

Journal of Materials Chemistry A

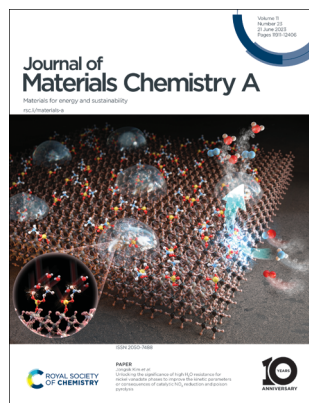
Materials for energy and sustainability

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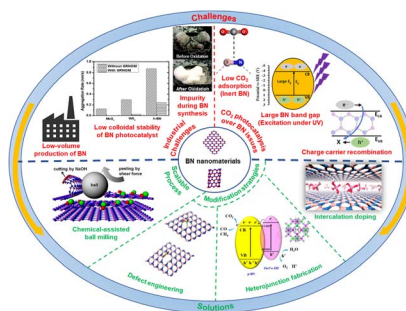
See Jongsik Kim *et al.*, pp. 12062–12079. Image reproduced by permission of Jongsik Kim from *J. Mater. Chem. A*, 2023, **11**, 12062.

REVIEWS

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A review of boron nitride-based photocatalysts for carbon dioxide reduction

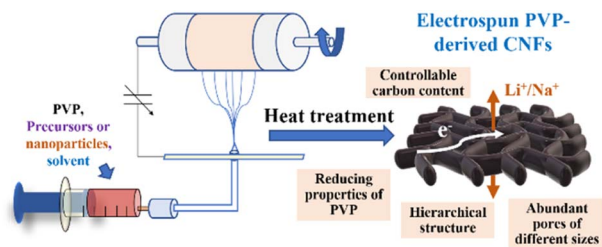
Milad Laghaei, Mohsen Ghasemian, Weiwei Lei,*
Lingxue Kong* and Qi Chao*



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A review on electrospun polyvinylpyrrolidone-derived carbon composite nanofibers as advanced functional materials for energy storage applications and beyond

Ayaulym Belgibayeva,* Samal Berikbaikyzy,
Yrysgul Sagynbay, Gulderaiym Turarova, Izumi Taniguchi
and Zhumabay Bakenov*



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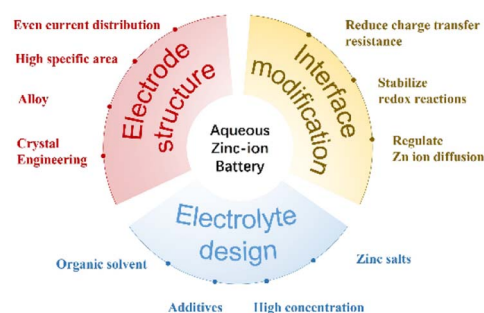


REVIEWS

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Opportunities and challenges of zinc anodes in rechargeable aqueous batteries

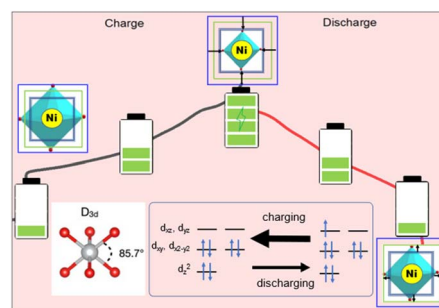
Xiaoxia Guo and Guanjie He*



COMMUNICATION

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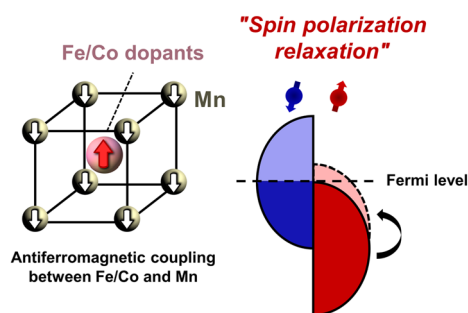
Atomic-level insights into the first cycle irreversible capacity loss of Ni-rich layered cathodes for Li-ion batteries

Anil K. Paidi, Alex Taekyung Lee, Vinod K. Paidi,*
Hyungju Ahn, Jinsub Lim, Kug-Seung Lee, Sangsul Lee*
and Docheon Ahn*

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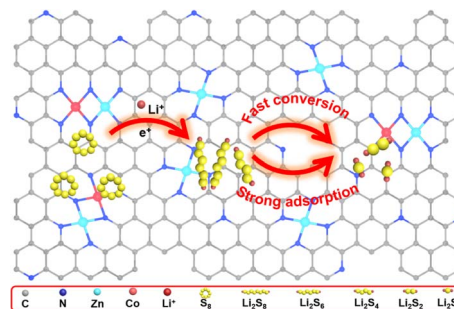
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Enhancing thermoelectric performance via relaxed spin polarization upon magnetic impurity doping

Min Young Kim, Dongwook Kim, Gwansik Kim,
Wooyoung Lee, Nicolas Perez, Kornelius Nielsch,
Ji Hoon Shim* and Hyungyu Jin*

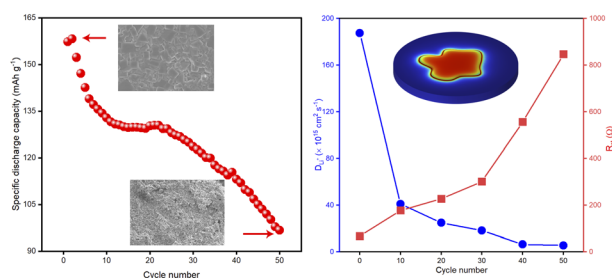
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Double-shelled Zn–Co single-atoms enable enhanced conversion kinetics in lithium–sulfur batteries

Jiafeng Wu, Yuanyi Feng, Yang Chen, Ting Fan*
and Yingwei Li*

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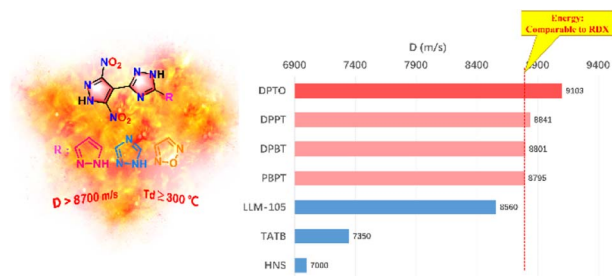
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The electrochemical failure mechanism investigation of $\text{Li}_{1+x}\text{Al}_x\text{Ti}_{2-x}(\text{PO}_4)_3$ solid-state electrolytes

Can Huang, Fang Wang, Shuo Huang, Jianhe Hong, Shuoguo Yuan, Shuen Hou and Hongyun Jin*

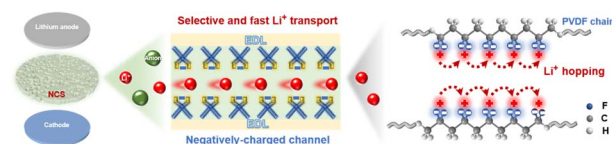
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Construction of *p*-nitropyrazole-1,3,4-triazole framework energetic compounds: towards a series of high-performance heat-resistant explosives

Chengchuang Li, Teng Zhu, Caijin Lei, Guangbin Cheng,* Chuan Xiao* and Hongwei Yang*

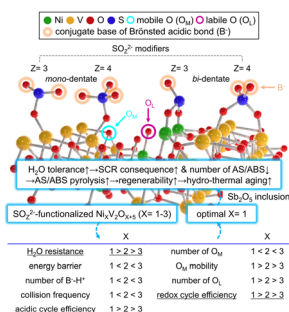
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Negatively charged separators facilitating lithium-ion conduction to stabilize lithium metal anodes

Yating Hu, Chengjie Wang, Yue Wu, Qing Zhao, Ang Li, Qianqian Zhang,* Jingbing Liu, Yuhong Jin* and Hao Wang*

12062



Unlocking the significance of high H_2O resistance for nickel vanadate phases to improve the kinetic parameters or consequences of catalytic NO_x reduction and poison pyrolysis

Seokhyun Lee, Heon Phil Ha, Jung-Hyun Lee and Jongsik Kim*

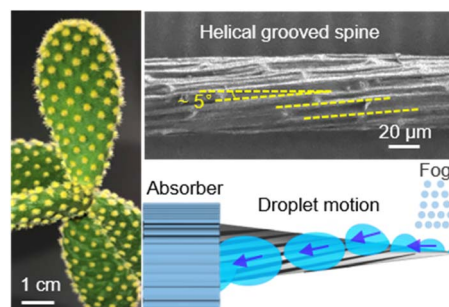


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Bioinspired cone structures with helical micro-grooves for fast liquid transport and efficient fog collection

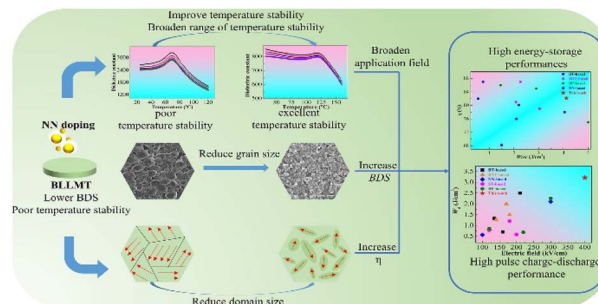
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Achieving outstanding temperature and frequency stability in NaNbO₃-modified (Ba_{0.94}Li_{0.02}La_{0.04})(Mg_{0.04}Ti_{0.96})O₃ pulse energy storage ceramics

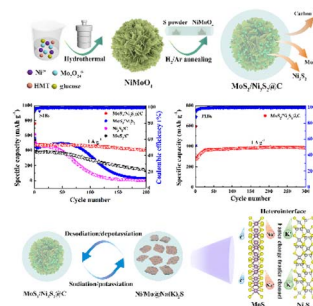
Guiwei Yan, Jun Sun, Juanwen Yan, Bijun Fang,* Shuai Zhang, Xiaolong Lu, Xiangyong Zhao, Feifei Wang and Jianning Ding*



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Carbon layer-confined MoS₂/Ni₃S₂ heterostructure with enhanced sodium and potassium storage performance

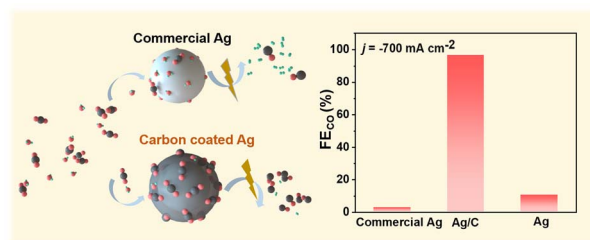
Jin Bai, Jianguo Si, Yunjie Mao, Hongyang Ma, Peiyao Wang, Wanyun Li, Ke Xiao, Guofeng Zhang, Yiyong Wei, Xuebin Zhu,* Bangchuan Zhao* and Yuping Sun



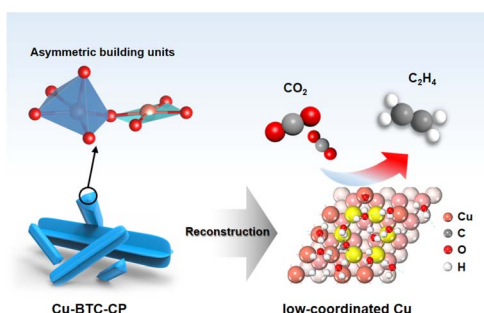
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Amorphous carbon coating enhances activity of high rate CO₂ electroreduction to CO

Yiwen Ma, Wenzhe Niu, Wenjuan Shi, Xiaoxiong Huang, Yi Liu, Junfeng Chen, Liangyao Xue and Bo Zhang*



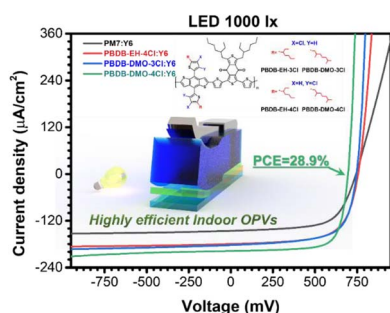
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A copper coordination polymer precatalyst with asymmetric building units for selective CO₂-to-C₂H₄ electrolysis

Chun Fang Wen, Min Zhou, Xuefeng Wu, Yuanwei Liu, Fangxin Mao, Huai Qin Fu, Yingli Shi, Sheng Dai, Minghui Zhu, Shuang Yang, Hai Feng Wang, Peng Fei Liu* and Hua Gui Yang*

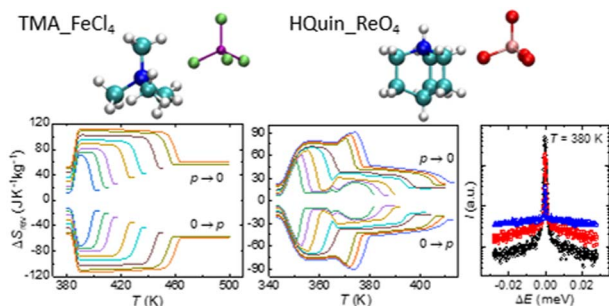
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Fine-tuning of the inner sidechain of donor polymers for efficient indoor organic photovoltaics

Sang Hyeon Kim, Cheng Sun, Muhammad Ahsan Saeed, Hyeok-Jin Kwon, Tae Hyuk Kim, Soon-Ki Kwon, Yun-Hi Kim* and Jae Won Shim*

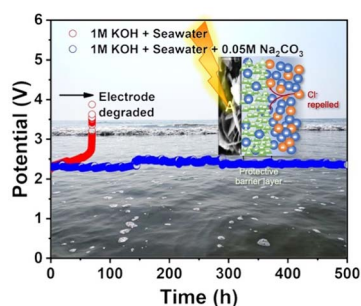
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Large barocaloric effects in two novel ferroelectric molecular plastic crystals

Alejandro Salvatori, David Aguilà, Guillem Aromí, Lluís Mañosa, Antoni Planes, Pol Lloveras, Luis Carlos Pardo, Markus Appel, Guillaume F. Nataf, Fabien Giovannelli, Maria Barrio, Josep Lluís Tamarit and Michela Romanini*

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Electrolyte engineering for effective seawater splitting based on manganese iron chromium layered triple hydroxides as novel bifunctional electrocatalysts

Santanu Pal, Koji Shimizu, Sakila Khatun, Soumen Singha, Satoshi Watanabe* and Poulomi Roy*

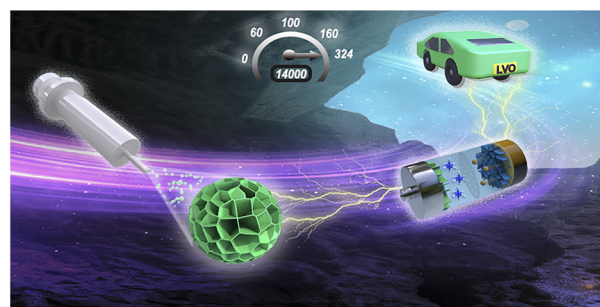


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Boosting high-rate lithium storage in Li_3VO_4 via a honeycomb structure design and electrochemical reconstruction

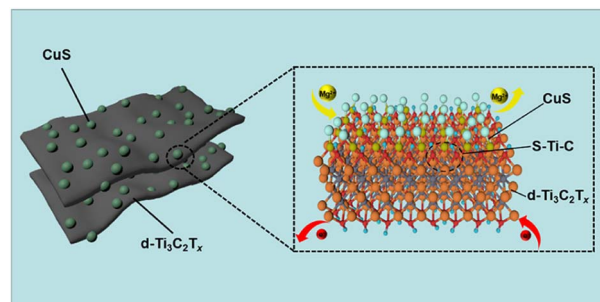
Xiaomeng Bai, Daobo Li, Dongmei Zhang,* Song Yang, Cunyuan Pei, Bing Sun and Shibing Ni*



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An interfacial covalent bonding coupled ultrafine CuS-nanocrystals/MXene heterostructure for efficient and durable magnesium storage

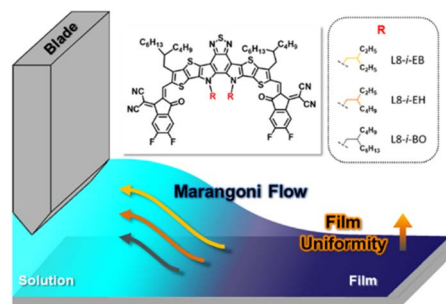
Zhi Cheng, Yanan Xu,* Xudong Zhang, Qifan Peng, Kai Wang, Xiong Zhang, Xianzhong Sun, Qinyou An,* Liqiang Mai and Yanwei Ma*



12185

Enhancing the Marangoni flow by inner side chain engineering in nonfullerene acceptors for reproducible blade coating-processed organic solar cell manufacturing

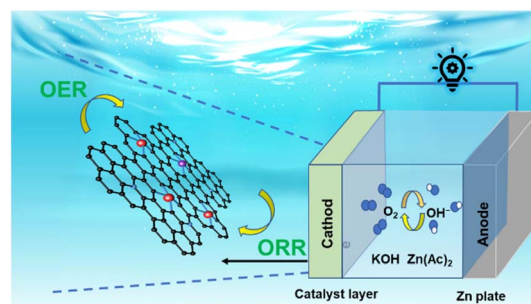
Geunhyung Park, Yongjoon Cho, Seonghun Jeong, Jeewon Park, Seong-Jun Yoon* and Changduk Yang*



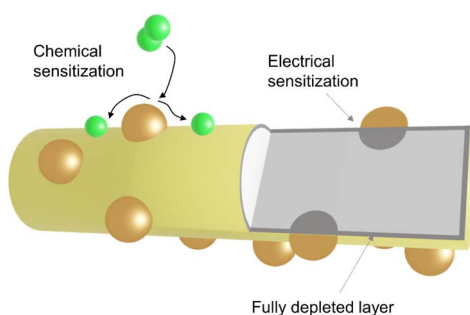
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Design of Fe/Ni-doped N/S-rich carbon with advanced bifunctional electrocatalysis for Zn–air batteries

Puxin Weng, Yaqing Guo, Kun Wu, Xin Wang, Guo-Quan Huang, Hang Lei, Yifei Yuan,* Weigang Lu* and Dan Li*



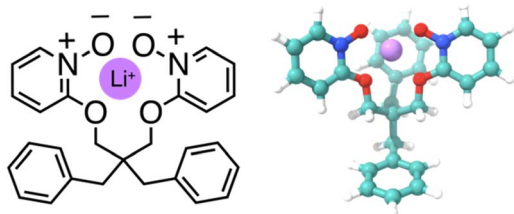
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Enhanced sensitivity towards hydrogen by a TiN interlayer in Pd-decorated SnO₂ nanowires

Clémence Badie, Jae-Hyoung Lee, Ali Mirzaei, Hyoun Woo Kim,^{*} Syreina Sayegh, Mikhael Bechelany,^{*} Lionel Santinacci^{*} and Sang Sub Kim^{*}

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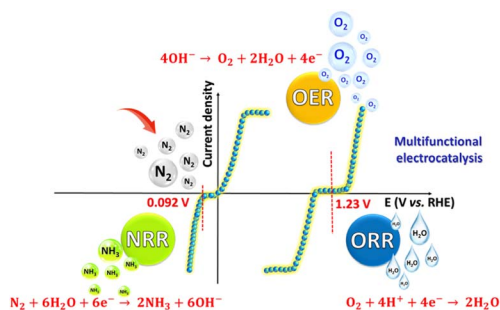


- $K_a(\text{Li}^+)$: 10^5 – 10^6 M⁻¹ • $\text{Li}^+ / \text{Na}^+$ selectivity: 1200–5600
- >100 times better than crown ether derivatives

Harnessing ion–dipole interactions: a simple and effective approach to high-performance lithium receptors

Chengkai Xu, Quy Tran, Lukasz Wojtas and Wenqi Liu^{*}

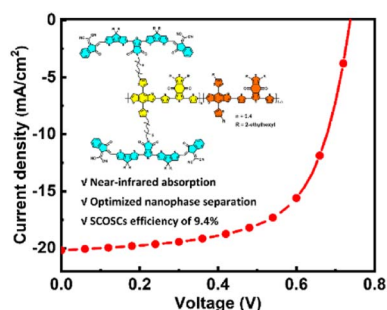
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Self-powered NH₃ synthesis by trifunctional Co₂B-based high power density Zn–air batteries

Divyani Gupta, Alankar Kafle, Prajna Parimita Mohanty, Tisita Das, Sudip Chakraborty, Rajeev Ahuja and Tharamani C. Nagaiah^{*}

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Random double-cable conjugated polymers with controlled acceptor contents for single-component organic solar cells

Baiqiao Liu, Shijie Liang, Safakath Karuthedath, Chengyi Xiao,^{*} Jing Wang, Wen Liang Tan, Ruonan Li, Hao Li, Jianhui Hou, Zheng Tang, Frédéric Laquai, Christopher R. McNeill, Yunhua Xu^{*} and Weiwei Li^{*}

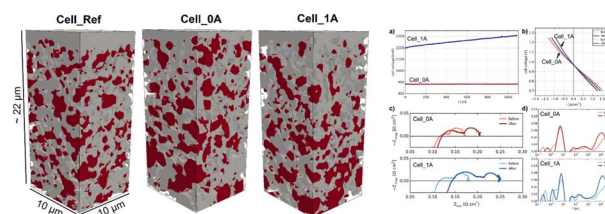


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3D microstructural characterization of Ni/yttria-stabilized zirconia electrodes during long-term CO₂ electrolysis

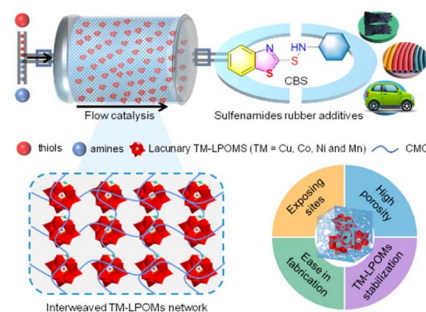
Yijing Shang, Anne Lyck Smitschuysen, Miao Yu, Yuliang Liu, Xiaofeng Tong, Peter Stanley Jørgensen, Léa Rorato, Jérôme Laurencin and Ming Chen*



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Flowing scalable production of sulfenamides by active site-tuned lacunary polyoxometalate foams

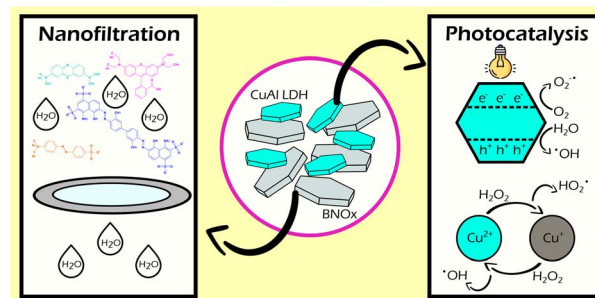
Gang Liu, Yuquan Qi, Jiashuai Li, Yifa Chen,* Yilan Chen, Zhen Li, Guodong Shen, Delong Ma, Yunfeng Li and Xianqiang Huang*



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Layered double hydroxide/boron nitride nanocomposite membranes for efficient separation and photodegradation of water-soluble dyes

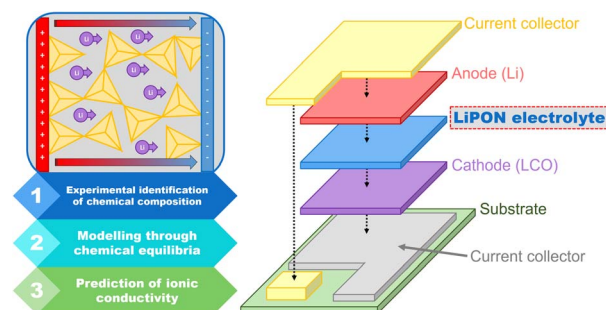
Áine Coogan, Natalia García Doménech, Donagh Mc Ginley, Tigran Simonian, Aran Rafferty, Quentin Fedix, Amy Donlon, Valeria Nicolosi and Yurii K. Gun'ko*



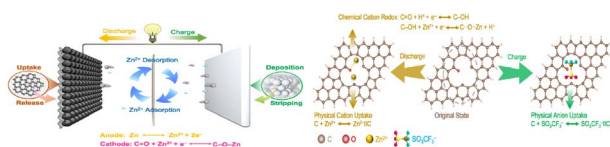
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Thermodynamic calculation of the ionic conductivity of LiPON glasses and solid electrolytes

Alberto López-Grande, Glenn C. Mather and Francisco Muñoz*



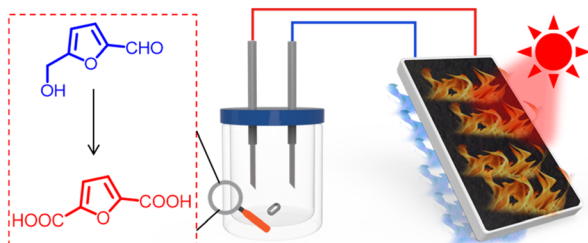
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Zincophilic multilayer graphene structures leveraging fast and ultrastable Zn-ion storage

Qi Huang, Yaowei Jin, Lu Huang, Yao Cong and Zijie Xu*

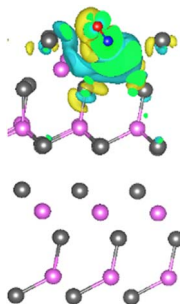
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Harnessing solar energy for electrocatalytic biorefinery using lignin-derived photothermal materials

Xinpeng Zhao, Lei Shi, Bing Tian, Shujun Li, Shouxin Liu, Jian Li, Song Liu,* Tony D. James* and Zhijun Chen*

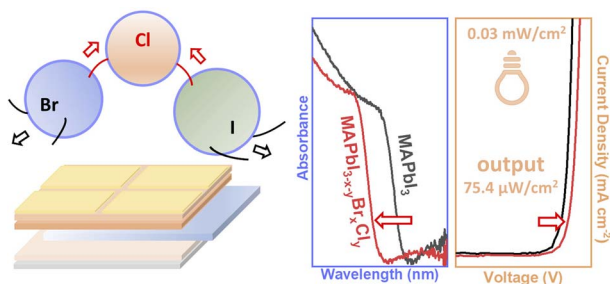
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Solution-processed In_2Se_3 nanosheets for ultrasensitive and highly selective NO_2 gas sensors

Gianluca D'Olimpio, Vardan Galstyan, Corneliu Ghica, Mykhailo Vorokhta, Marian Cosmin Istrate, Chia-Nung Kuo, Chin Shan Lue, Danil W. Boukhvalov,* Elisabetta Comini* and Antonio Politano*

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Chlorine retention enables the indoor light harvesting of triple halide wide bandgap perovskites

Shaoyang Wang, Paul R. Edwards, Maged Abdelsamie, Peter Brown, David Webster, Arvydas Ruseckas, Gopika Rajan, Ana I. S. Neves, Robert W. Martin, Carolin M. Sutter-Fella, Graham A. Turnbull, Ifor D. W. Samuel and Lethy Krishnan Jagadamma*

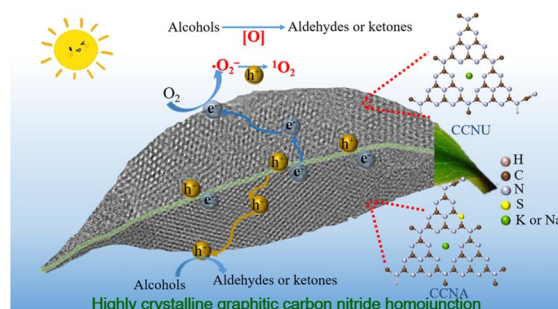


PAPERS

12342

Molten salt synthesis of a highly crystalline graphitic carbon nitride homojunction from a deep eutectic solvent for selective photocatalytic oxidation

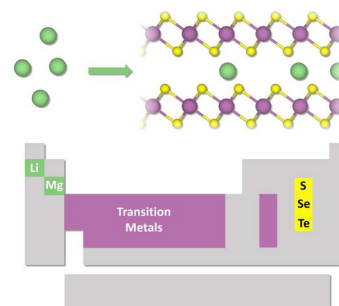
Yanglin Chen,* Limo He, Hui-Ru Tan, Xuanhao Lin, Stephan Jaenicke and Gaik-Khuan Chuah*



12354

First principles study of layered transition metal dichalcogenides for use as electrodes in Li-ion and Mg-ion batteries

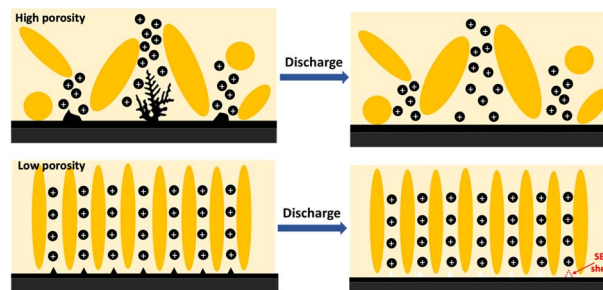
Conor Jason Price,* Edward Allery David Baker and Steven Paul Hepplestone*



12373

Impact of hydrogel microstructure and mechanics on the growth of zinc dendrites towards long-life flexible batteries

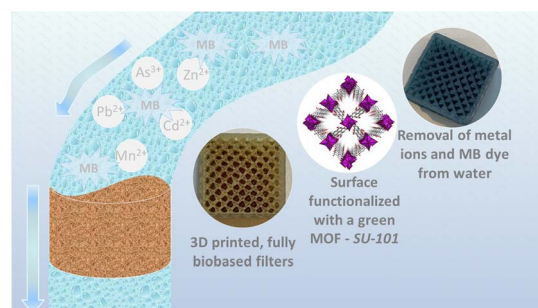
Yang Yang, Huanlin Lyu, Qihong Wang, Faheem Mushtaq, Xian Xie, Fei Liu, Xiangkun Bo, Weilu Li and Walid A. Daoud*

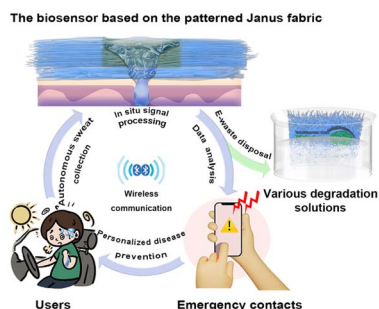


12384

MOF@Cell: 3D printed biobased filters anchored with a green metal–organic framework for effluent treatment

Natalia Fijoł, Andreas Mautner, Erik Svensson Grape, Zoltán Bacsik, A. Ken Inge and Aji P. Mathew*





High-performance sensing, breathable, and biodegradable integrated wearable sweat biosensors for a wireless glucose early warning system

He Zhao, Ling Zhang,^{*} Tianbo Deng and Chunzhong Li^{*}

