

Journal of Materials Chemistry A

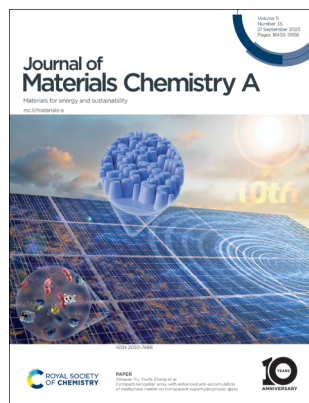
Materials for energy and sustainability

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ISSN 2050-7488 CODEN JMCAET 11(35) 18459–19156 (2023)



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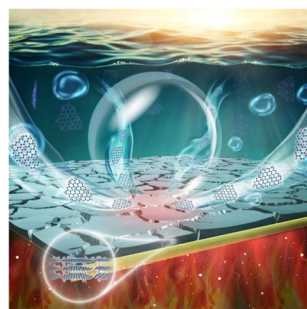
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Recent progress in films with nanoengineered surfaces *via* bubble-induced self-assembly for energy applications

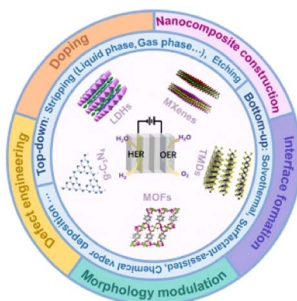
Ben Chu, Benwei Fu,* Ruitong Wang, Weizheng Cheng, Peng Tao, Chengyi Song, Wen Shang and Tao Deng*



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Recent advances in two-dimensional nanomaterials as bifunctional electrocatalysts for full water splitting

Cui Xu, Mengyang Zhang, Xianjun Yin, Qiang Gao, Shuai Jiang, Junye Cheng, Xin Kong,* Bin Liu* and Hui-Qing Peng*



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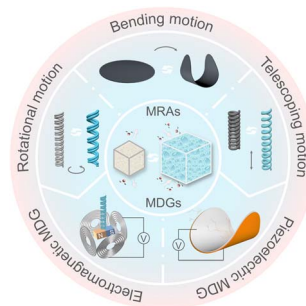


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Energy harvesting technology based on moisture-responsive actuators

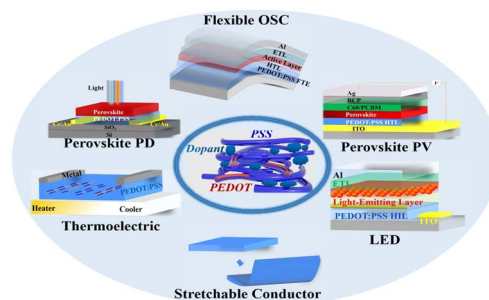
Luyu Yang, Lei Zhang* and Dongping Sun*



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PEDOT:PSS materials for optoelectronics, thermoelectrics, and flexible and stretchable electronics

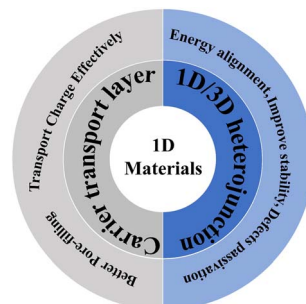
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Critical role of 1D materials in realizing efficient and stable perovskite solar cells

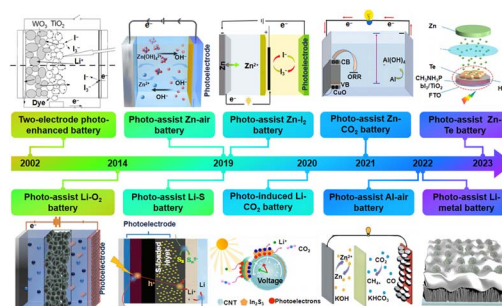
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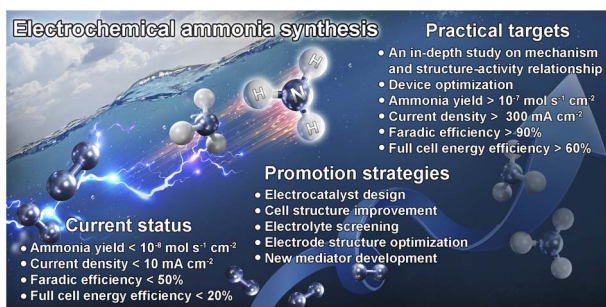
Photo-assisted rechargeable batteries: principles, performance, and development

Weizhai Bao,* Hao Shen, Ronghao Wang, Chengfei Qian, Dingyu Cui, Jingjie Xia, He Liu, Cong Guo, Feng Yu, Jingfa Li* and Kaiwen Sun*



PERSPECTIVE

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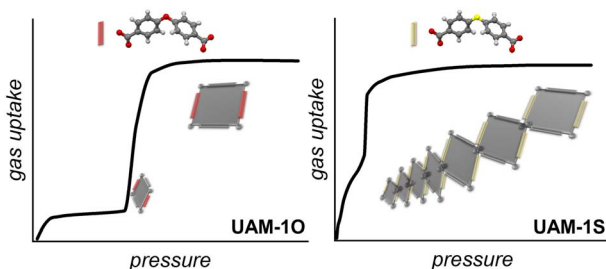


Towards sustainable electrochemical ammonia synthesis

Ruonan Li, Wei Ma, Yujie Liu, Lili Zhang* and Zhen Zhou*

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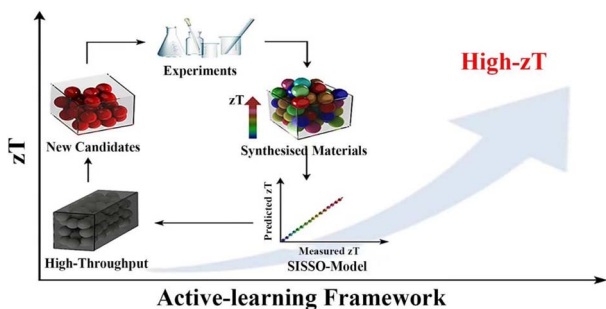
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Tuning the guest-induced spatiotemporal response of isostructural dynamic frameworks towards efficient gas separation and storage

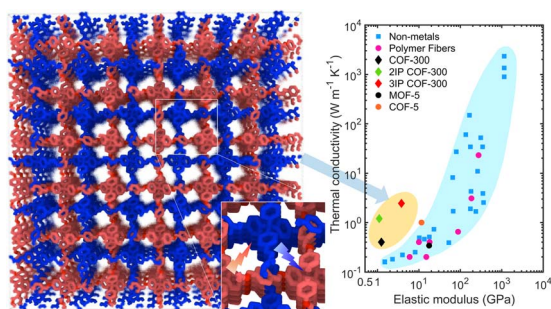
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Yaqiong Zhong, Xiaojuan Hu, Debalaya Sarker, Xianli Su, Qingrui Xia, Liangliang Xu, Chao Yang, Xinfeng Tang, Sergey V. Levchenko*, Zhongkang Han* and Jiaolin Cui*

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Supramolecular reinforcement drastically enhances thermal conductivity of interpenetrated covalent organic frameworks

Sandip Thakur and Ashutosh Giri*

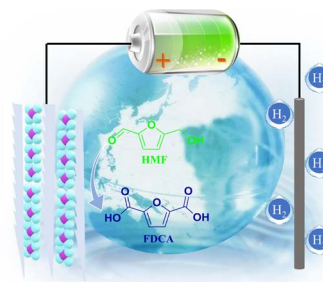


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Electrochemical oxidation of 5-hydroxymethylfurfural to 2,5-furandicarboxylic acid catalyzed by bio-inspired NiMn layered double hydroxide

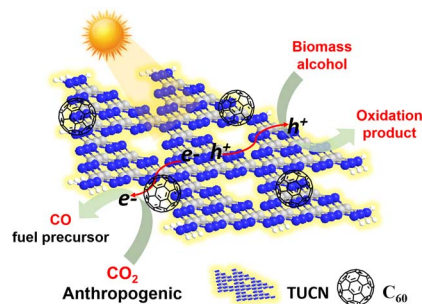
Yide-Rigen Bao, Yu Duan and Yong Na*



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Unifying CO₂-to-fuel and biomass valorization over a metal-free 2D carbon nitride-fullerene heterostructure: a solar-driven chemical circular economy

Deepak Kumar Chauhan, Anjali Verma, Ayushi Jain, Neha Saini, Pankaj Kumar Prajapati, Chandan Bera and Kamalakannan Kailasam*

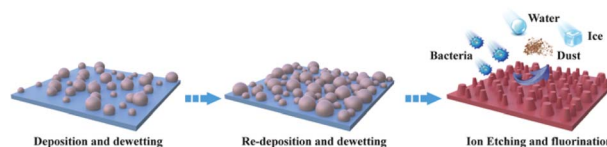


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Compact nanopillar array with enhanced anti-accumulation of multiphase matter on transparent superhydrophobic glass

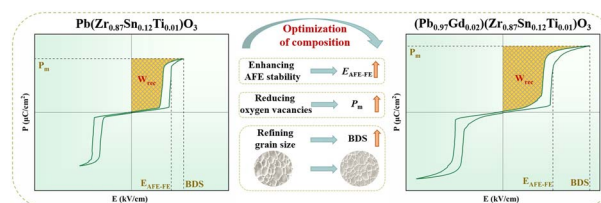
Wei Wang, Zupan Mao, Ping Liu, Weilin Deng, Wancheng Gu, Xinquan Yu* and Youfa Zhang*



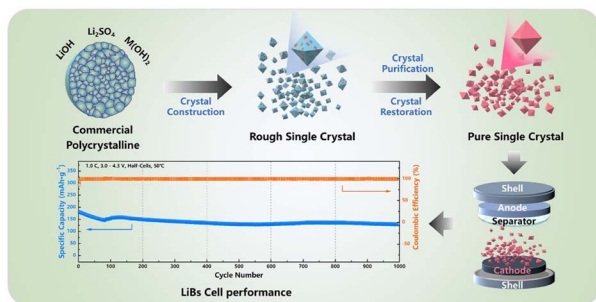
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An effective strategy for enhancing energy storage density in (Pb_{1-1.5x}Gd_x)(Zr_{0.87}Sn_{0.12}Ti_{0.01})O₃ antiferroelectric ceramics

Cangjin Li, Manwen Yao* and Xi Yao



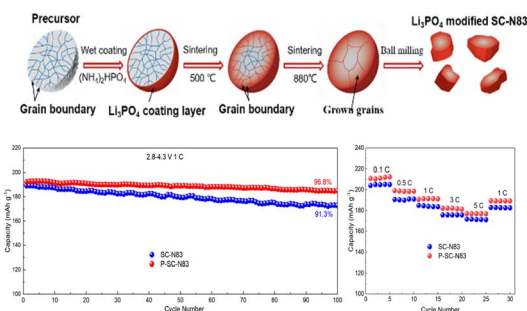
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Engineering commercial polycrystalline precursors to single crystal Ni-rich cathodes with outstanding long-cycle performance

Chunxia Wang, Hanyuan Dong, Xiaoming Zhang, Yutong Wang, Tongjun Shen, Jiawei Wen, Wang Yang, Guoyong Huang,* Haimu Ye,* Yongfeng Li and Shengming Xu

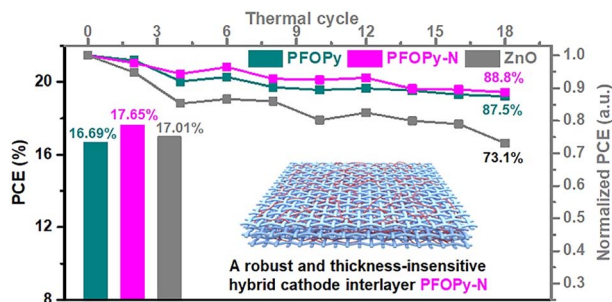
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An *in situ* formed inorganic conductive network enables high stability and rate capability of single-crystalline nickel-rich cathodes

Xi Chen, Yu Tang, Zhibo Zhang, Muhammad Ahmad, Iftikhar Hussain, Tianyi Li, Si Lan, Kaili Zhang* and Qi Liu*

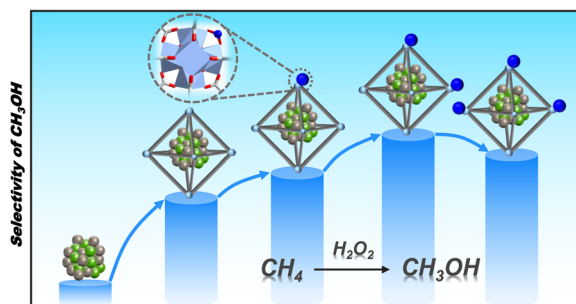
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A robust and thickness-insensitive hybrid cathode interlayer for high-efficiency and stable inverted organic solar cells

Ping Cai,* Can Song, Shiyun Lei, Kanglin Yu, Ling Ding, Dianhui Wang, Guiting Chen, Hongliang Peng, Bin Li, Xunchang Wang, Biao Xiao* and Renqiang Yang*

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Modulating the microenvironment of AuPd nanoparticles using metal-organic frameworks for selective methane oxidation

Jianfei Sui, Ming-Liang Gao, Chengyuan Liu, Yang Pan, Zheng Meng,* Daqiang Yuan and Hai-Long Jiang*

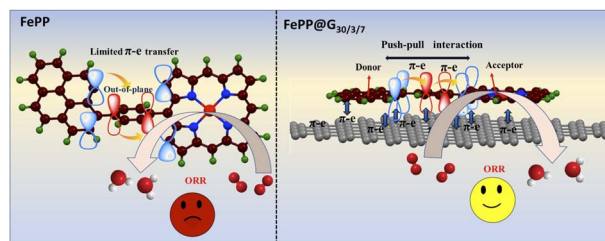


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An interfacially stacked covalent porous polymer on graphene favors electronic mobility: ensuring accelerated oxygen reduction reaction kinetics by an *in situ* study

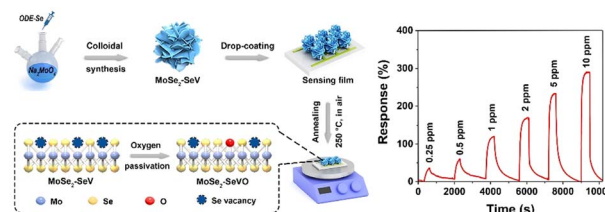
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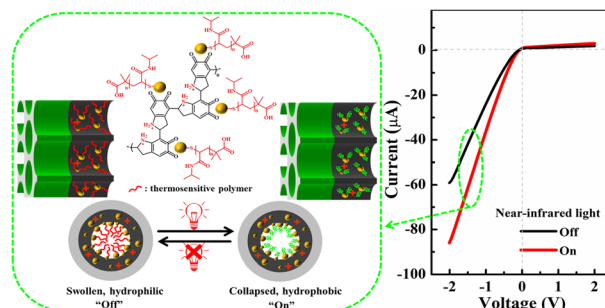
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A near-infrared light responsive temperature-sensing switch in a submicro-channel heterogeneous membrane

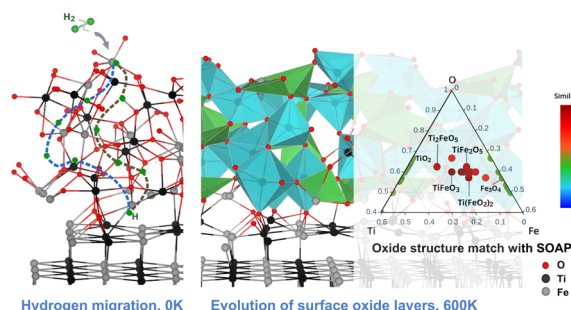
Yuan-Ju Tang, Kai Cheng, Pei-Jie Zhang, Yan-Fei He, Meng-Wen Ma, Wen-Ming Su, Guo-Ping Wang,* Jin-Xuan Fan* and Yuan-Di Zhao*



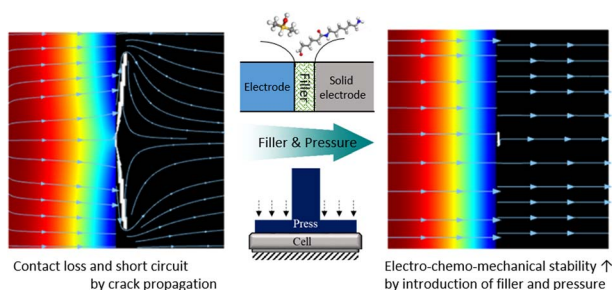
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Influence of near-surface oxide layers on TiFe hydrogenation: mechanistic insights and implications for hydrogen storage applications

Archa Santhosh,* ShinYoung Kang, Nathan Keilbart, Brandon C. Wood, Thomas Klassen, Paul Jerabek* and Martin Dornheim



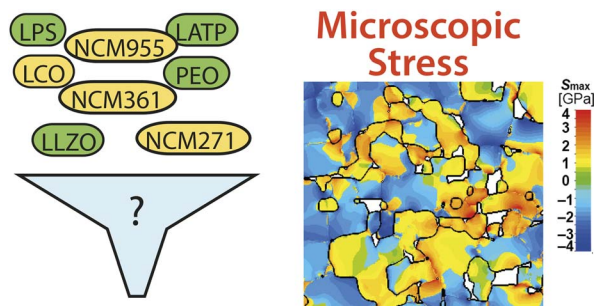
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Contact loss and its improvement at the interface between the cathode and solid electrolyte in all solid-state batteries based on multi-scale and multi-physics analysis

Taeson Hwang, Ingyun Chung, Sunyoung Im, Jonggeon Lee, Maenghyo Cho* and Kyeongjae Cho*

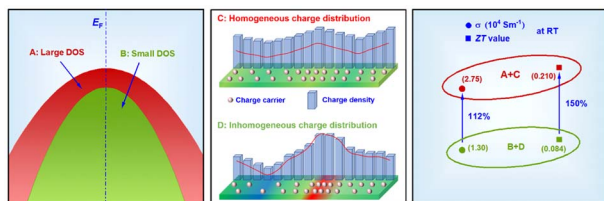
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Modelling electro-chemically induced stresses in all-solid-state batteries: screening electrolyte and cathode materials in composite cathodes

Robert Mücke,* Najma Yaqoob, Martin Finsterbusch, Fadi Al-Jalouli, Payam Kaghazchi, Dina Fattakhova-Rohlfing and Olivier Guillon

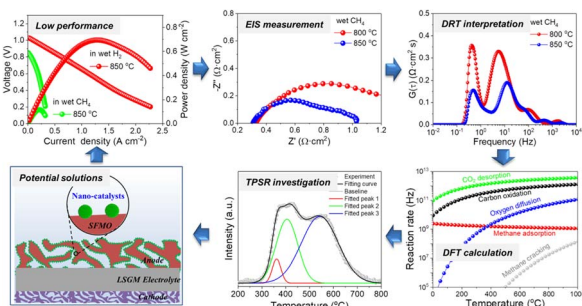
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Graphene-assisted synergistic electronic DOS modulation and phonon scattering to improve the thermoelectric performance of Mg_3Sb_2 -based materials

Qiang Zhang,* Jiadang Li, Nagendra S. Chauhan, Lifei Wang, Zhicheng Huang, Wenhao Fan, Kei Hayashi, Shaoping Chen, Jianfeng Fan and Yuzuru Miyazaki

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Mechanistic insight into catalytic conversion of methane on a $\text{Sr}_2\text{Fe}_{1.5}\text{Mo}_{0.5}\text{O}_{6-\delta}$ perovskite anode: a combined EIS-DRT, DFT and TPSR investigation

Zongying Han,* Hui Dong, Yuhao Wang, Yanru Yang, Hao Yu and Zhibin Yang*

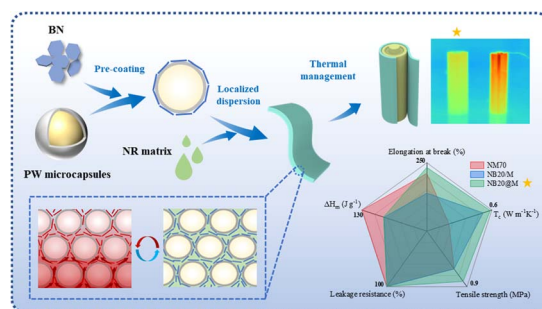


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Flexible composite phase change materials with enhanced thermal conductivity and mechanical performance for thermal management

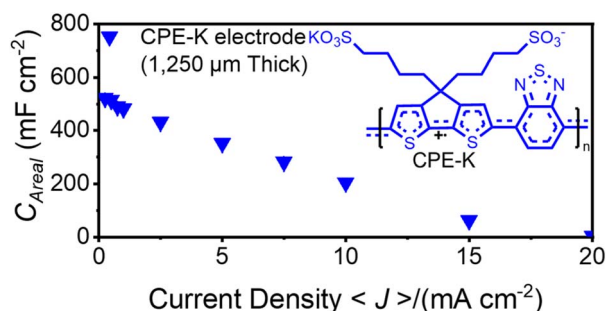
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Pseudocapacitive gels based on conjugated polyelectrolytes: thickness and ion diffusion limitations

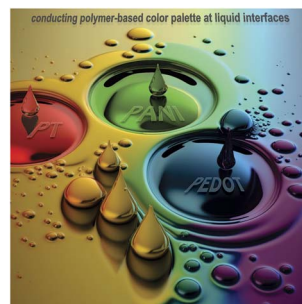
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A tunable color palette of electrochromic materials achieved through an ingenious stacking of ordinary conducting polymers

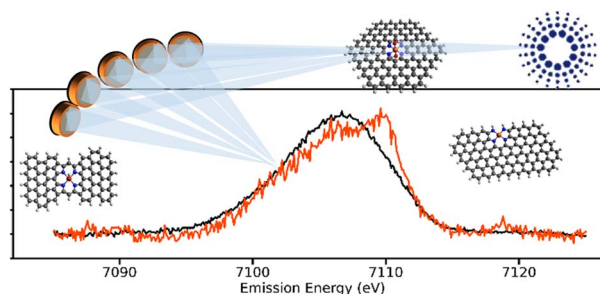
Victor H. R. Souza, Ariane Schmidt and Aldo J. G. Zarbin*



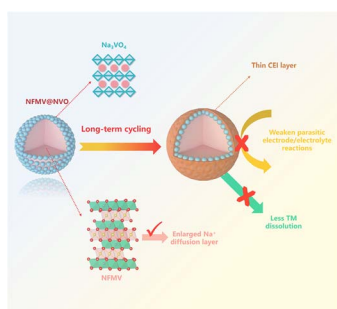
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New insights on Fe–N–C catalyst structure from valence-to-core X-ray emission and absorption spectroscopies

Viktoriia A. Saveleva,* Marius Retegan, Kavita Kumar, Frédéric Maillard and Pieter Glatzel



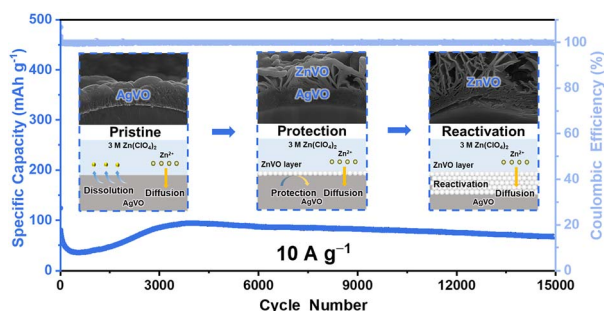
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An *in situ* dual-modification strategy for O₃-NaNi_{1/3}Fe_{1/3}Mn_{1/3}O₂ towards high-performance sodium-ion batteries

Ningyun Hong, Jianwei Li, Shihong Guo, Huawei Han, Haoji Wang, Xinyu Hu, Jiangnan Huang, Baichao Zhang, Fang Hua, Bai Song, Nesrin Bugday, Sedat Yasar, Serdar Altin, Wentao Deng,* Guoqiang Zou, Hongshuai Hou, Zhen Long* and Xiaobo Ji

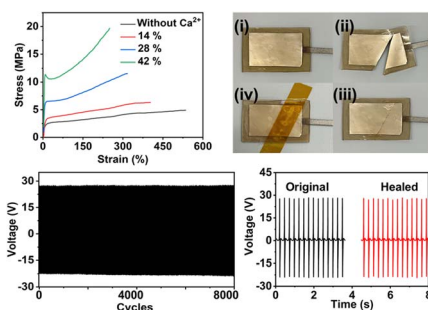
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Unveiling the reaction mechanism of capacity reactivation in silver vanadate cathodes for aqueous zinc-ion batteries

Ziqing Wang, Jiefeng Diao, Kenta Kawashima, Jason A. Weeks, Rinish Reddy Vaidyula, Raul A. Marquez, Nathaniel Miller, Graeme Henkelman and C. Buddie Mullins*

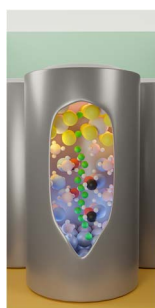
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Robust and durable triboelectric nanogenerators enabled by a mechanically strong and mildly healable polymer

Wei Xu, Hongzhen Liu, Man-Chung Wong, Huimin He, Jianhua Hao and Lizhi Xu*

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Hemi-methylamine lithium borohydride as electrolyte for all-solid-state batteries

Jakob B. Grinderslev, Lasse N. Skov and Torben R. Jensen*

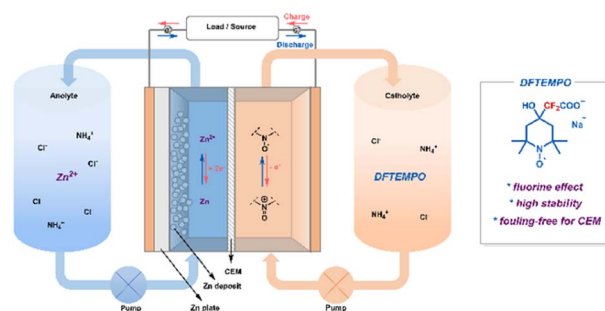


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18911

Fluorinated TEMPO: a new redox-active catholyte material for aqueous Zn-anode hybrid flow batteries

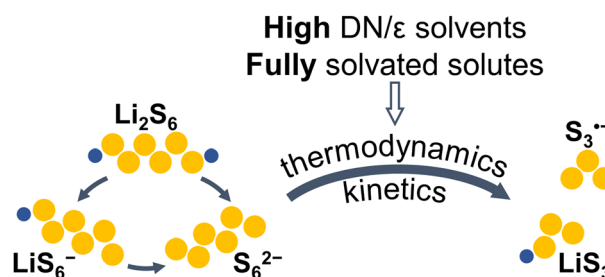
Ling-Chao Yu, Yun-Cheng Luo, Wei Feng, Shu Zhang* and Xingang Zhang*



18922

Mechanistic insights into trisulfur radical generation in lithium–sulfur batteries

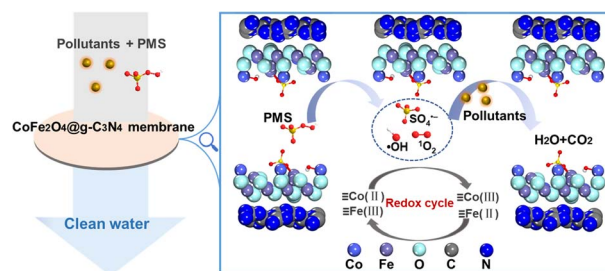
Xu Han and Xuefei Xu*



18933

Cobalt-ferrite functionalized graphitic carbon nitride (CoFe₂O₄@g-C₃N₄) nanoconfined catalytic membranes for efficient water purification: performance and mechanism

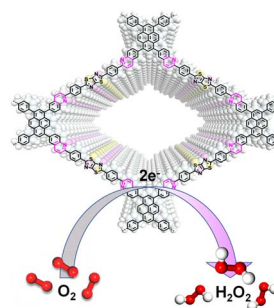
Wei Zhang, Shaoze Zhang, Zhen Chen and Zhenghua Zhang*



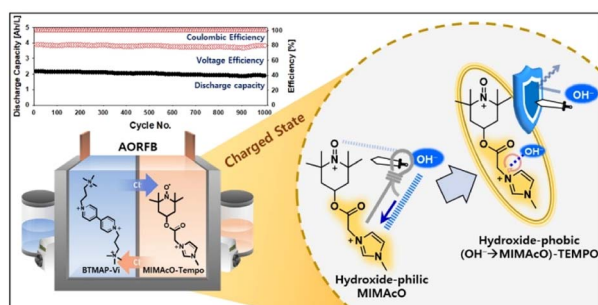
18945

Charge redistribution in covalent organic frameworks *via* linkage conversion enables enhanced selective reduction of oxygen to H₂O₂

Lijuan Fu, Dekang Huang,* Jiahe Peng, Neng Li,* Zonghao Liu, Yan Shen, Xiaodong Zhao, Yankai Gu and Yonggang Xiang*



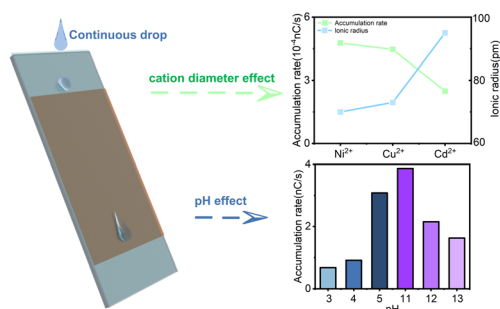
18953



Covalent conjugation of a 'hydroxide-philic' functional group achieving 'hydroxide-phobic' TEMPO with superior stability in all-organic aqueous redox flow batteries

Noh-Uk Seo, Kyungmi Kim, Jeongmin Yeo, Seung Jae Kwak, YongJoo Kim, Hyemi Kim, Mi Song Kim, Jeongi Choi, Yoon Seok Jung, Junghyun Chae,* Jinho Chang* and Jung Hoon Yang*

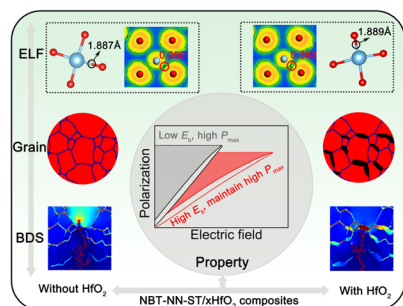
18964



Charge accumulation kinetics at a liquid-solid interface depend on liquid chemistry

Xin Liu, Jinyang Zhang, Xuejiao Wang, Shiquan Lin and Zhong Lin Wang*

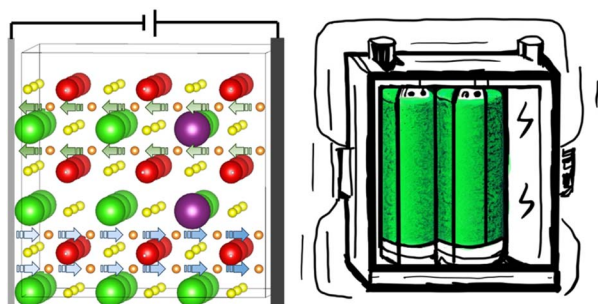
18972



Excellent energy storage density and superior discharge properties of NBT-NN-ST/xHfO₂ ceramics via 0-3 type heterogeneous structure designing

Meng Shen,* Guanghui Zhang, Husheng Wang, Wen Zhou, Yifei Zhang, Qifan Li, Qingfeng Zhang,* Shenglin Jiang, Guangzu Zhang and Yong Chen*

18984



Strain engineering of antiperovskite materials for solid-state Li batteries: a computation-guided substitution approach

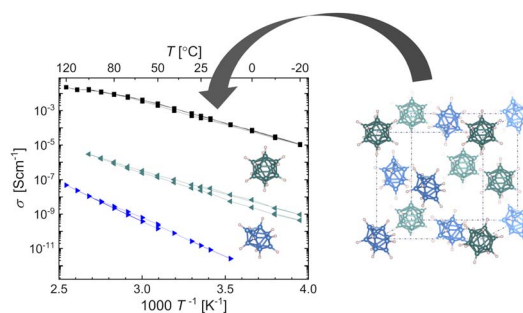
Longyun Shen, Yuhao Wang, Jing Yu, Guodong Zhou, Jiapeng Liu, Matthew J. Robson, Yanguang Zhou,* Mohammed B. Effat* and Francesco Ciucci*



18996

Li₄B₁₀H₁₀B₁₂H₁₂ as solid electrolyte for solid-state lithium batteries

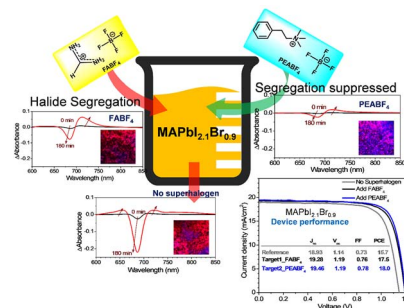
Andrea Garcia, Gian Müller, Radovan Černý, Daniel Rentsch, Ryo Asakura, Corsin Battaglia and Arndt Remhof*



19004

Superhalogen modulation: an effective approach for minimizing light-induced halide segregation in MAPb(I_{0.7}Br_{0.3})₃

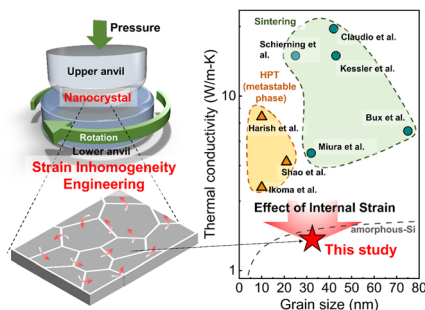
Pronoy Nandi, Hyounghmin Park, Sooeun Shin, Anir S. Sharbiri, Jeongyong Kim, Seok Joon Kwon, Nam-Gyu Park and Hyunjung Shin*



19017

Extremely suppressed thermal conductivity of large-scale nanocrystalline silicon through inhomogeneous internal strain engineering

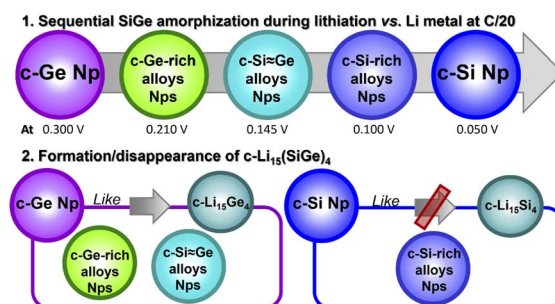
Bin Xu, Yuxuan Liao, Zhenglong Fang, Yifei Li, Rulei Guo, Ryohei Nagahiro, Yoshifumi Ikoma, Masamichi Kohno and Junichiro Shiomi*



19025

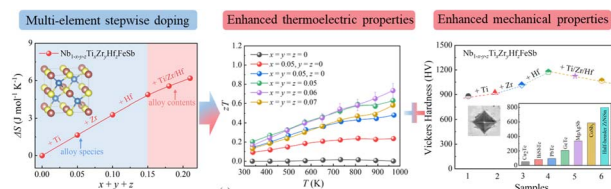
Influence of the Ge content on the lithiation process of crystalline Si_{1-x}Ge_x nanoparticle-based anodes for Li-ion batteries

Diana Zapata Dominguez,* Christopher L. Berhaut, Praveen Kumar, Pierre-Henri Jouneau, Antoine Desrues, Nathalie Herlin-Boime, Nathalie Boudet, Nils Blanc, Gilbert A. Chahine, Cédric Haon, Samuel Tardif, Sandrine Lyonnard* and Stéphanie Pouget*



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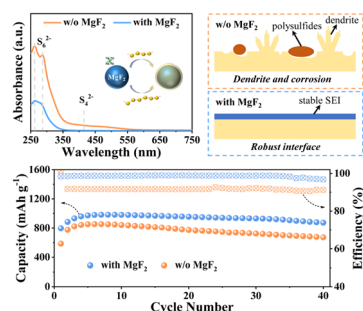
19036



Large mass field fluctuation and lattice anharmonicity effects promote thermoelectric and mechanical performances in NbFeSb half-Heusler alloys via Ti/Zr/Hf stepwise doping

Chang Tan, Hongxiang Wang, Lingwen Zhao, Yuqing Sun, Jie Yao, Jinze Zhai, Chunlei Wang and Hongchao Wang*

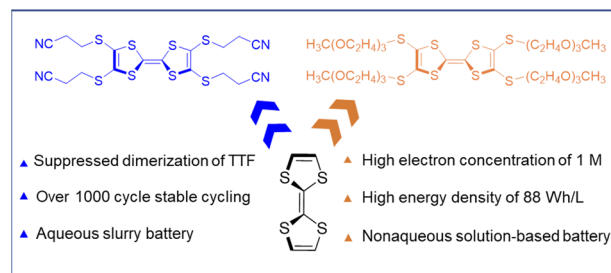
19046



Regulation of polysulfide adsorption and LiF-rich interface chemistry to achieve high-performance PEO-based lithium-sulfur batteries

Huanhuan Duan, Leiping Liao, Ran Bi, Yuanfu Deng* and Guohua Chen

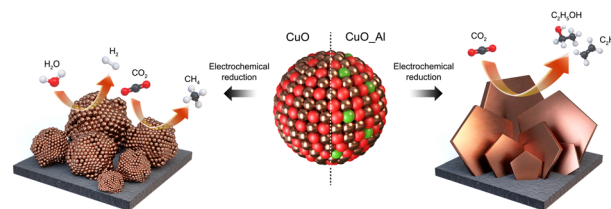
19056



Tetrathiafulvalene (TTF) derivatives as catholytes for dual-type redox flow batteries: molecular engineering enables high energy density and cyclability

Xiao Wang, Amir Lashgari, Rabin Siwakoti, Rajeev K. Gautam, Jack J. McGrath, Prasenjit Sarkar, Grace Naber, Jingchao Chai and Jianbing Jimmy Jiang*

19066



Distinct reconstruction of aluminum-doped oxide-derived copper enhances the selectivity of C₂+ products in CO₂ electroreduction

Junghwan Jang, Kangjae Lee, Heejeong Shin, Hyeon Seok Lee, Byoung-Hoon Lee, Juwon Jeong, Jungho Kim, Wonchan Hwang, SungBin Park, Megalamane S. Bootharaju, Seoin Back, Jaehyuk Shim, Jeong Hyun Kim, Taeghwan Hyeon* and Yung-Eun Sung*

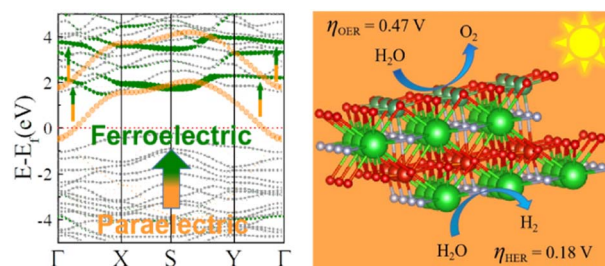


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19074

Two-dimensional Janus perovskite oxynitrides as active photocatalysts for overall water splitting with ferroelectric modulation

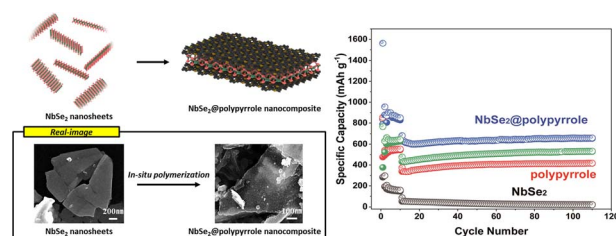
Zhichao Yu, Bowen Li, Haoyun Bai and Hui Pan*



19083

Exfoliated NbSe₂ nanosheet@polypyrrole hybrid nanocomposites as a high performance anode of lithium-ion batteries

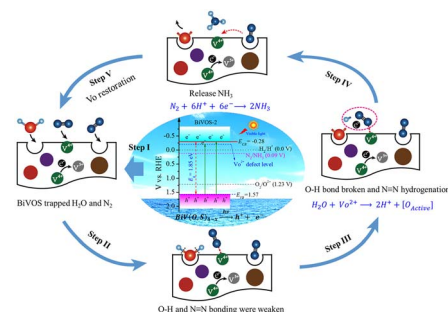
Byung-Ho Kang, Seulgi Shin, Kunwoo Nam, Joonwon Bae, Jong-Min Oh, Sang-Mo Koo, Hiesang Sohn, Sung-Hoon Park* and Weon Ho Shin*



19091

Material design for converting an oxidative-type BiVO₄ catalyst into a reductive BiV(S,O)_{4-x} sulfoxide catalyst for nitrogen photoreduction to ammonia

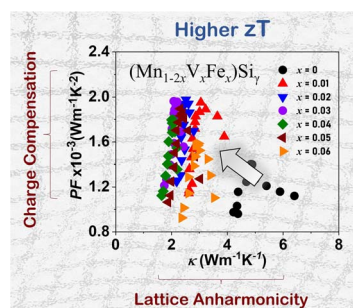
Xiaoyun Chen,* Pengkun Zhang, Dong-Hau Kuo,* Qinhan Wu, Adugna Boke Abdeta, Binghong Wu, Zhengjie Su, Longyan Chen, Osman Ahmed Zelelew and Jinguo Lin*



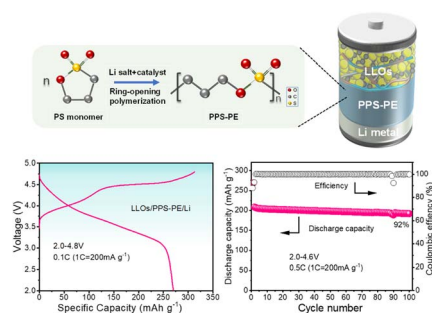
19107

Lattice anharmonicity in charge compensated higher manganese silicide single crystals

Nagendra Singh Chauhan,* Ichiro Ono and Yuzuru Miyazaki



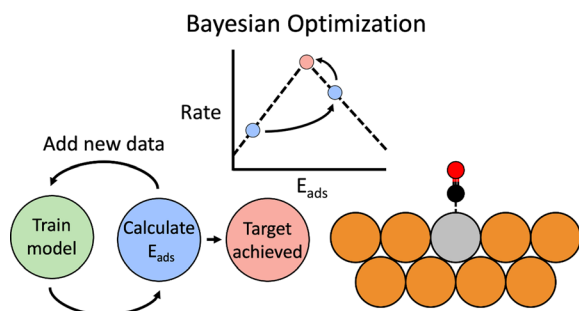
19118



A propanesultone-based polymer electrolyte for high-energy solid-state lithium batteries with lithium-rich layered oxides

Xin Yin, Shu Zhao, Zhiyuan Lin, Xianwei Guo,* Chenjie Lou, Shiqi Liu, Boya Wang, Peipei Ding, Mingxue Tang, Lingqiao Wu and Haijun Yu*

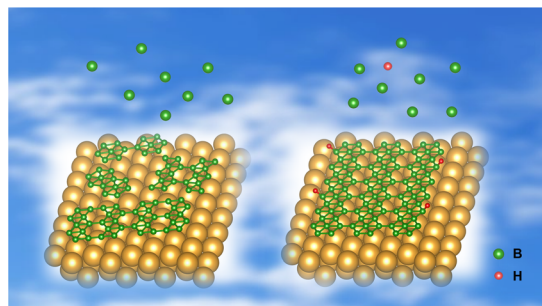
19128



Bayesian optimization of single-atom alloys and other bimetallics: efficient screening for alkane transformations, CO₂ reduction, and hydrogen evolution

Gbolade O. Kayode, Avery F. Hill and Matthew M. Montemore*

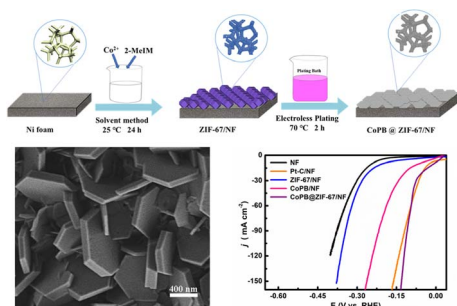
19138



Hydrogen-assisted growth of single crystalline borophene investigated by first-principles calculations

Jinting Wang, Yandi Zhu, Kun Liu, Lili Zhang, Rui Pang, Xiaoyan Ren, Chongxin Shan, Xingju Zhao* and Shunfang Li*

19145



Reconstruction of the ZIF-67 structure and boosted hydrogen evolution reaction in an alkaline medium

Hanghang Guo, Aibing Che,* Wanliang Mi, Yajuan Zhang and Xingwei Shi*



CORRECTIONS

19153

Correction: Understanding the suppressive role of catalytically active Pt–TiO₂ interfacial sites of supported metal catalysts towards complete oxidation of toluene

Hanlei Sun, Peipei Zhang, Jiexiang Wang, Songshou Ye, Jile Fu,^{*} Jinbao Zheng, Hua Zhang,^{*} Nuowei Zhang and Binghui Chen^{*}

19154

Correction: Pseudo-bilayered inverted organic solar cells using the Marangoni effect

Jihwan Jo, Seonju Jeong, Dongchan Lee, Seungjin Lee, Bumjoon J. Kim, Shinuk Cho and Jung-Yong Lee^{*}

