

Journal of Materials Chemistry A

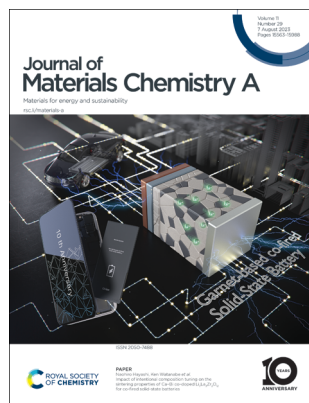
Materials for energy and sustainability

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ISSN 2050-7488 CODEN JMCAET 11(29) 15563–15988 (2023)



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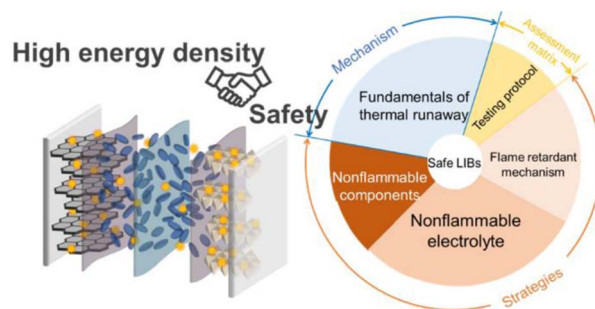
See Naohiro Hayashi, Ken Watanabe *et al.*, pp. 15681–15690. Image reproduced by permission of Naohiro Hayashi from *J. Mater. Chem. A*, 2023, **11**, 15681.

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Recent progress in nonflammable electrolytes and cell design for safe Li-ion batteries

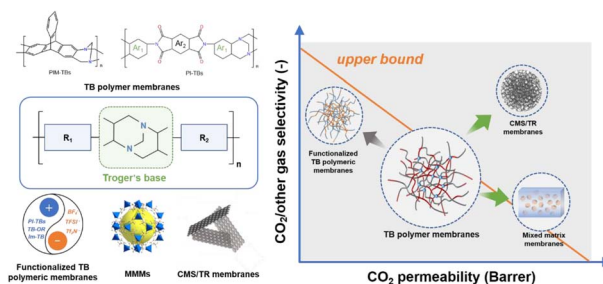
Zi Ye, Jiayao Li and Zhejun Li*



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Troger's base polymeric membranes for CO₂ separation: a review

Qingbo Xu, Bingru Xin, Jing Wei, Yulei Ma, Zikang Qing, Chao Feng, Shouliang Yi, Nanwen Li, Kai Li, Fei Wang, Jie Zhao, Lin Yang, Lu Yao, Wenju Jiang, Yiyang Dai* and Zhongde Dai*



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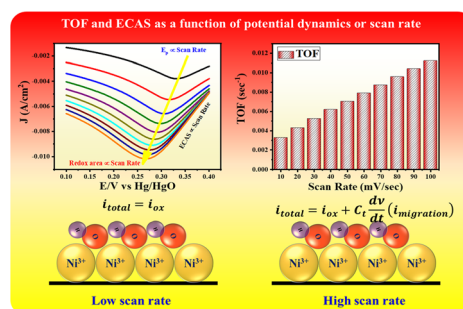


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Exploring the linear relationship between potential dynamics and interfacial capacitance: implications for enhancing the turnover frequency in electrochemical water splitting

Arun Karmakar, Sreenivasan Nagappan, Ankit Das, Althaf Kalloorkal and Subrata Kundu*

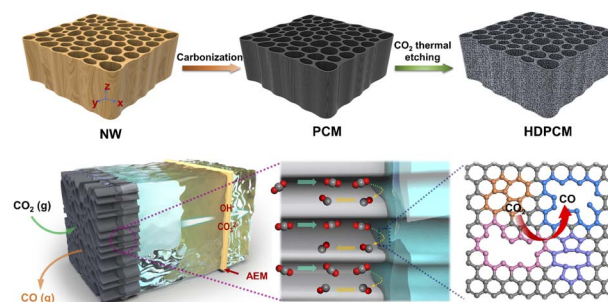


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A porous carbon membrane with abundant intrinsic carbon defects as an integrated gas-diffusion electrode for CO₂ electroreduction

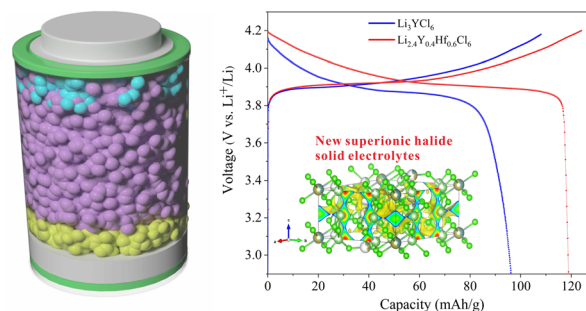
Shixiong Min,* Huaiyu Chang, Huanhuan Tao and Fang Wang



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New superionic halide solid electrolytes enabled by aliovalent substitution in Li_{3-x}Y_{1-x}Hf_xCl₆ for all-solid-state lithium metal based batteries

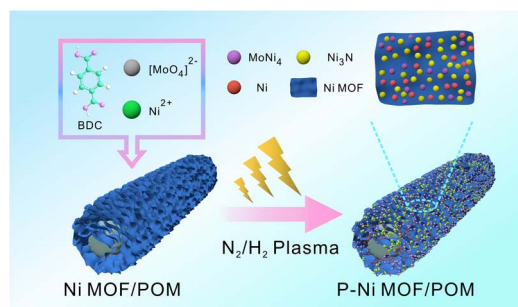
Kaiyong Tuo, Chunwen Sun,* C. A. López, Maria Teresa Fernández-Díaz and José Antonio Alonso



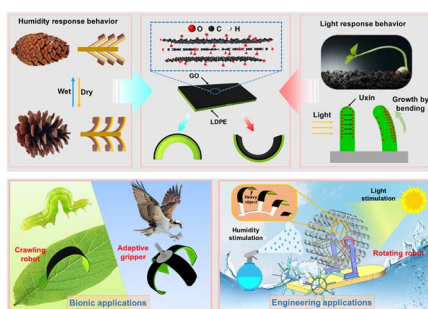
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Plasma-induced implanting of active species in metal–organic frameworks for efficient hydrogen evolution reaction

Qi Qi, Duo Shao, Yitong Zhou, Qi Wang* and Xin-Yao Yu*



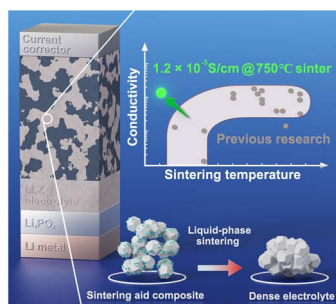
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Graphene oxide and low-density polyethylene based highly sensitive biomimetic soft actuators powered by multiple clean energies of humidity and light

Yiwei Zhang, Ruiqian Wang, Wenjun Tan, Lianchao Yang, Xiaolong Lv, Xiaodong Wang, Feifei Wang and Chuang Zhang*

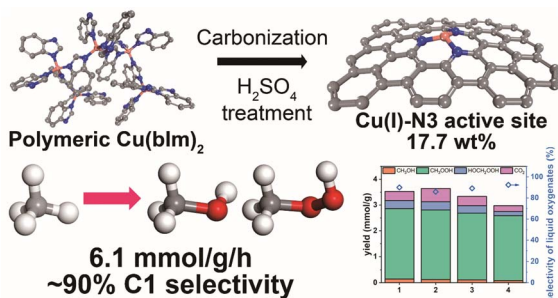
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Impact of intentional composition tuning on the sintering properties of Ca–Bi co-doped $\text{Li}_7\text{La}_3\text{Zr}_2\text{O}_{12}$ for co-fired solid-state batteries

Naohiro Hayashi,* Ken Watanabe,* Tsuyoshi Ohnishi, Kazunori Takada and Kengo Shimanoe

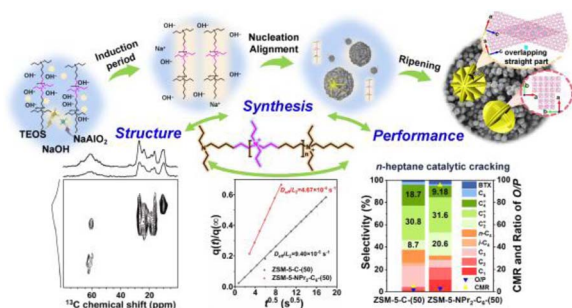
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High metal loaded Cu(I)N_3 single-atom catalysts: superior methane conversion activity and selectivity under mild conditions

Hyesung Lee and Sang-Yup Lee*

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Multiscale structural control of MFI zeolite using poly-quaternary ammonium cation

Yingjie Zhou, Quanzheng Deng, Donghao Deng, Wei Liu, Miao Zhai, Zhendong Wang,* Lu Han* and Kake Zhu*

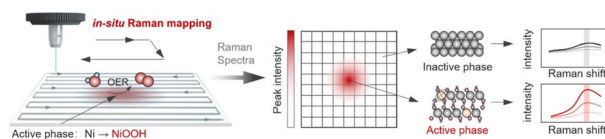


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Visualization of the surface reconstruction and dynamic catalytic sites of Ni–Fe catalysts for the oxygen evolution reaction by *in situ* Raman measurements

Jia-Wei Zhao, Kaihang Yue, Zi-Xiao Shi, Shu-Yin Wei, Wei-Qian Liang and Gao-Ren Li*



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A bifunctional electrolyte for activating Mg–Li hybrid batteries

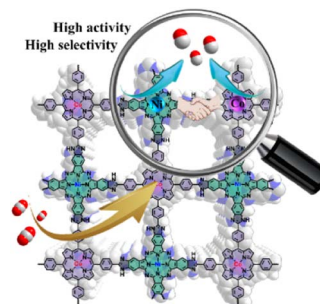
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A benzimidazole-linked bimetallic phthalocyanine–porphyrin covalent organic framework synergistically promotes CO₂ electroreduction

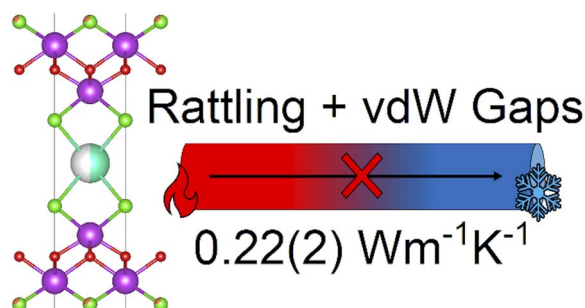
Xiao-Yu Dong, Fang-Qin Yan, Qian-You Wang, Peng-Fei Feng, Ru-Yi Zou,* Shan Wang* and Shuang-Quan Zang*



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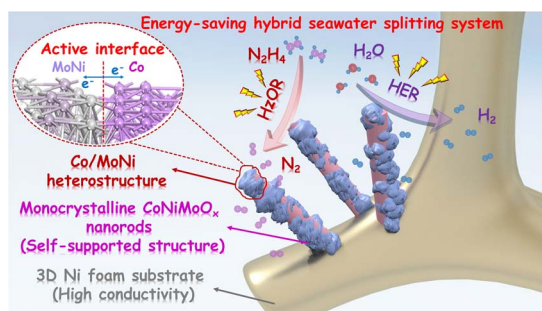
Low thermal conductivity in Bi₈CsO₈SeX₇ (X = Cl, Br) by combining different structural motifs

Jon A. Newnham, Quinn D. Gibson, T. Wesley. Surta, Alexandra Morscher, Troy D. Manning, Luke M. Daniels, John B. Claridge and Matthew J. Rosseinsky*



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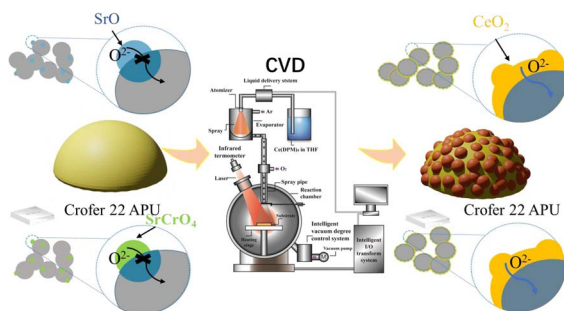
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Hierarchical Co/MoNi heterostructure grown on monocrystalline CoNiMoO_x nanorods with robust bifunctionality for hydrazine oxidation-assisted energy-saving hydrogen evolution

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

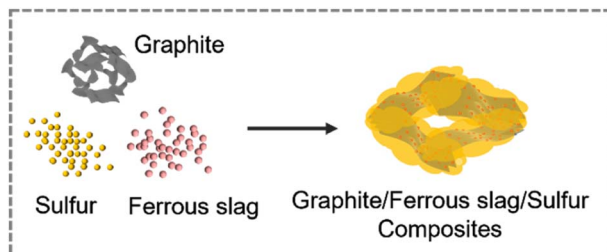
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Surface regulating and hetero-interface engineering of an LSCF cathode by CVD for solid oxide fuel cells: integration of improved electrochemical performance and Cr-tolerance

Chunyan Xiong, Shan Xu, Xiantao Li, Tong Liu, Yuan Tan, Pei Zhao* and Peng Qiu*

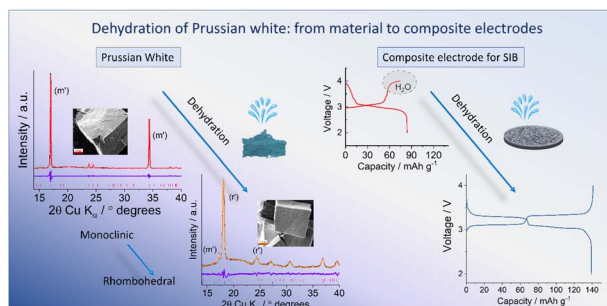
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Adsorption-catalytic effects of metallurgical ferrous slag on polysulfides in Li-S batteries

Rongyu Deng, Huanyu Yu, Jiamin Liu, Fulu Chu, Jie Lei, Lingzhi Yang* and Feixiang Wu*

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Understanding dehydration of Prussian white: from material to aqueous processed composite electrodes for sodium-ion battery application

F. M. Maddar, D. Walker, T. W. Chamberlain, J. Compton, A. S. Menon, M. Copley and I. Hasa*

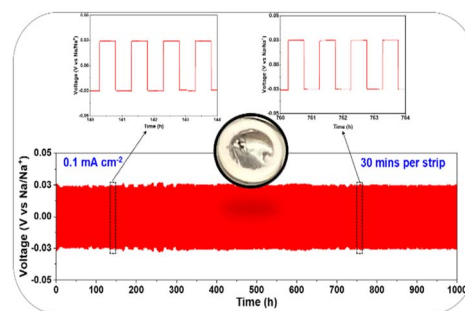


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High ionic conducting rare-earth silicate electrolytes for sodium metal batteries

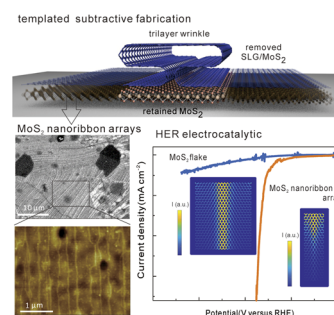
Abinaya Sivakumaran, Alfred Junio Samson, Afshana Afroj Bristi, Vishnu Surendran, Shantel Butler, Samuel Reid and Venkataraman Thangadurai*



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Edge-dominated hydrogen evolution reactions in ultra-narrow MoS₂ nanoribbon arrays

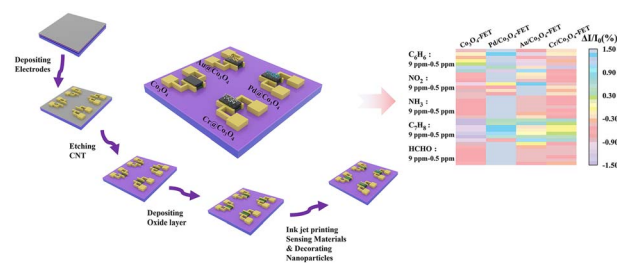
Ding-Rui Chen, Jeyavelan Muthu, Xing-You Guo, Hao-Ting Chin, You-Chen Lin, Golam Haider, Chu-Chi Ting, Martin Kalbáč, Mario Hofmann and Ya-Ping Hsieh*



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Design of an array structure for carbon-based field-effect-transistor type gas sensors to accurately identify trace gas species

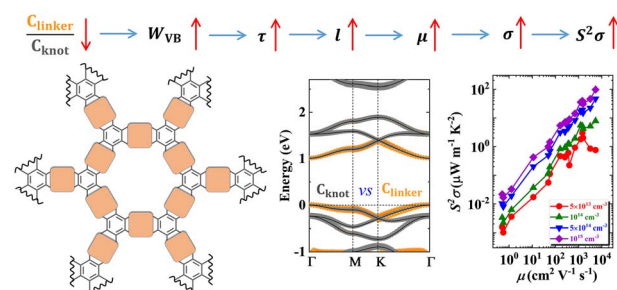
Qiaoqiao Zou, Bin Liu and Yong Zhang*



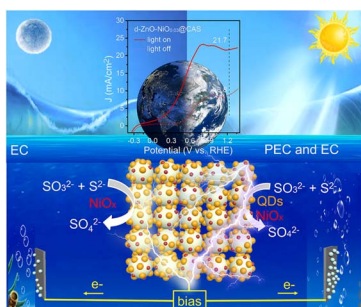
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Atomistic design of two-dimensional covalent organic frameworks with high thermoelectric performance

Tingxia Zhou, Xiaomei Wu, Tianqi Deng, Haoyuan Li, Zhibin Gao and Wen Shi*



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MOF-derived porous ZnO integrated with NiO and colloidal QDs for efficient hydrogen generation *via* a synergistic photoelectrochemical and electrochemical process

Yi Tao, Zikun Tang, Yihong Zhong, Dequan Bao, Zhenqiu Gao, Wei Zhao, Zhen Wen, Hao Zhang,* Kanghong Wang* and Xuhui Sun*

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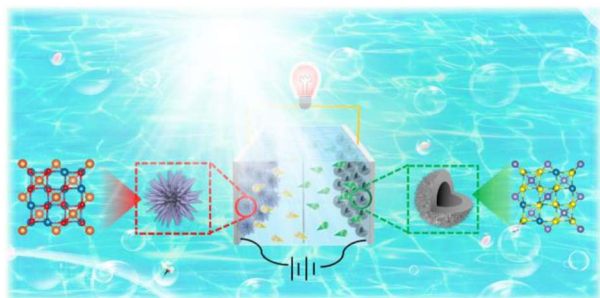
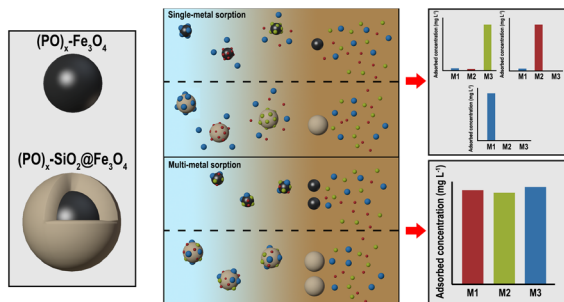


Photo-assisted asymmetric supercapacitors based on dual photoelectrodes for enhanced photoelectric energy storage

Yunbo Zhao, Hui Li,* Ruiyang Tang, Xueyan Wang, Yang Wu,* Shi Yan and Yu Zhang*

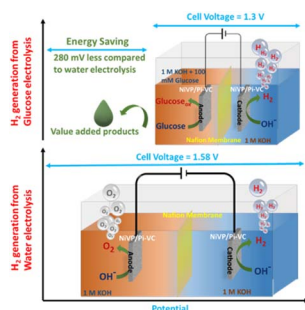
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Selective radionuclide and heavy metal sorption using functionalised magnetic nanoparticles for environmental remediation

Stuart Aberdeen, Eleonora Cali, Luc Vandeperre and Mary. P. Ryan*

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Glucose oxidation assisted hydrogen and gluconic/gluconic acid production using NiVP/Pi bifunctional electrocatalyst

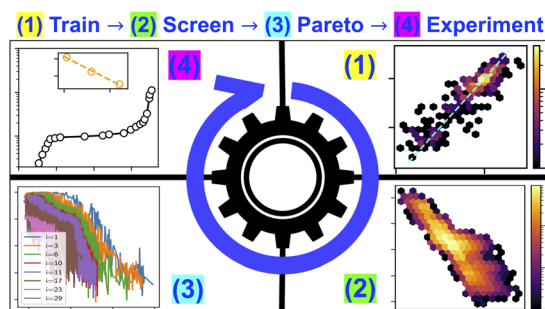
Neha Thakur, Daisy Mehta, Akansha Chaturvedi, Debaprasad Mandal and Tharamani C. Nagaiah*



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Towards Pareto optimal high entropy hydrides via data-driven materials discovery

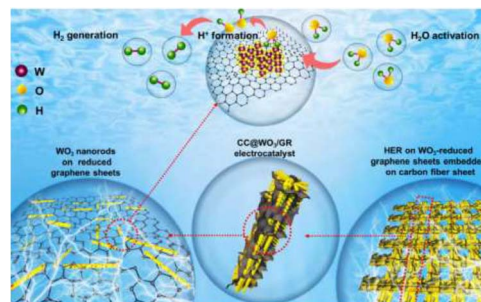
Matthew D. Witman,^{*} Sanliang Ling, Matthew Wadge, Anis Bouzidi, Nayely Pineda-Romero, Rebecca Clulow, Gustav Ek, Jeffery M. Chames, Emily J. Allendorf, Sapan Agarwal, Mark D. Allendorf, Gavin S. Walker, David M. Grant, Martin Sahlberg, Claudia Zlotea and Vitalie Stavila^{*}



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Hydrogen spillover effect – harnessing hydrogen evolution reaction from diverse carbon-based supports with a tungsten oxide catalyst

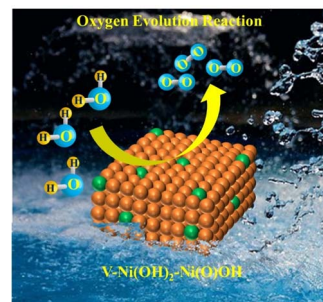
R. Rajalakshmi, G. Srividhya, C. Viswanathan and N. Ponpandian^{*}



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Structural evolution of a water oxidation catalyst by incorporation of high-valent vanadium from the electrolyte solution

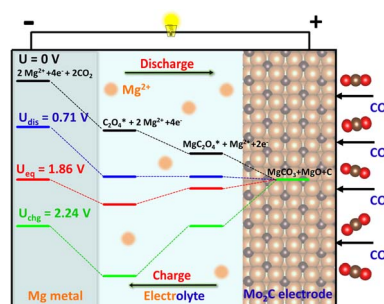
Baghendra Singh, Yu-Cheng Huang, Adyasa Priyadarsini, Pandian Mannu, Sanchaita Dey, Goutam Kumar Lahiri,^{*} Bhabani S. Mallik,^{*} Chung-Li Dong^{*} and Arindam Indra^{*}



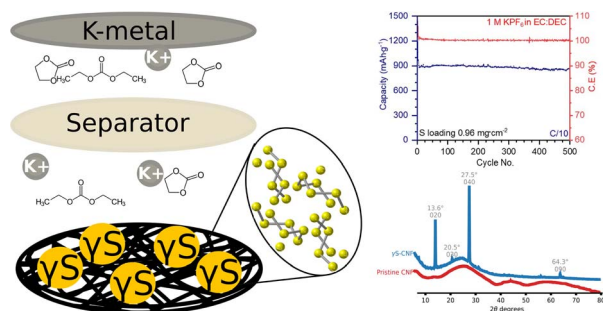
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Advancing next-generation nonaqueous Mg–CO₂ batteries: insights into reaction mechanisms and catalyst design

Rahul Jayan and Md Mahbubul Islam^{*}



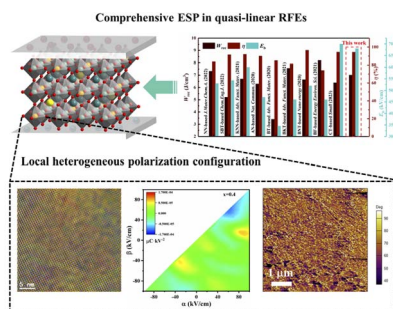
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A non-confined gamma monoclinic sulfur cathode in carbonate electrolyte based room temperature K–S batteries

Rahul Pai, Neal Amadeus Cardoza, Varun Natu, Michel W. Barsoum and Vibha Kalra*

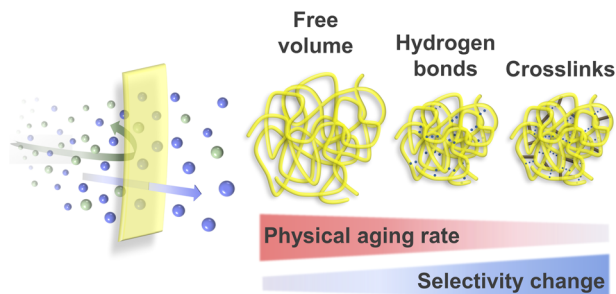
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Giant comprehensive capacitive energy storage in lead-free quasi-linear relaxor ferroelectrics via local heterogeneous polarization configuration

Jikang Liu, Chongyang Li, Wangfeng Bai,* Yongjun Yuan,* Peng Zheng, Qiaolan Fan, Shiting Wu, Jingji Zhang and Jiwei Zhai*

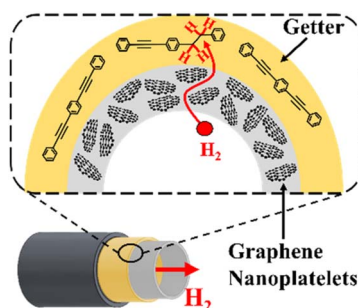
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The role of free volume, hydrogen bonds, and crosslinks on physical aging in polymers of intrinsic microporosity (PIMs)

Taigyoo Joo, Katherine Mizrahi Rodriguez, Hyunhee Lee, Durga Acharya, Cara M. Doherty and Zachary P. Smith*

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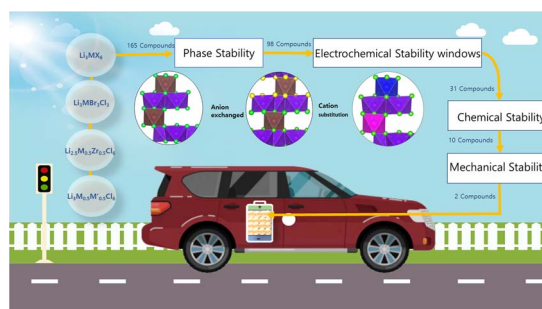
An integrated approach for preventing hydrogen leakage from metallic vessels: barrier and scavenging

Yonatan Luzzatto, Amer Alatawna, Eli Peretz, Orit Mendelson, Svetlana Pevzner* and Oren Regev*



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Computational design of a mixed A-site cation halide solid electrolyte for all-solid-state lithium batteriesBui Thi Tham, Min-Sik Park,^{*} Jung Ho Kim^{*} and Janghyuk Moon^{*}

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Iodine-containing furazan compounds: a promising approach to high-performance energetic biocidal agentsJinjie Chang, Lu Hu,^{*} Siping Pang^{*} and Chunlin He^{*}