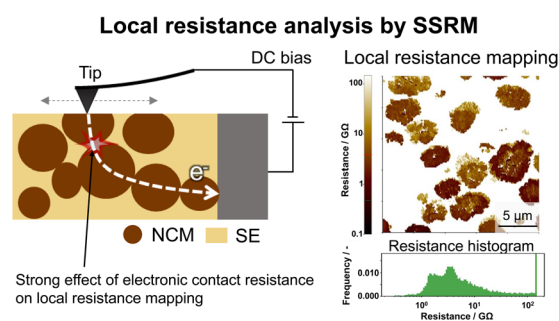


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Elucidating the mechanism of microscopic conduction in cathode composites for all-solid-state batteries through scanning spreading resistance microscopy

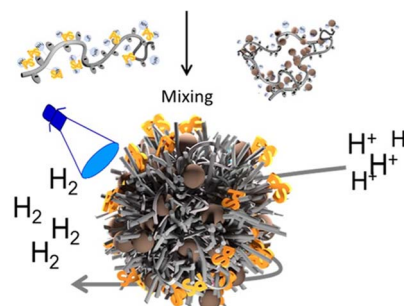
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Hybrid nanoreactors formed by interpolyelectrolyte complex formation: a colloidal platform for light-driven catalysis

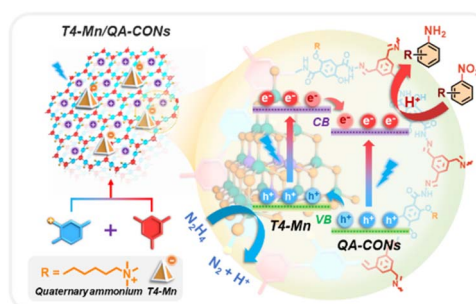
Afshin Nabiyan,* Christof Neumann, Andrey Turchanin and Felix H. Schacher*



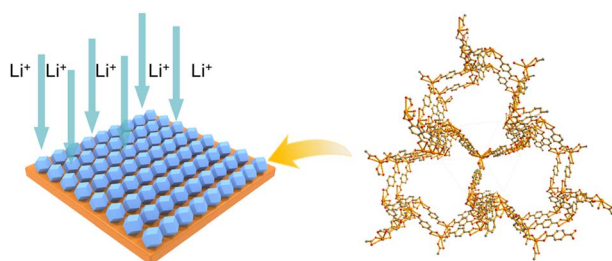
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Semiconductor-cluster-loaded ionic covalent organic nanosheets with enhanced photocatalytic reduction reactivity of nitroarenes

Jing-Ni Zhang, Jia-Xing Liu, Hao Ma, Xiao Luo, Cheng-Kun Han, Rui Zhou, Shang-Fu Yuan,* Dong-Sheng Li and Tao Wu*



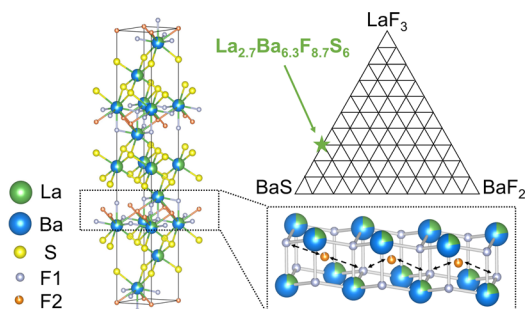
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Constructing a robust artificial solid electrolyte interphase with a metal–organic framework for a stable Li metal anode

Long Chen, Xiaohui Lin, Zhicheng Zheng, Ziwei Guo, Zuxin Wen, Pan Xiong,* Gen Chen* and Junwu Zhu*

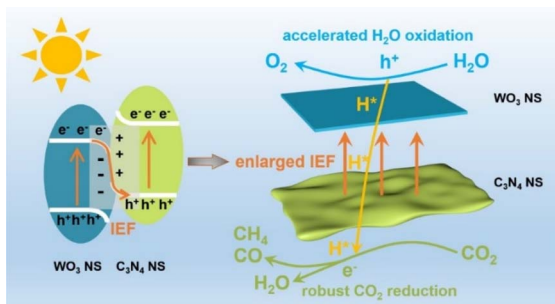
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Fluorosulfide $\text{La}_{2.7}\text{Ba}_{6.3}\text{F}_{8.7}\text{S}_6$ with a double-layer honeycomb structure enabling fluoride-ion conduction

Shintaro Tachibana, Chengchao Zhong,* Takeshi Tojigamori, Hidenori Miki, Toshiyuki Matsunaga and Yuki Oriksa*

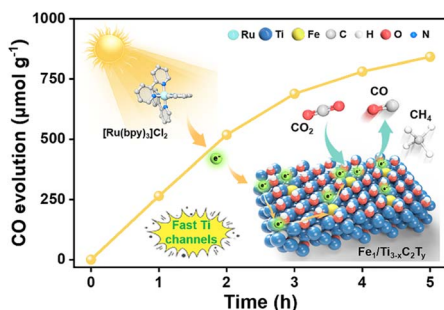
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Constructing Z-scheme $\text{WO}_3/\text{C}_3\text{N}_4$ heterojunctions with an enlarged internal electric field and accelerated water oxidation kinetics for robust CO_2 photoreduction

Zhijia Song, Qian Chen, Zhiwei Sun, Kuan Chang, Zhaoxiong Xie and Qin Kuang*

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Engineering fast Ti electron channels to single-atom Fe for enhanced CO_2 photoreduction

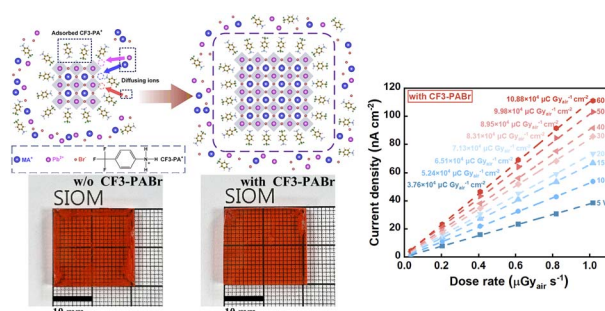
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Synergistic crystallization regulation and defect passivation for growth of high-quality perovskite single crystals towards ultrasensitive X-ray detection

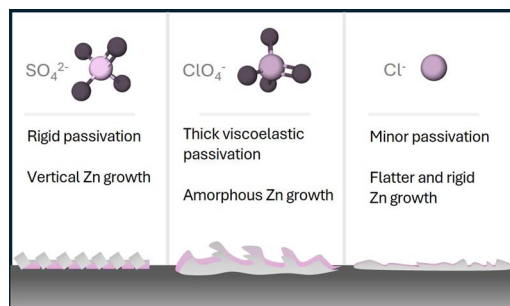
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To what extent do anions affect the electrodeposition of Zn?

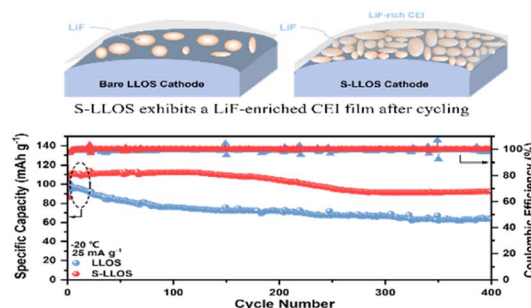
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Low-temperature tolerant lithium-rich manganese-based cathode enabled by facile SnO₂ decoration

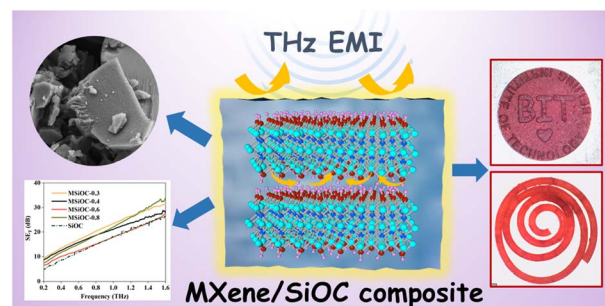
Diaohan Wang, Wenlei Wang, Kaihua Li, Jinze Song, Xinhai Yuan, Qinghong Huang, Zexun Tang,* Lijun Fu* and Yuping Wu



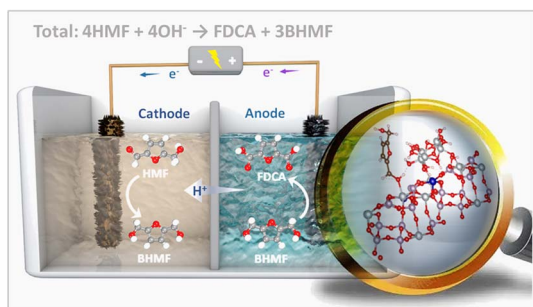
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Photocured Ti₃C₂T_x MXene/SiOC ceramic composite for electromagnetic interference shielding in the terahertz band

Ruyue Su, Jingyi Chen, Xueqin Zhang, Wenqing Wang, Rujie He* and Ying Li



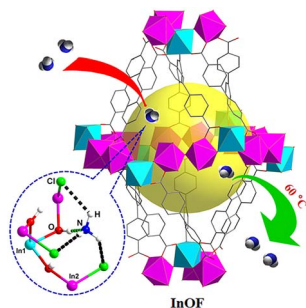
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Construction of NiCo-metaphosphate/hydroxide with synergistic heterostructure for sustainable biomass electro-oxidation

Jie Xiong, Feng Wang, Botao Zhu, Kaixuan You, Shuo Wu, Peng Jin* and Lai Feng*

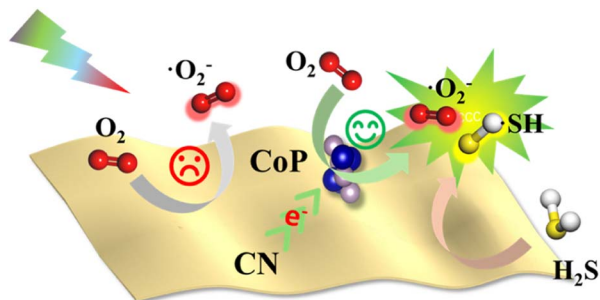
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A novel topological indium–organic framework for reversible ammonia uptake under mild conditions and catalysis

Xin He, Shuying Gao, Ri Peng, Dunru Zhu* and Fei Yu*

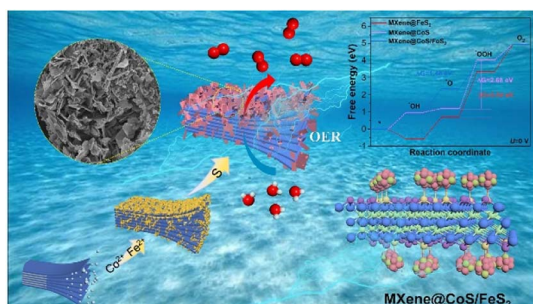
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Boosting oxygen activation by CoP/carbon nitride photocatalyst in low-concentration H₂S oxidation

Jiali Wang, Biqi Chen, Fanghua Zeng, Xue Feng Lu, Yidong Hou, Wei Lin and Can Yang*

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Synergistically coupling CoS/FeS₂ heterojunction nanosheets on a MXene via a dual molten salt etching strategy for efficient oxygen evolution reaction

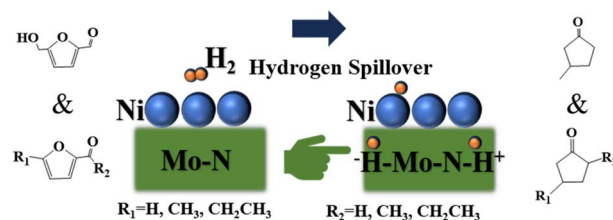
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Hydrogen-mediated acid-base transformation of Ni supported Mo_5N_6 for hydrogenative rearrangement of furfural derivatives

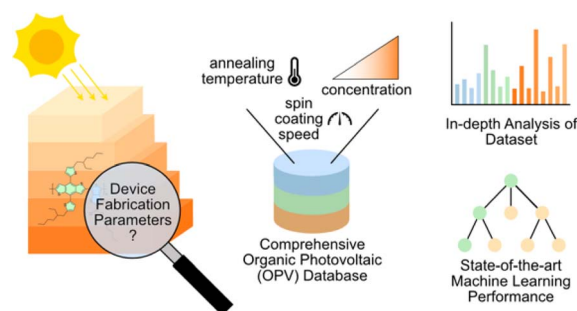
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Beyond molecular structure: critically assessing machine learning for designing organic photovoltaic materials and devices

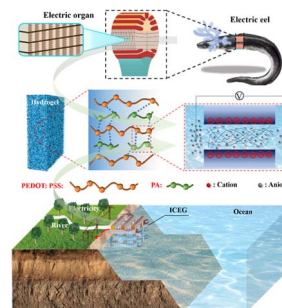
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Negative space charge modulated ion transport through PEDOT:PSS hydrogels integrating nanofluidic channels for highly efficient osmotic energy harvesting

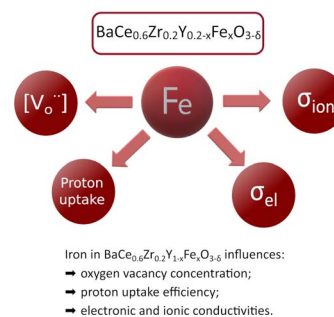
Rui Zhu, Peng Sun, Guofeng Cui,* Yaoguang Yu,* Shaojun Ke and Jie Zhao



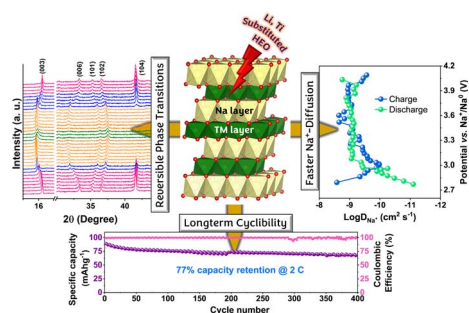
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Influence of iron content on water uptake and charge transport in $\text{BaCe}_{0.6}\text{Zr}_{0.2}\text{Y}_{0.2-x}\text{Fe}_x\text{O}_{3-\delta}$ triple-conducting oxides

Jagoda Budnik,* Aleksandra Mielewczyk-Gryń, Maria Gazda and Tadeusz Miruszewski



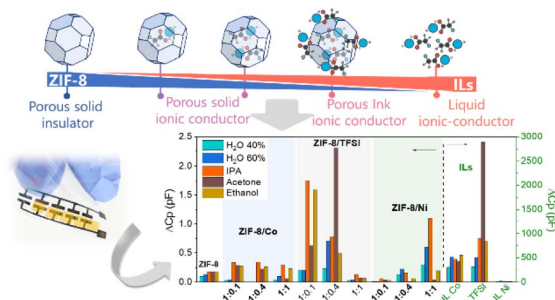
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A high entropy O3-Na_{1.0}Li_{0.1}Ni_{0.3}Fe_{0.1}Mn_{0.25}Ti_{0.25}O₂ cathode with reversible phase transitions and superior electrochemical performances for sodium-ion batteries

Arindam Ghosh, Rashmi Hegde and Premkumar Senguttuvan*

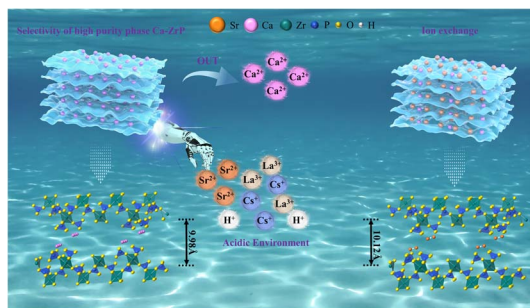
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Exploring the compositional space of a metal-organic framework with ionic liquids to develop porous ionic conductors for enhanced signal and selectivity in VOC capacitive sensors

Bruna F. Gonçalves,* Eduardo Fernández, Ainara Valverde, Mattia Gaboardi, Hugo Salazar, Viktor Petrenko, José María Porro, Leide P. Cavalcanti, Karnele Urtiaga, José M. S. S. Esperança, Daniela M. Correia, Felix Fernandez-Alonso, Senentxu Lanceros-Mendez and Roberto Fernández de Luis

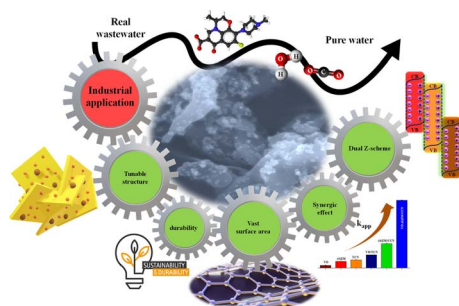
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Regulating the interlayer spacing of Ca_{0.55}ZrH_{0.9}(PO₄)₂ for selective removal of Sr²⁺ from acidic wastewater

Ruixi Liu, Qian Zhao, Zeru Wang, Rui Jiang, Chuancong Lin, LinZhen Wu, Guangyuan Chen, Pan He, Lin Zhu,* Jing Chen* and Tao Duan*

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Unlocking the potential of V₂O₅ decorated on crossed g-C₃N₄ monolayers derived from synergistic bio-transformation of ZnMn₂O₄ for antibiotic photodegradation

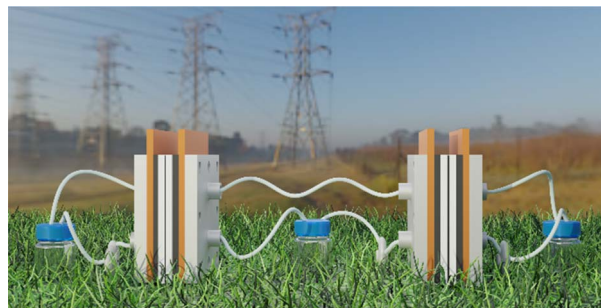
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Strategic usage of redox active materials and sacrificial Zn electrodes for spontaneous hydrogen evolution reaction

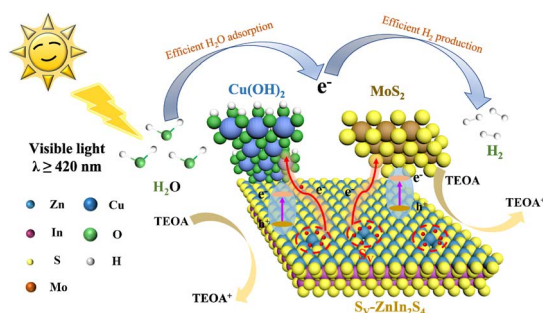
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In situ construction of Ohmic/Schottky-type MoS₂/S_v-ZnIn₂S₄/Cu(OH)₂ dual-junction photocatalysts with enhanced water splitting into hydrogen generation activity

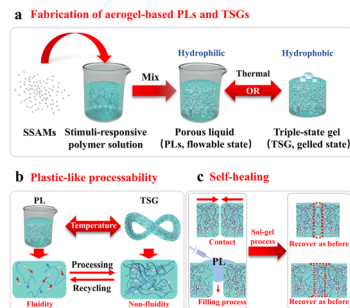
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Reversible thermo-responsive transitions between aerogel-based porous liquids and solid-liquid-vapor triple-state gels

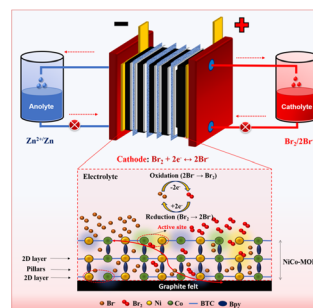
Leqin Li, Miaojiang Wu, Sa Yao, Yinglai Hou, Ruizhe Yuan, Jianhe Liao* and Xuotong Zhang*



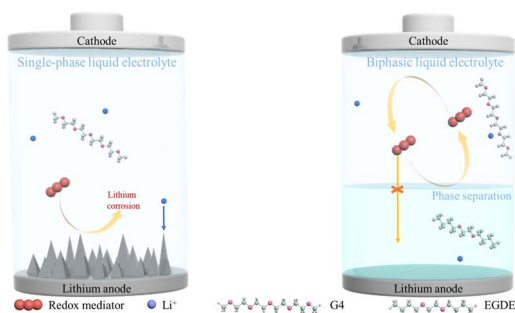
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Bimetallic metal-organic framework: an efficient electrocatalyst for bromine-based flow batteries

Raghupandiyam Naresh, Kalaiarasi Satchidhanandam, Kaushek Rahul Ilancheran, Bebin Ambrose, Murugavel Kathiresan and P. Ragupathy*



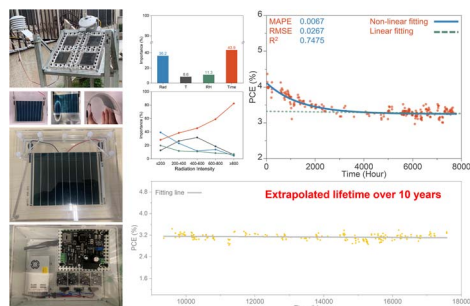
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Solvation structure regulation for an ether/ether biphasic electrolyte to balance cathodic and anodic reactions in metal-based batteries

Qing Han, Shilong Jiao, Xiao Liu, Tengfei Bian and Yong Zhao*

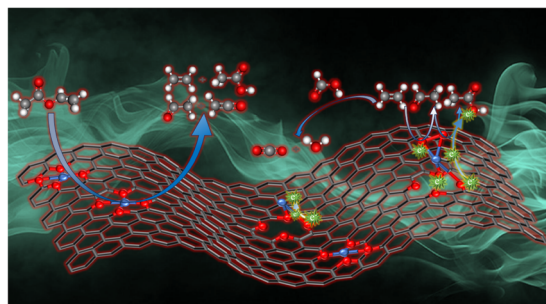
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Analyzing the outdoor degradation behavior of organic solar modules in North China

Shaopeng Liu, Dawei Zhang,* Hans-Joachim Egelhaaf, Gaoyuan Wang, Xiaogang Li, Thomas Heumüller, Christoph J. Brabec and Ning Li*

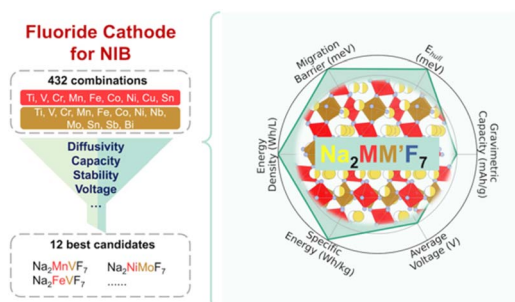
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Catalytic oxidation mechanism of ethyl acetate on O-ligand-single-atom-Ni/2-dimensional reduced graphene oxide: the essential role of the O ligand

Xinjie Wang, Juntian Li, Juan Li, Binghua Jing, Yun Sun, Teng Wang, Didi Li, Haibo Huang and Zhimin Ao*

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Weberite $\text{Na}_2\text{MM}'\text{F}_7$ ($M, M' = \text{redox-active metal}$) as promising fluoride-based sodium-ion battery cathodes

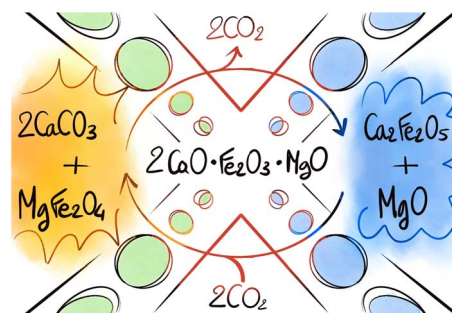
Tenglong Lu, Sheng Meng* and Miao Liu*



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Reversible sorption of carbon dioxide in Ca–Mg–Fe systems for thermochemical energy storage applications

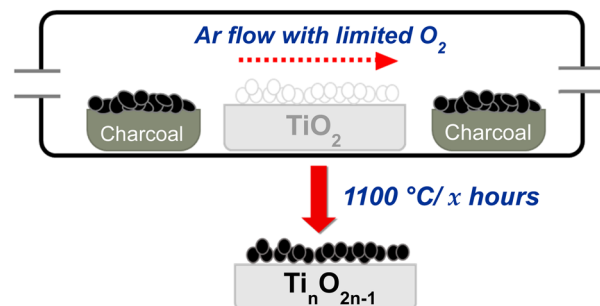
Lucie Desage, Terry D. Humphries,* Mark Paskevicius and Craig E. Buckley



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Activated charcoal-mediated non-contact carbothermal reduction of TiO₂ for controlled synthesis of Magnéli phase titanium suboxides

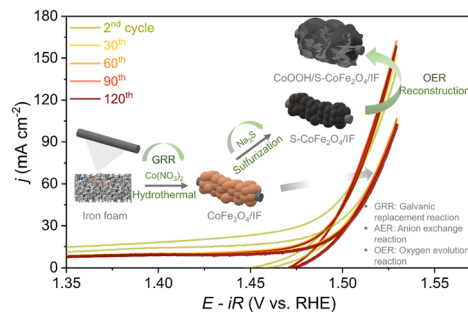
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Water-surface reconstruction of sulfurized spinel-structured oxide oxygen catalysts for alkaline water electrolysis

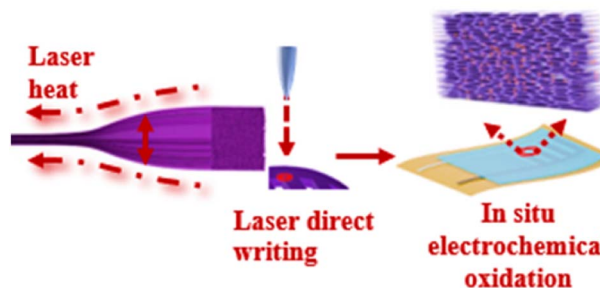
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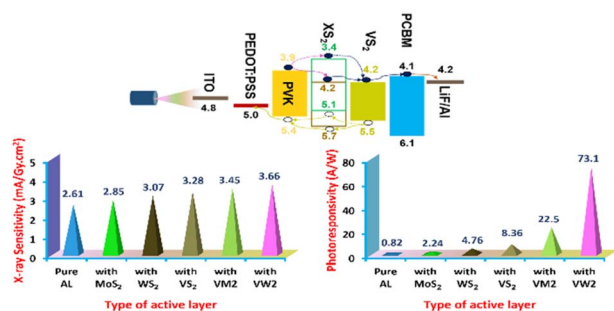
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Laser-assisted fabrication of a 3D cross-linked V₂CT_x/rGO microelectrode for high-rate aqueous zinc-ion microbatteries

Jiao Wu, Long Liu, Cai-Yun Ren, Yong-Chao Zhang, Jian Gao* and Xiao-Dong Zhu*



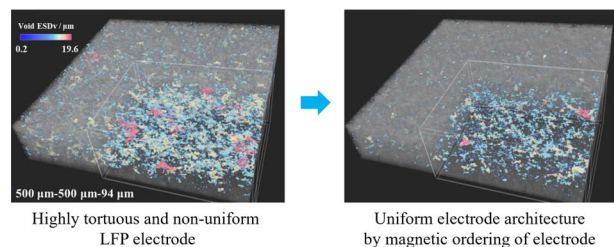
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Assembling highly efficient X-ray and UV-visible light detectors using a VS₂-MoS₂ and VS₂-WS₂ hybrid composite-embedded perovskite layer

Dhanasekaran Vikraman, Hailiang Liu, Syed Hassan Abbas Jaffery, Sajjad Hussain, K. Karuppasamy, Duhee Lee, Jungwon Kang, Jongwan Jung and Hyun-Seok Kim*

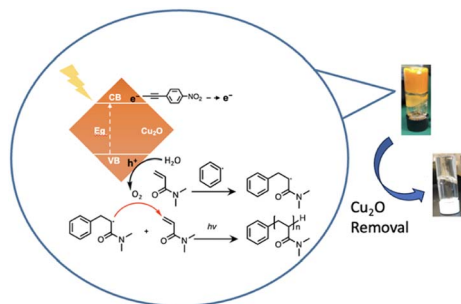
14786



Modulation of lithium iron phosphate electrode architecture by magnetic ordering for lithium-ion batteries

Wontak Kim, Chihyun Hwang, Yong Min Kim, Ji-Sang Yu, Young-Jun Kim,* Ki Jae Kim* and Hyun-seung Kim*

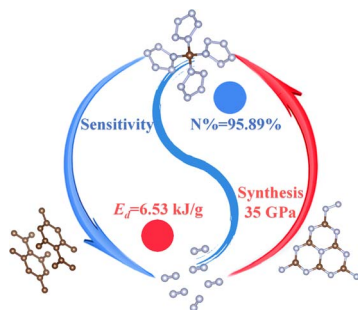
14792



Photocatalyzed dimethylacrylamide polymerization in an aqueous solution using 4-nitrophenylacetylene-modified Cu₂O crystals

Yu-Chien Chen, Xing-Fu Huang, Huei-Ting Hsu, Er-Ting Wu, Chi-How Peng* and Michael H. Huang*

14801



Achieving ultrahigh energy density and excellent stability in carbon pentazole

Guanghui Zhang, Wencai Yi,* Yiqing Cao, Shengli Zhang* and Xiaobing Liu*

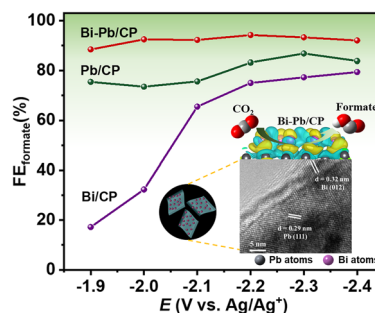


PAPERS

14809

Efficient CO₂ electroreduction to formate using Bi–Pb bimetallic catalysts with 2D vertical nanosheets

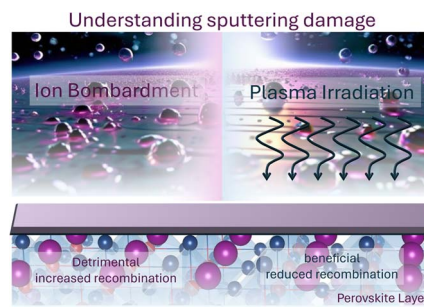
Chongyang Jiang, Shaojuan Zeng,* Jiaqi Feng, Guilin Li, Bin Hai, Kuilin Peng and Xiangping Zhang*



14816

Origin of sputter damage during transparent conductive oxide deposition for semitransparent perovskite solar cells

Qing Yang, Weiyuan Duan,* Alexander Eberst, Benjamin Klingebiel, Yueming Wang, Ashish Kulkarni, Andreas Lambert, Karsten Bittkau, Yongqiang Zhang, Svetlana Vitusevich, Uwe Rau,* Thomas Kirchartz and Kaining Ding*



CORRECTION

14828

Correction: Interface construction of CuCoSe@NiS based on an ultrathin nanosheet for high-performance supercapacitors

Wenrui Wu, Yue Yan, Xing Wang, Chengzhi Wei, Yang Yang, Tao Xu and Xianfu Li*

