

Journal of Materials Chemistry A

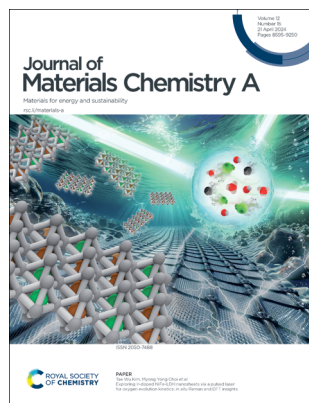
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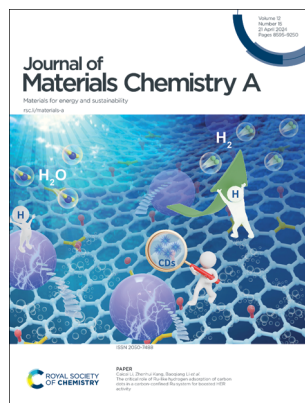
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Cover

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Inside cover

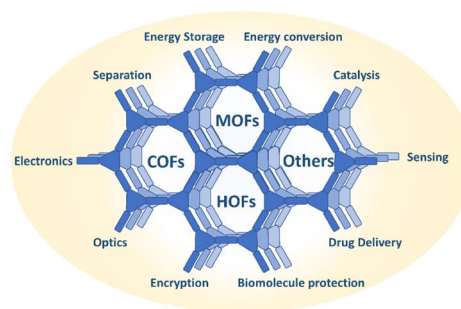
See Caicai Li, Zhenhui Kang, Baoqiang Li *et al.*, pp. 8707–8717. Image reproduced by permission of Baoqiang Li from *J. Mater. Chem. A*, 2024, 12, 8707.

EDITORIAL

8613

Introduction to functional framework materials

Paolo Falcaro,* Patricia Horcajada and Dan Li

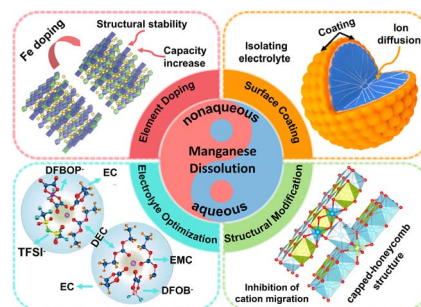


REVIEWS

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Rejuvenating manganese-based rechargeable batteries: fundamentals, status and promise

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



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Fundamental questions
Elemental answers

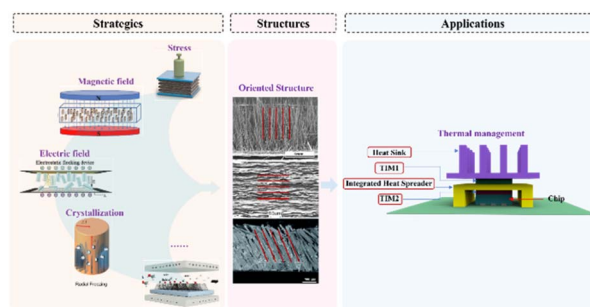


REVIEWS

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Enhanced thermal management in electronic devices through control-oriented structures

Shujian Cheng, Xiaoxiao Guo, Weiwei Cai,* Yufeng Zhang* and Xue-ao Zhang*



8663

Research progress of biomass materials in the application of organic phase change energy storage materials

Bowen Liu, Guocheng Lv,* Tianming Liu, Meng Liu, Jianhua Bian, Qinda Sun and Libing Liao*

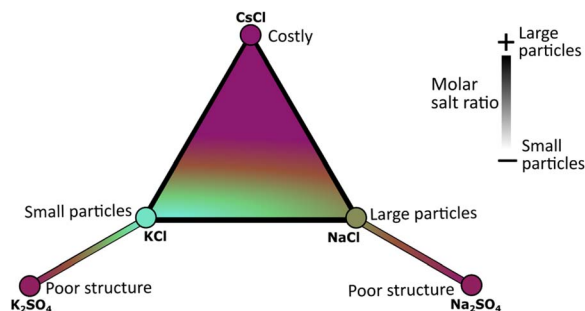


COMMUNICATIONS

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Effect of salt selection and molar ratio in molten salt synthesis of single-crystalline LiNiO₂

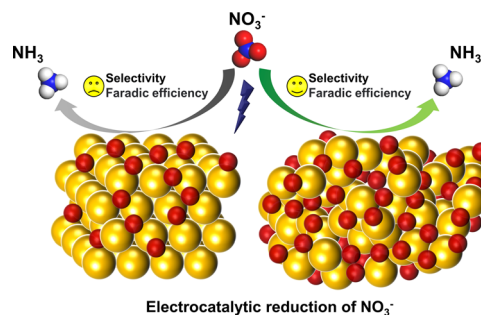
Wessel van den Bergh,* Rui Yao, Ruizhuo Zhang, Aleksandr Kondrakov, Jürgen Janek and Torsten Brezesinski*



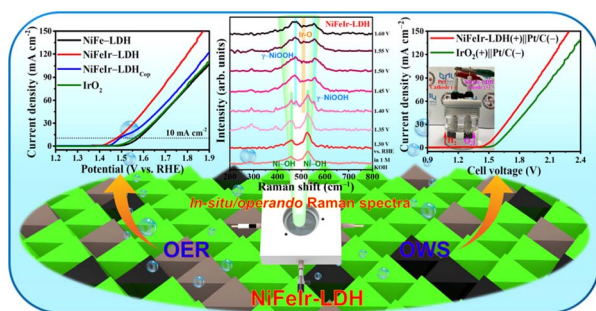
8689

Electrochemical nitrate reduction for ammonia production: amorphous or crystalline oxidized copper catalyst?

Quanxiao Peng, Dandan Xing, Liuqi Dong, Yuhan Fu, Jixue Lu, Xiaoyu Wang,* Changhong Wang* and Chunxian Guo*

Electrocatalytic reduction of NO₃⁻

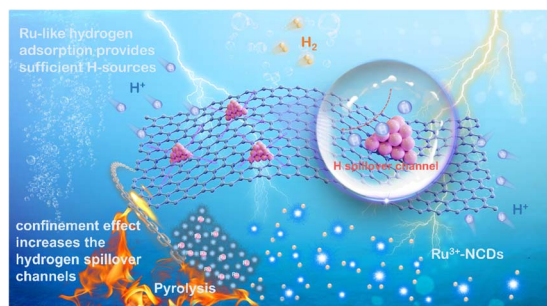
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Exploring Ir-doped NiFe-LDH nanosheets via a pulsed laser for oxygen evolution kinetics: *in situ* Raman and DFT insights

Sieon Jung, Raja Arumugam Senthil, Ahreum Min, Anuj Kumar, Cheol Joo Moon, Gyeong Hwa Jeong, Tae Wu Kim* and Myong Yong Choi*

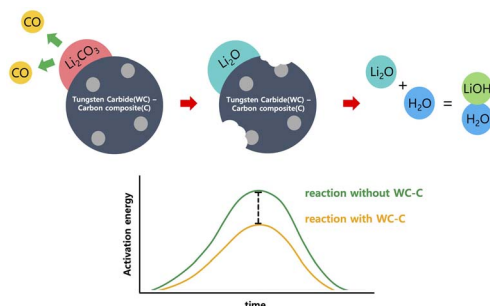
8707



The critical role of Ru-like hydrogen adsorption of carbon dots in a carbon-confined Ru system for boosted HER activity

Zonglin Liu, Honglei Zhang, Dongyue Liu, Yujie Feng, Dechang Jia, Caicai Li,* Qingfeng Sun, Yu Zhou, Zhenhui Kang* and Baoqiang Li*

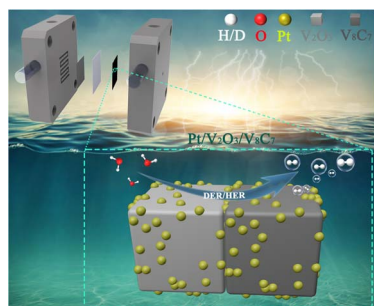
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Carbon-metal complex as a functional material that governs the efficient conversion of Li_2CO_3 to $\text{LiOH} \cdot \text{H}_2\text{O}$

Sehwa Hong, Si-Wan Kim, Songeui Bae, Minsun Kim and Jun Kang*

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Synergistic electronic structure modulation of Pt using V_2O_3 and V_8C_7 for enhanced deuterium evolution performance

Yanfeng Li, Yuan Sheng, Liangbin Shao, Yuanan Li, Weiwei Xu, Shijie Zhang, Fangjun Shao* and Jianguo Wang*

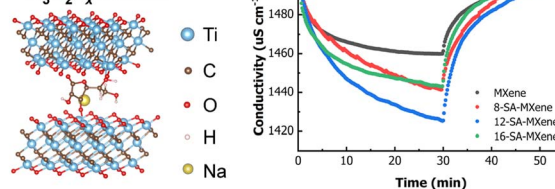


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A “two-birds-one-stone” strategy to enhance capacitive deionization performance of flexible $\text{Ti}_3\text{C}_2\text{T}_x$ MXene film electrodes by surface modification

Chuhan Huang, Tianqin Huang, Xue Liang Li,* Wei Zhou and Meng Ding*

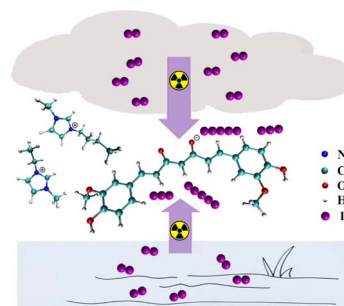
Sodium Ascorbate-modified $\text{Ti}_3\text{C}_2\text{T}_x$ MXene



8747

Enhanced iodine capture by the hydrogen bond reconstruction strategy

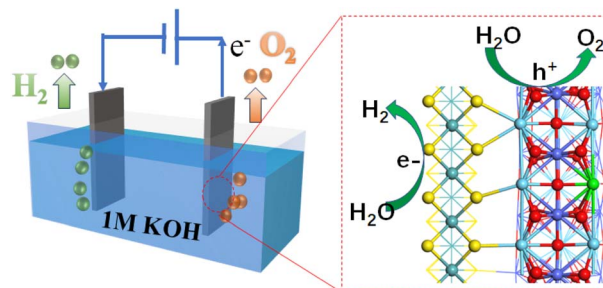
Ling-Qiong Gou, Yuan-Hao Wang, Shuang-Long Wang, Jia-Ying Liu, Xin Xin, Xin-Hong Xu, Song Qin, Ling He* and Guo-Hong Tao*



8757

An interface engineering strategy of MoS_2 /perovskite oxide as a bifunctional catalyst to boost overall water splitting

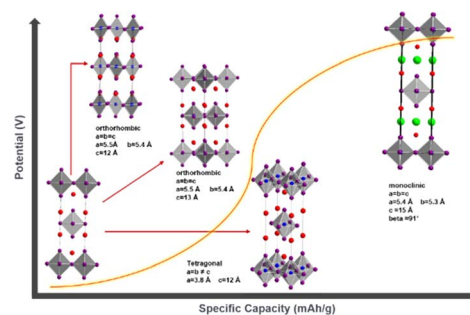
Ya-Nan Zhao, Ning Sun, Siqi Xu, Shengkang Min, Huilong Dong,* Jun Li, Changhai Liu* and Zhidong Chen*



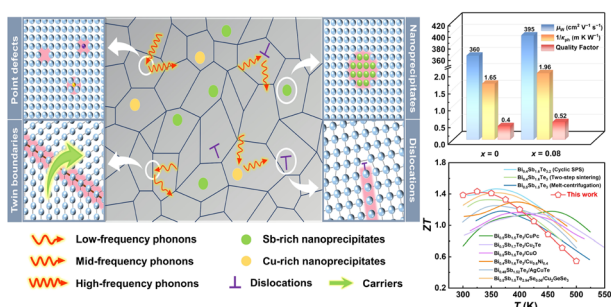
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Insights into the first multi-transition-metal containing Ruddlesden–Popper-type cathode for all-solid-state fluoride ion batteries

Vanita Vanita, Aamir Iqbal Waidha, Sami Vasala, Pascal Puphal, Roland Schoch, Pieter Glatzel, Matthias Bauer and Oliver Clemens*



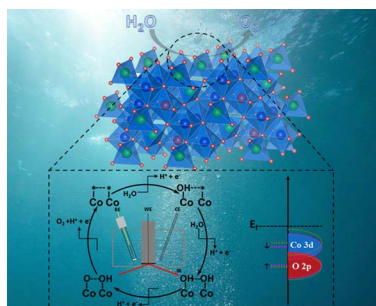
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Leveraging the Cu_2SnTe_3 additive for an improved thermoelectric figure of merit and module efficiency in $\text{Bi}_{0.5}\text{Sb}_{1.5}\text{Te}_3$ -based composites

Qiaoyan Pan, Kaikai Pang, Qiang Zhang,* Yan Liu, Huilie Shi, Jingsong Li, Wenjie Zhou, Qianqian Sun, Yuyou Zhang, Xiaojian Tan, Peng Sun, Jiehua Wu,* Guo-Qiang Liu and Jun Jiang*

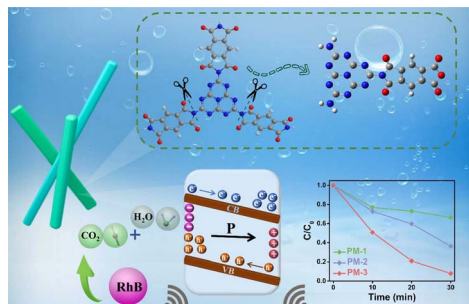
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Constructing oxygen vacancies by doping Mo into spinel Co_3O_4 to trigger a fast oxide path mechanism for acidic oxygen evolution reaction

Lang Sun, Min Feng, Yang Peng, Xu Zhao, Yiqun Shao, Xin Yue* and Shaoming Huang*

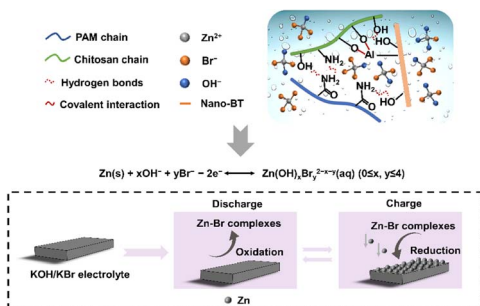
8805



Organic piezocatalyst polyimide: molecular structure tailoring and robust built-in electric field

Yan Zhang, Jingang Liu,* Cheng Hu, Xinxin Zhi, Zhen Pan, Hongjian Yu,* Jie Han and Hongwei Huang*

8815



Enhanced zinc reversibility enabled by zinc-bromide complexation of a quasi-solid electrolyte for high-performance flexible zinc-air batteries

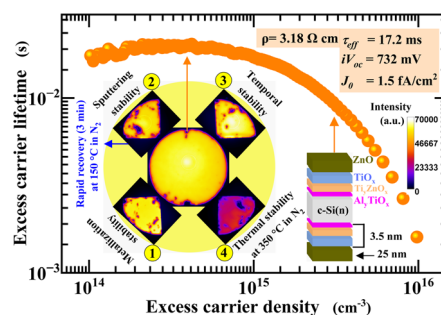
Zunhong Chen, Junhong Jin, Shenglin Yang, Guang Li* and Jingjing Zhang*



8826

Addressing the stability challenges of TiO_x -based passivating contacts for high-efficiency c-Si solar cells

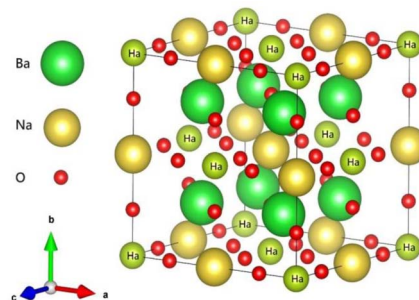
Mohamed M. Shehata,* Thien N. Truong, Gabriel Bartholazzi, Daniel H. Macdonald and Lachlan E. Black*



8846

First-principles investigation of the structural stability, electronic, and thermodynamic properties of $\text{Ba}_2\text{NaHaO}_6$ ($\text{Ha} = \text{Cl}, \text{Br}, \text{I}$) periodate double perovskites

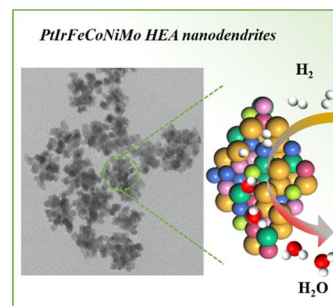
Zia Ur Rehman* and Zijiang Lin*



8862

PtIrFeCoNiMo high-entropy alloy nanodendrites for boosting the alkaline hydrogen oxidation performance

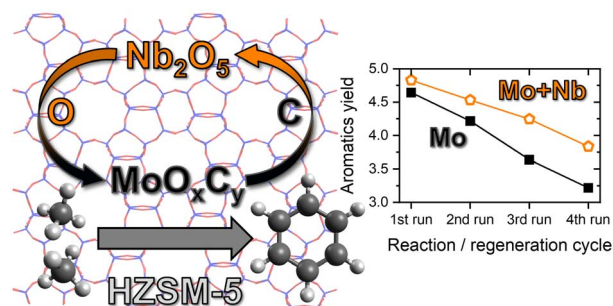
Xiaolong Ma, Shuang Zhang, Yaojiang Zhou, Wenli Lei, Yueming Zhai, Yuanmeng Zhao* and Changsheng Shan*



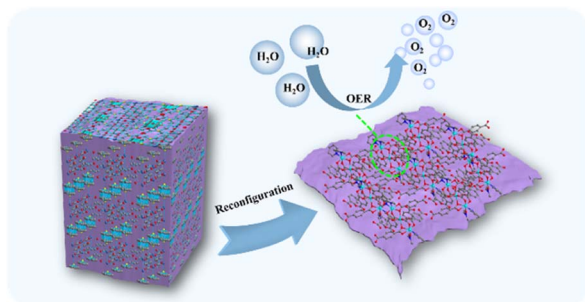
8869

Stabilization of intermediate Mo oxidation states by Nb doping enhancing methane aromatization on Mo/HZSM-5 catalysts

Stefan Peters, Stephan Bartling, Magdalena Parlinska-Wojtan, Alexander Wotzka, Ana Guilherme Buzanich, Sebastian Wohlrab and Ali M. Abdel-Mageed*



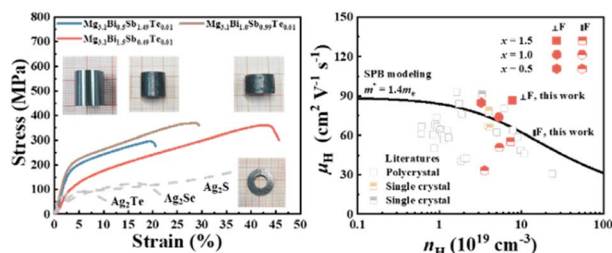
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Pyridine-induced caused structural reconfiguration forming ultrathin 2D metal–organic frameworks for the oxygen evolution reaction

Yang Liu,^{*} Shuwei Deng, Shihui Fu, Xiaoteng Wang, Gang Liu and Haidong Yang^{*}

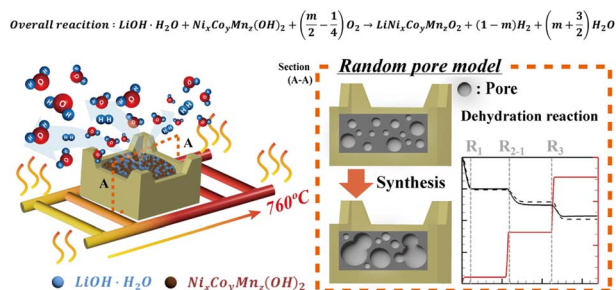
8893



Plastic $\text{Mg}_3(\text{Sb,Bi})_2$ -based thermoelectric compounds with enhanced texture *via* cold-deformation

Ziming Zhang, Zhiqiang Gao, Tingting Deng, Qingfeng Song,^{*} Lidong Chen and Shengqiang Bai^{*}

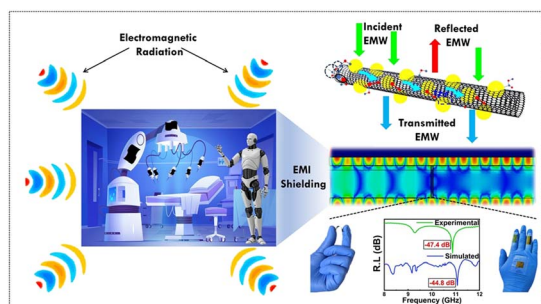
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Dehydration kinetics of the synthesis of high-nickel cathode materials used in lithium ion batteries

Jaeyoung Jeon, Minuk Kim, Min Young Hwang, Choongmo Yang and Jongsup Hong^{*}

8914



Flexible and rigid spinel ferrite carboneous composite as a future of tunable absorption dominant cmWave shielding materials

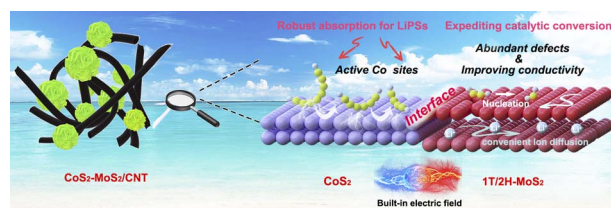
Vaishnavi Khade, Avanish Babu Thirumalasetty, Asmita Ajay Rathod, Yogesh Kumar Chaoukiker and Madhuri Wuppuluri^{*}



8927

Interfacial engineering design induces enriched-defects expediting catalytic conversion kinetics of polysulfides

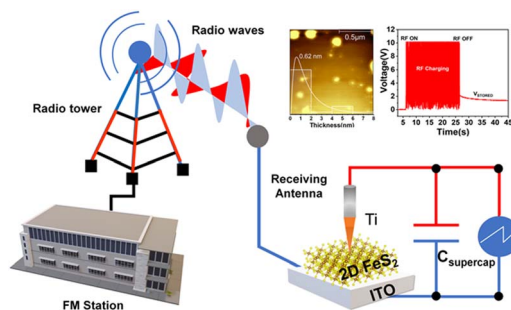
Guixin Zhang, Xiaorong Chen, Xinmeng Yu, Qingyu Li, Hongqiang Wang, Sijiang Hu, Juantao Jiang, Youguo Huang* and Zhaoling Ma*



8940

Giant Stark effect assisted radio frequency energy harvesting using atomically thin earth-abundant iron sulphide (FeS_2)

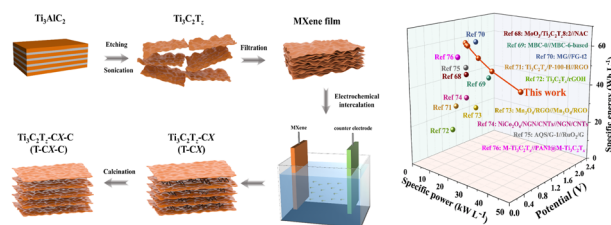
Karthik R., Appu Kumar Singh, Shreyasi Das, Suman Sarkar, Tarun Kumar Kundu, Swastik Kar, P. R. Sreeram* and Chandra Sekhar Tiwary*



8952

Enhancing ion storage and transport in $\text{Ti}_3\text{C}_2\text{T}_z$ MXene via a "sacrificial cations" strategy

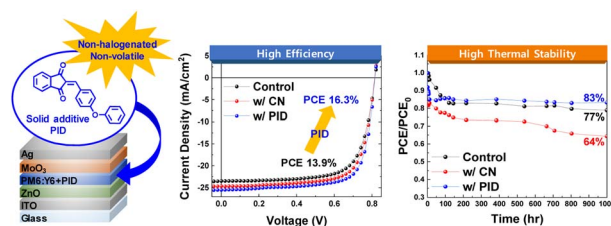
Xiaodan Yin, Wei Zheng,* Haifeng Tang, Li Yang, Peigen Zhang* and ZhengMing Sun*



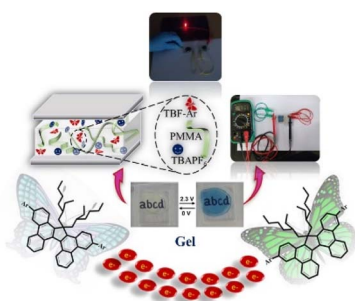
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Non-halogenated and non-volatile solid additive for improving the efficiency and stability of organic solar cells

Mi Choi, Hyeon-Seok Jeong, Jinho Lee, Yeonsu Choi, In-Bok Kim, Dong-Yu Kim, Hongkyu Kang* and Soo-Young Jang*



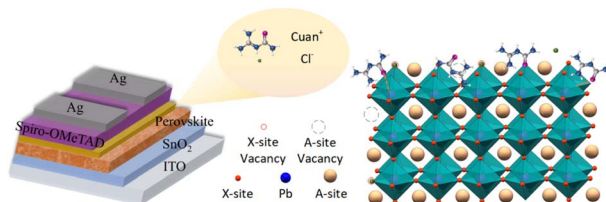
8972



Energy-efficient UV-to-NIR active smart electrochromic tetrabenzofluorene molecules

Panichiyil V. Navya and Srinivasan Sampath*

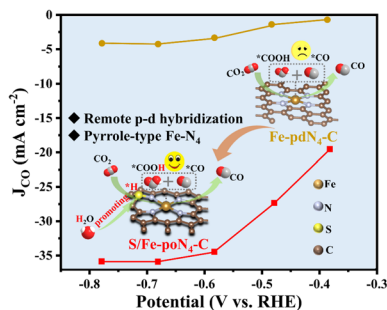
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Molecular engineering with CuanCl for effective optimization of a defective interface for wide-bandgap perovskite solar cells

Maoxia Xu, Rui Liu, Haoran Ye, Haorong Ren, Jinyu Li, Chen Deng, Zetan Zhang, Chengbin Yang, Kexin Hu, Xiaoran Sun* and Hua Yu*

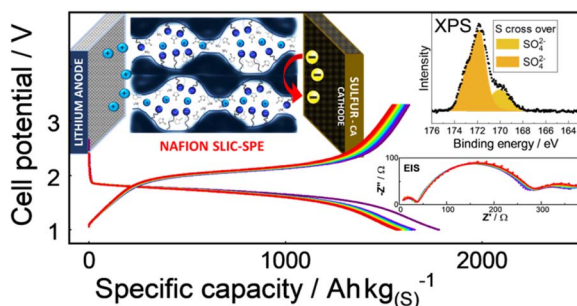
8991



Remote p-d orbital hybridization via first/second-layer coordination of Fe single atoms with heteroatoms for enhanced electrochemical CO₂-to-CO reduction

Ying Yang, Lizhen Chen, Zhenyan Guo, Shengqi Liu, Pei-dong Wu, Zhen Fang,* Kai Zhang and Hu Li*

9002



Carbonate swollen lithiated Nafion electrolyte for quasi-solid-state lithium-sulfur batteries

Brigitta Sievert,* Ernestino Lufrano, Martina Gerle, Mariarosaria Tuccillo, Indro Biswas, Cataldo Simari, Sergio Brutti, Maryam Nojabaei, Isabella Nicotera* and K. Andreas Friedrich

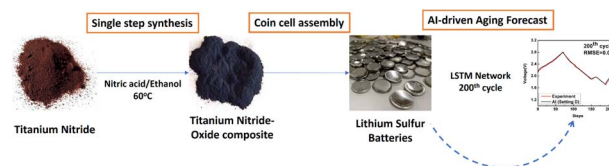


PAPERS

9017

Single-step synthesis of titanium nitride-oxide composite and Al-driven aging forecast for lithium–sulfur batteries

Ka Chun Li, Xuanming Chen, Aghil Sabbaghi, Chi Ho Wong,* Chak-yin Tang,* Frank Leung-Yuk Lam* and Xijun Hu*



9031

Anti-poisoned oxygen reduction reaction by rice-like Pd–Sb nanoparticles

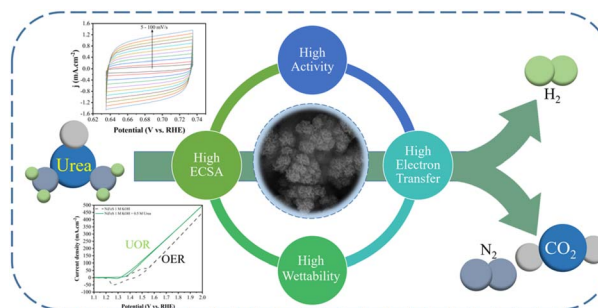
Hui Fu, Yao Chen, Shuanglong Lu, Zhe Zhang, Ting Zhu, Hanjun Li, Feili Lai,* Nan Zhang* and Tianxi Liu*



9038

Modulation of active surface sites on Ni–Fe–S by the dynamic hydrogen bubble template method for energy-saving hydrogen production

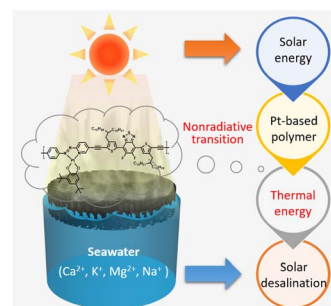
Amirreza Fathollahi, Taghi Shahrabi* and Ghasem Barati Darband*



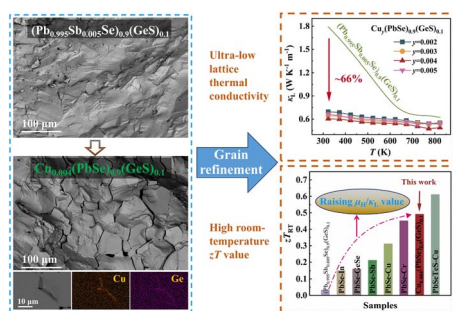
9055

A platinum-based photothermal polymer with intermolecular/ligand-to-ligand charge transfer for efficient and sustainable solar-powered desalination

Miao Zhang,* Md. Nahian Al Subri Ivan, Yingjie Sun, Zikang Li, Shuvra Saha, Safayet Ahmed, Huiying Liu, Yidi Wang, Yuen Hong Tsang* and Wai-Yeung Wong*



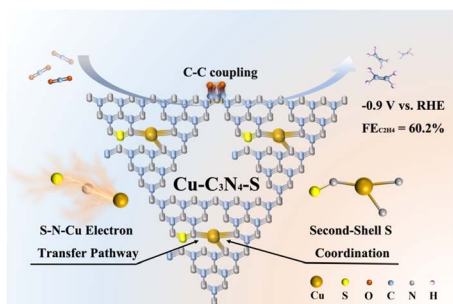
9066



Doping-induced grain refinement contributes to enhanced thermoelectric performance of n-type PbSe at room temperature

Canyang Zhao, Qian Deng, Wei Yuan, Xiang An, Wenjun Su, Zhengmin He, Yin Xie, Zhilong Zhao and Ran Ang*

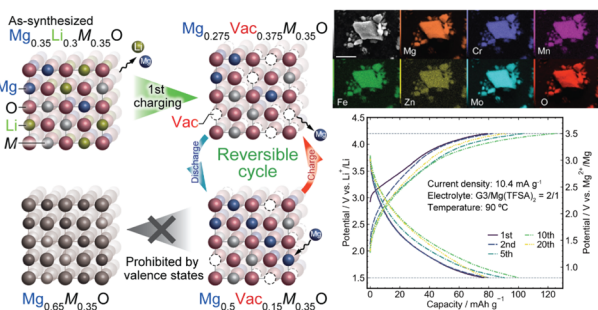
9075



Enhanced electrochemical CO₂-to-ethylene conversion through second-shell coordination on a Cu single-atom catalyst

Yi Shen,* Yongliang Pan, Huanyong Xiao, Haizhong Zhang, Chao Zhu,* Qile Fang, Yungui Li, Lun Lu, Liqun Ye and Shuang Song

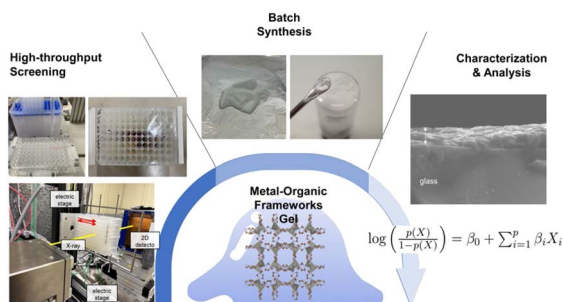
9088



Securing cation vacancies to enable reversible Mg insertion/extraction in rocksalt oxides

Tomoya Kawaguchi,* Masaya Yasuda, Natsumi Nemoto, Kohei Shimokawa, Hongyi Li, Norihiko L. Okamoto and Tetsu Ichitsubo

9102



High-throughput screening and characterization of novel zeolitic imidazolate framework gels

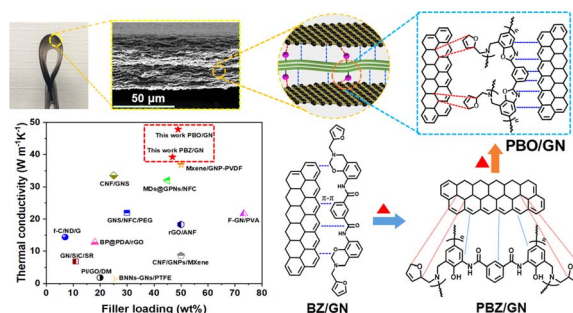
Izuru Miyazaki, Yumi Masuoka, Keiichiro Oh-Ishi, Norihiko Setoyama and Mitsutaro Umehara*



9113

Construction of brick/mortar-like graphene/thermoset composites with highly anisotropic thermal conductivity and strong electromagnetic interference shielding performance

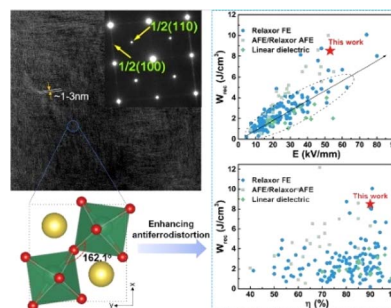
Zhenhao Yao, Jianan Song,^{*} Yin Lu, Rui Yang, Yuan Zhang and Kan Zhang^{*}



9124

Collaboratively improved energy density and efficiency in NaNbO₃-based lead-free relaxor ferroelectrics *via* enhancing antiferrodistortion

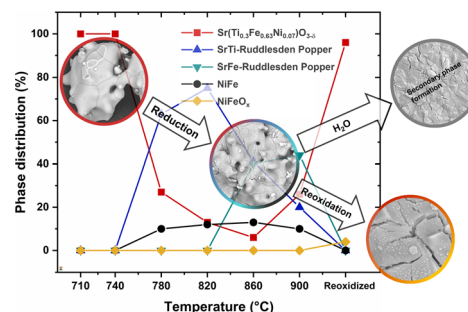
Aiwen Xie, Junwei Lei, Yi Zhang, Attaur Rahman, Xuewen Jiang, Tianyu Li, Xinchun Xie, Liqiang Liu, Cong Zhou, Shuang Yin, Haiqiang Ma, Xia Fang and Ruzhong Zuo^{*}



9132

Phase stability, redox-behavior and carbon-tolerance of Sr_{1-x}(Ti_{0.3}Fe_{0.7-y}Ni_y)O_{3-δ} with exsolved nanoparticles

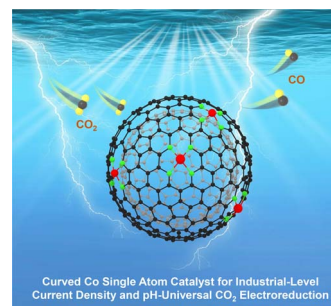
Alexander Schwiers,^{*} Daniel Röhrer,^{*} Christian Lenser, Benjamin Steinrücken, Doris Sebold, Hartmut Spliethoff, Olivier Guillon and Norbert H. Menzler



9147

Isolated cobalt–nitrogen sites on high-curvature carbon achieving industrial-level current density and pH-universal CO₂ electroreduction

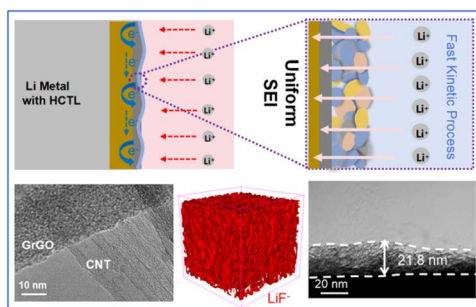
Jun Wang, Xifan Chen, Zhengkun Yang, Juan-Ding Xiao, Chenchen Qin, Zhenhua Yan, Zhiyuan Wang, Jia Yang^{*} and Junzhong Wang^{*}



Curved Co Single Atom Catalyst for Industrial-Level Current Density and pH-Universal CO₂ Electroreduction



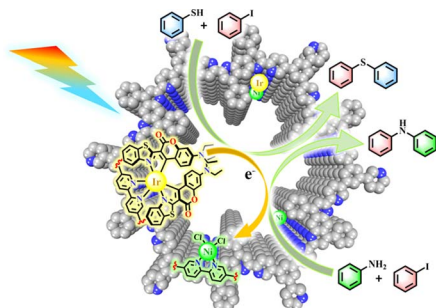
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High-flux charge transfer layer confers a solid electrolyte interphase with uniform and rich LiF for stable lithium metal batteries

Haijie Zhao, Yumeng Peng, Xianbin Liu,* Shibo Du, Yiyao Yu, Ting Liu, Yanhong Yin, Sayed Y. Attia, Yesheng Li and Ziping Wu*

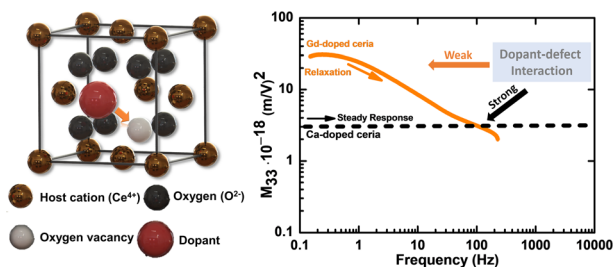
9164



Incorporation of $\text{Ir}(\text{C}^{\wedge}\text{N})_2(\text{N}^{\wedge}\text{N})\text{-NiCl}_2$ in a $(\text{N}^{\wedge}\text{N})$ -covalent organic framework for transcendent dual catalysis in photochemical cross-coupling synthesis

Yan-Lin Li, Fuke Wang, Jagadees J. Vittal, Peng Jin, Sheng-Li Huang* and Guo-Yu Yang*

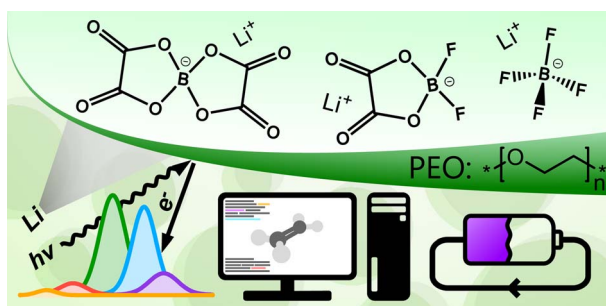
9173



Non-classical electrostriction in calcium-doped cerium oxide ceramics

Ahsanul Kabir, Victor Buratto Tinti, Simone Santucci, Maxim Varenik, Samuel Griffiths, Sebastian Molin, Igor Lubomirsky and Vincenzo Esposito

9184



Initial SEI formation in LiBOB-, LiDFOB- and LiBF₄-containing PEO electrolytes

Edvin K. W. Andersson, Liang-Ting Wu, Luca Bertoli, Yi-Chen Weng, Daniel Friesen, Kenza Elbouazzaoui, Sophia Bloch, Ruslan Ovsyannikov, Erika Giangrisostomi, Daniel Brandell, Jonas Mindemark, Jyh-Chiang Jiang and Maria Hahlin*

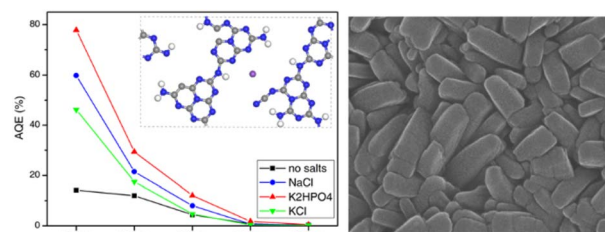


PAPERS

9200

Molecular engineering of polymeric carbon nitride for photocatalytic hydrogen production with ultrahigh apparent quantum efficiency

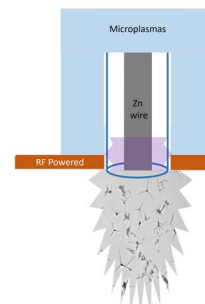
Haiyang Liu, Xiaolu Liu, Chengqun Xu,* Dongyu Wang, Dezhi Li, Jingyao Huang, Shengquan Wu, Zhichun Wang and Hui Pan*



9212

Non-equilibrium defect chemistry in oxygen-rich zinc oxide nano-tetrapods synthesized using atmospheric pressure microplasma

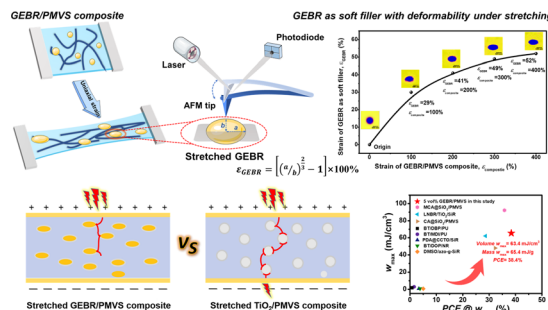
Dilli babu Padmanaban, Paul Maguire and Davide Mariotti*



9232

Largely enhanced energy harvesting performances of DEGs by constructing all-organic dielectric composites with a soft and deformable filler

Xueying Liu, Weibo Li, Yingjie Jiang, Nanying Ning* and Ming Tian*



CORRECTIONS

9241

Correction: Superhydrophobic and mechanical properties enhanced the electrospinning film with a multiscale micro-nano structure for high-efficiency radiation cooling

Lijing Kong, Puqing Sun, Jincheng Liu, Yongxing Lin, Chao Xiao, Chao Bao, Kang Zheng, Meng Xue, Xian Zhang, Xianglan Liu* and Xingyou Tian*



CORRECTIONS

9242

Correction: Super-adsorbent hydrogel for removal of methylene blue dye from aqueous solution

Xiao-Sai Hu, Rui Liang and Guoxing Sun*

RETRACTION

9247

Retraction: Nickel nanoparticles immobilized on three-dimensional nitrogen-doped graphene as a superb catalyst for the generation of hydrogen from the hydrolysis of ammonia borane

Mojtaba Mahyari and Ahmad Shaabani*

