

Journal of Materials Chemistry A

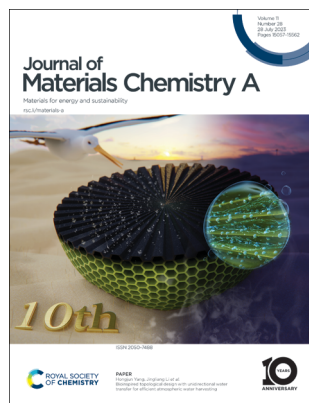
Materials for energy and sustainability

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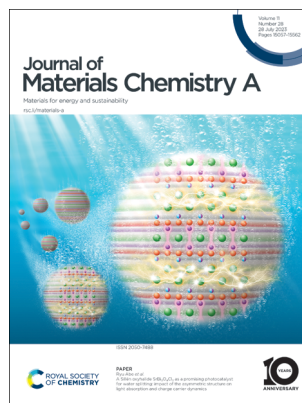
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ISSN 2050-7488 CODEN JMCAET 11(28) 15057–15562 (2023)



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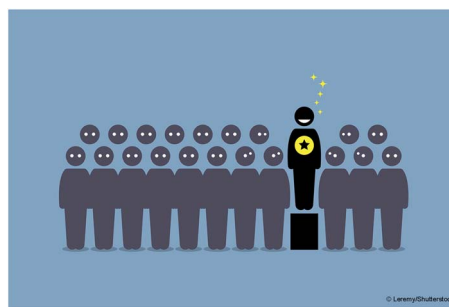
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EDITORIAL

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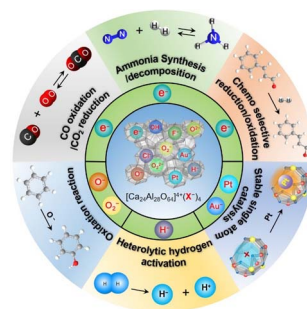


REVIEWS

15074

Recent progress and prospects in active anion-bearing C12A7-mediated chemical reactions

Xiangyu Zhang, Zichuang Li, Miao Xu, Hideo Hosono and Tian-Nan Ye*



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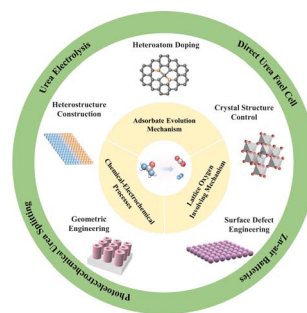


REVIEWS

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Electrocatalytic urea oxidation: advances in mechanistic insights, nanocatalyst design, and applications

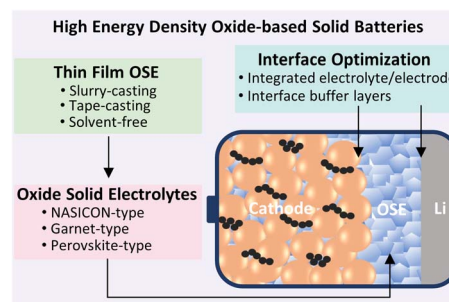
Weiyei Ge, Liping Lin, Shu-Qi Wang, Yechen Wang, Xiaowei Ma, Qi An* and Lu Zhao*



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Thin film oxide solid electrolytes towards high energy density batteries: progress of preparation methods and interface optimization

Qing Zhang, Junjie Zhou, Peng Cui, Zhongyue Wang, Peng Lv, Kehan Yu and Wei Wei*

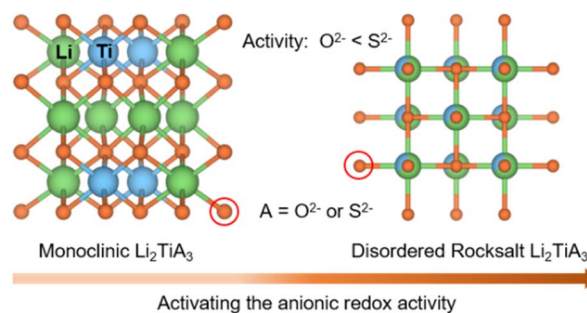


COMMUNICATION

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Structural factors for activating anionic redox in Li-rich Ti-based cathodes

Dohyeong Kwon and Duho Kim*

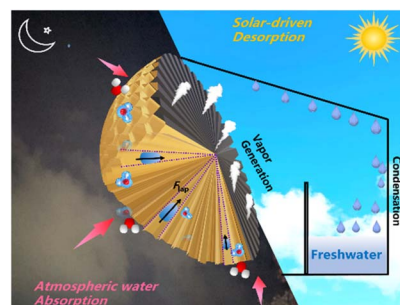


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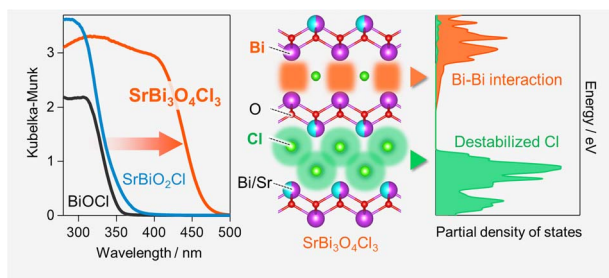
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Bioinspired topological design with unidirectional water transfer for efficient atmospheric water harvesting

Yiming Bu, Xin Li, Weiwei Lei, Hongli Su, Hongjun Yang,* Weilin Xu and Jingliang Li*



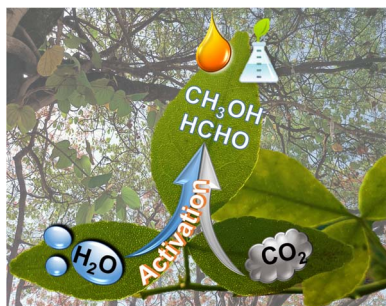
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A Sillén oxyhalide $\text{SrBi}_3\text{O}_4\text{Cl}_3$ as a promising photocatalyst for water splitting: impact of the asymmetric structure on light absorption and charge carrier dynamics

Hajime Suzuki, Daichi Ozaki, Yusuke Ishii, Osamu Tomita, Daichi Kato, Shunsuke Nozawa, Kouichi Nakashima, Akinori Saeki, Hiroshi Kageyama and Ryu Abe*

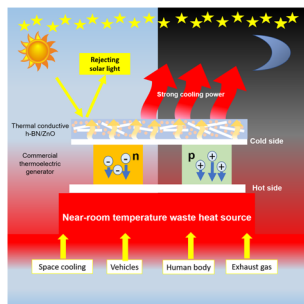
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Kranti N. Salgaonkar, Himanshu Bajpai, Nitin B. Mhamane, Naresh Nalajala, Inderjeet Chauhan, Kavita Thakkar, Kavita Joshi and Chinnakonda S. Gopinath*

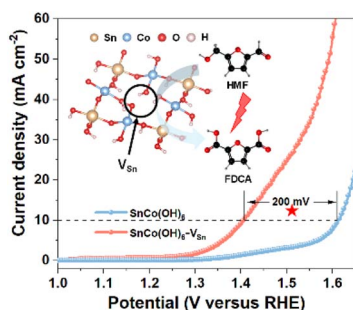
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Near-room-temperature waste heat recovery through radiative cooling for both daytime and nighttime power generation

Sih-Wei Chang, Yen-Jen Chen, Dehui Wan and Hsuen-Li Chen*

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Cationic vacancies accelerate the generation of CoOOH in perovskite hydroxides for the electrooxidation of biomass

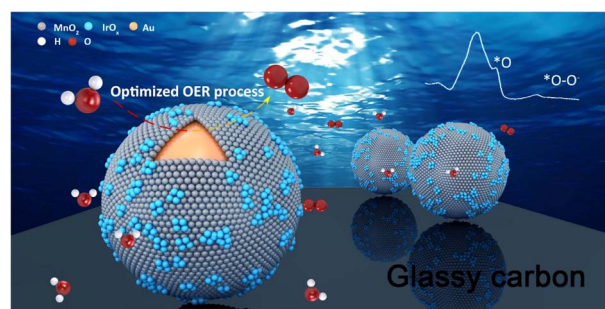
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Metal-support interactions alter the active species on IrO_x for electrocatalytic water oxidation

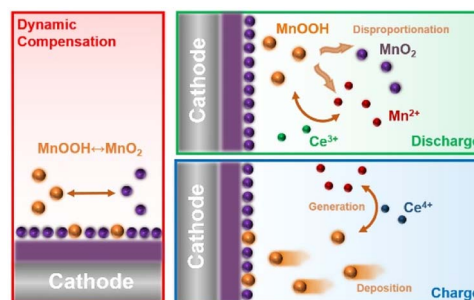
Ge-Yang Xu, Mu-Fei Yue, Zheng-Xin Qian, Zi-Yu Du, Xiao-Qun Xie, Wei-Ping Chen, Yue-Jiao Zhang* and Jian-Feng Li*



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Dynamic compensation of MnOOH to mitigate the irregular dissolution of MnO₂ in rechargeable aqueous Zn/MnO₂ batteries

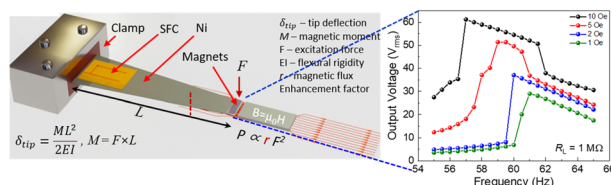
Guojun Lai, Pengchao Ruan, Xueting Hu, Bingan Lu, Shuqiang Liang, Yan Tang* and Jiang Zhou*



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Obtaining a broadband magneto-mechano-electric generator with large power for IoT operation

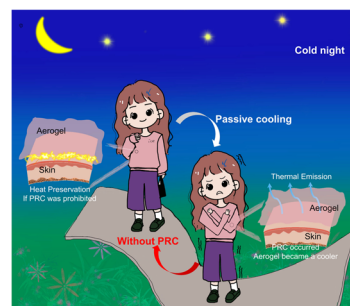
Deepak R. Patil, Seungah Lee, Atul Thakre, Ajeet Kumar, Dae-Yong Jeong* and Jungho Ryu*



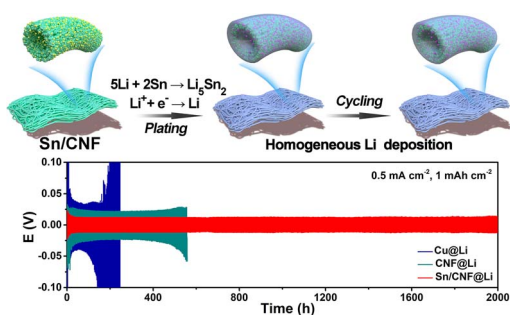
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Universal passive radiative cooling behavior of aerogels

Bingjie Ma, Bing Wu, Peiying Hu, Ling Liu and Jin Wang*



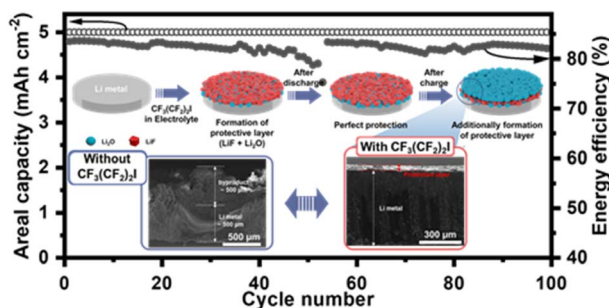
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Steady cycling of lithium metal anode enabled by alloying Sn-modified carbon nanofibers

Cuimei Fu, Hao Yang, Pengfei Jia, Chengcheng Zhao, Lina Wang* and Tianxi Liu*

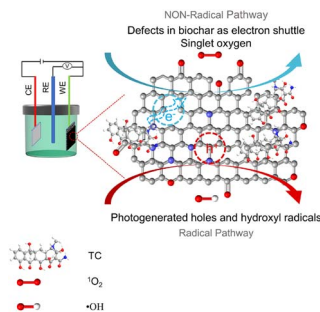
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A fluoroalkyl iodide additive for Li–O₂ battery electrolytes enables stable cycle life and high reversibility

Min-Gi Jeong, Hyun Ho Lee, Hyeon-Ji Shin, Yeseul Jeong, Jang-Yeon Hwang, Won-Jin Kwak, Gwangseok Oh, Wonkeun Kim, Kyoungchan Ryu, Seungho Yu, Hee-Dae Lim, Minah Lee and Hun-Gi Jung*

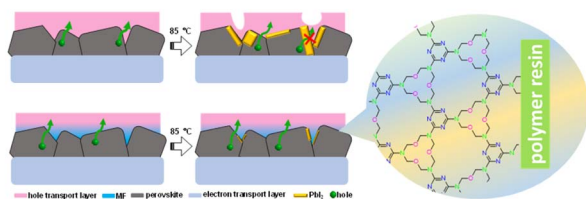
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Assessing the potential of biochar derived from sewage sludge for photoelectrode fabrication: methods, mechanisms, and conclusions

Chuangxin Peng, Jing Huang, Min Ruan, Haihao Peng, Meiyong Jia, Jing Tong, Weiping Xiong* and Zhaohui Yang*

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Surface polymerization of melamine resin on a perovskite: enhancing the efficiency and stability of solar cells

Tianyu Li, Yuyan Zhang, Lingyi Fang, Bing Zhang, Yi Yuan, Jing Zhang and Peng Wang*



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Hydrophobic dispersion-derived Si/rGO nanocomposites in SiOC ceramic matrix as anode materials for high performance lithium-ion batteries

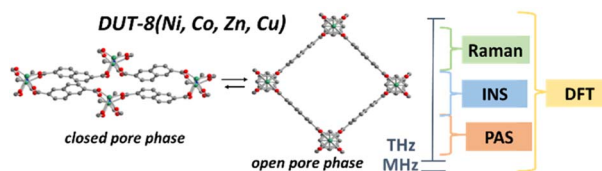
Minkyong Ku, Dohyub Park, Minjun Kim, Minsu Choi and Wonchang Choi*



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The role of phonons in switchable MOFs: a model material perspective

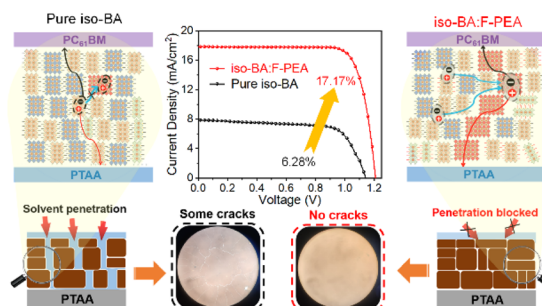
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Strain relaxation and phase regulation in quasi-2D perovskites for efficient solar cells

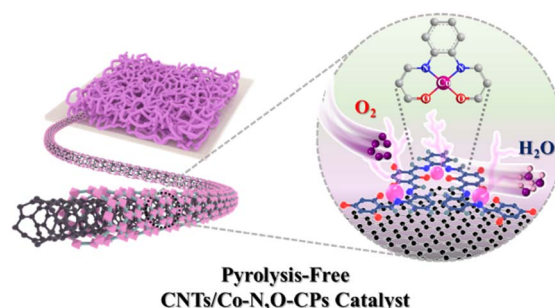
Haolin Zhang, Ze Wang, Haoyu Wang, Xianghua Yao, Furong Wang, Shuya Wang, Sai Bai, Jiang Huang, Xiao Luo,* Shuanghong Wu* and Xiaodong Liu*



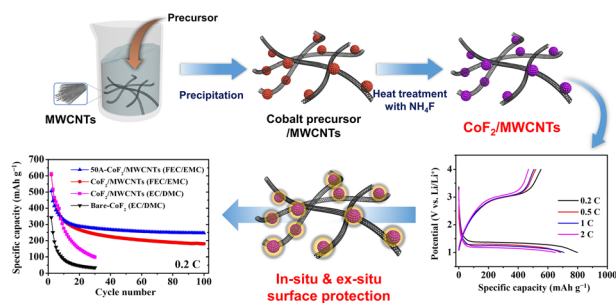
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Crafting core-shell heterostructures of carbon nanotubes and N,O-coordinated cobalt site-impregnated conjugated porous polymers for highly efficient oxygen reduction

Rui Ma, Zhengjiao Xie, Xiaoxue Xu, Chenglong Tang, Xueqin Liu, Yunhai Zhu, Xun Cui* and Yingkui Yang*



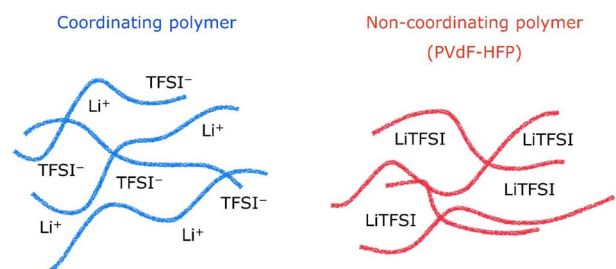
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Facile synthesis of cobalt fluoride (CoF₂)/multi-walled carbon nanotube (MWCNT) nanocomposites and improvement of their electrochemical performance as cathode materials for Li-ion batteries

Hayoung Park, Il-Seop Jang, Bo-Ye Song, Yun Chan Kang, Seongseop Kim* and Jinyoung Chun*

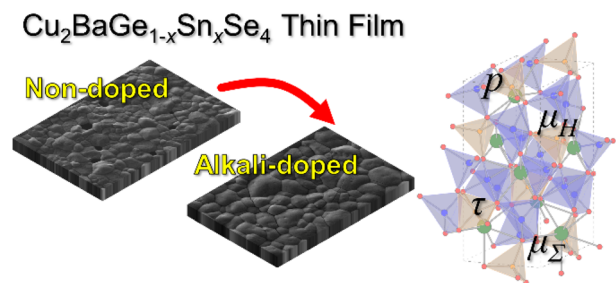
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Do non-coordinating polymers function as host materials for solid polymer electrolytes? The case of PVdF-HFP

Guiomar Hernández,* Tian Khoon Lee, Máté Erdélyi, Daniel Brandell and Jonas Mindemark*

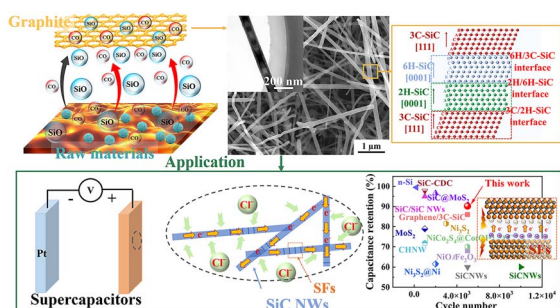
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Alkali element (Li, Na, K, and Rb) doping of Cu₂BaGe_{1-x}Sn_xSe₄ films

Yongshin Kim, Hannes Hempel, Steven P. Harvey, Nelson A. Rivera, Jr, Thomas Unold and David B. Mitzi*

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Synthesis of 3C/2H/6H heterojunction SiC nanowires with high-performance supercapacitors by thermal evaporation

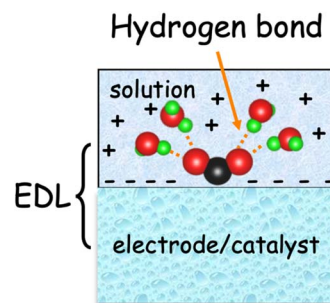
Pengchao Kang,* Qiqi Zhao, Tien Zhang, Wei Xue, Jinrui Qian, Zengyan Wei,* Pingping Wang* and Gaohui Wu



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Origin and predictive principle for selective products of electrocatalytic carbon dioxide reduction

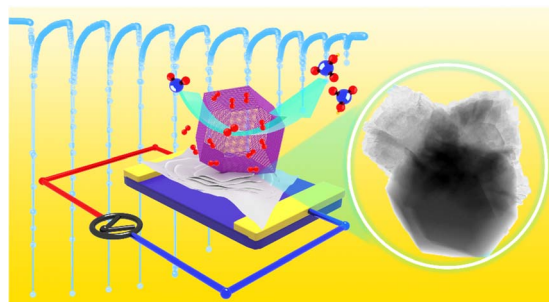
Lele Gong, Xiaowei Wang, Rahman Daiyan, Xiaofeng Zhu, Joshua Leverett, Zhiyao Duan, Lipeng Zhang,* Rose Amal, Liming Dai and Zhenhai Xia*



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ZIF-67/BiOCl nanocomposites for highly efficient detection of NO₂ gas at room temperature

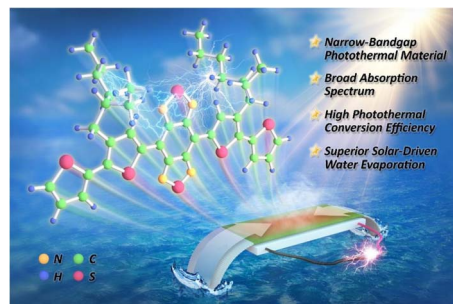
Jiahui Fan, Lin Jiang, He Lv, Fangjie Qin, Yihe Fan, Jue Wang, Muhammad Ikram* and Keying Shi*



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A narrow-bandgap photothermal material based on a donor–acceptor structure for the solar–thermal conversion application

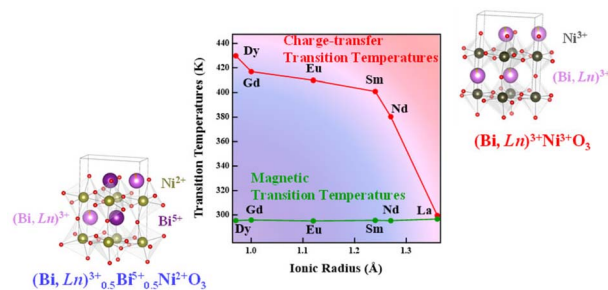
Ruoyu Zhang, Nanxi Jin, Tao Jia,* Luoqing Wang, Jing Liu, Mengmeng Nan, Shuo Qi, Siqi Liu and Yuyu Pan*



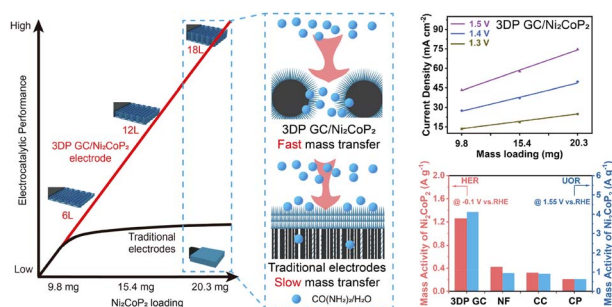
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Thermal properties and phase transition behaviors of possible caloric materials Bi_{0.95}Ln_{0.05}NiO₃

Chen Chen, Yoshihisa Kosugi, Masato Goto and Yuichi Shimakawa*



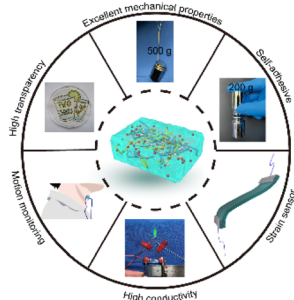
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Enabling high loading of well-dispersed Ni_2CoP_2 catalysts on a 3D-printed electrode for efficient electrocatalysis

Meiwen Peng, Bo Zhao, Danli Shi, Yawen Wang, Dong Li, Wenkai Liang, He Yang, Zhiqiang Liang, Yinghui Sun* and Lin Jiang*

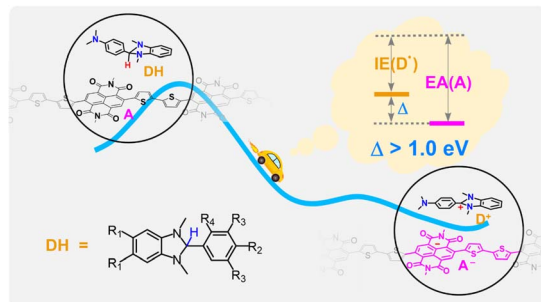
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A highly tough, fatigue-resistant, low hysteresis hybrid hydrogel with a hierarchical cross-linked structure for wearable strain sensors

Shiqiang Guan, Chang Xu, Xufeng Dong* and Min Qi

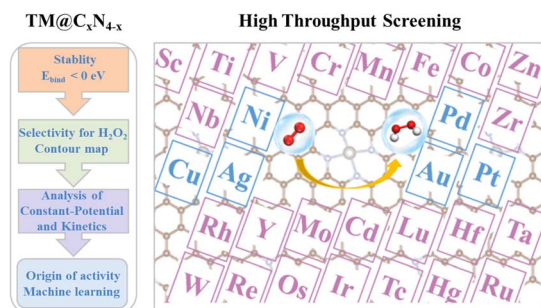
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Electron transfer driving force as the criterion for efficient n-doping of organic semiconductors with DMBI-H derivatives

Chunlin Xu and Dong Wang*

15426



Accelerating high-throughput screening of hydrogen peroxide production via DFT and machine learning

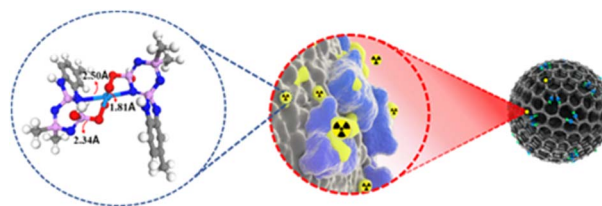
Wenwen Li, Ge Feng, Shibin Wang,* Xing Zhong, Zihao Yao, Shengwei Deng and Jianguo Wang*



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Speeding up the selective extraction of uranium through *in situ* formed nano-pockets

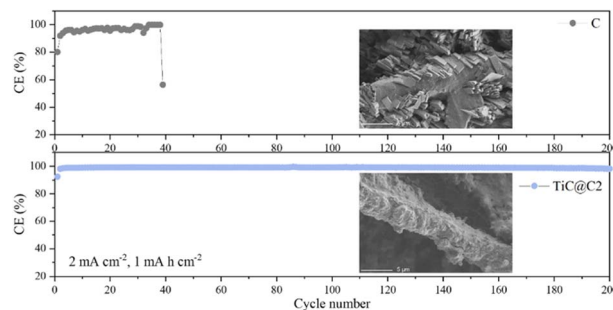
Zhihao Pan, Lin Zhao, Lirong Cai,* Shiyong Wang, Bing Lu, Pingyu Zhang and Gang Wang*



15444

Self-standing TiC-modified carbon fibre electrodes derived from cellulose and their use as an ultrahigh efficiency lithium metal anode

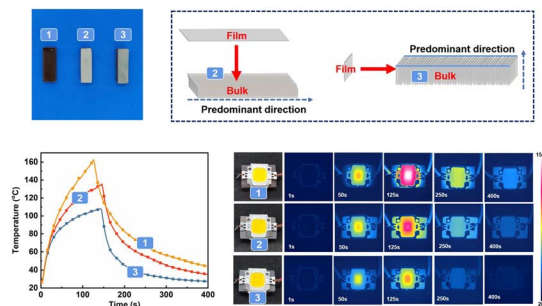
Junren Wang, Huimian Zhong, Bowen Liu, Min Zhang, Andrew L. Hector* and Andrea E. Russell



15456

Thermal conductivity and closed-loop recycling of bulk biphenyl epoxy composites with directional controllable thermal pathways

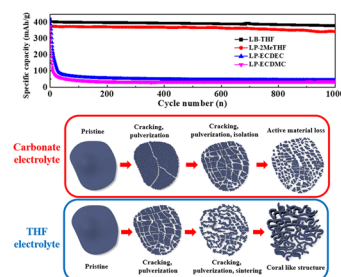
Fubin Luo,* Wenqi Cui, Yingbing Zou, Hongzhou Li and Qingrong Qian



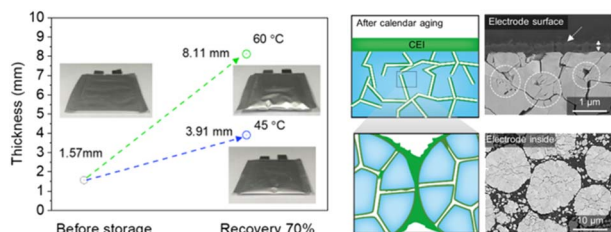
15466

Extended cycling performance of micron-sized bismuth anodes for lithium-ion batteries: self-healing of an alloy-type anode for lithium batteries

Milan K. Sadan, Eunji Song, Hooam Yu, Jimin Yun, Taehong Kim, Jou-Hyeon Ahn, Kwon-Koo Cho* and Hyo-Jun Ahn*



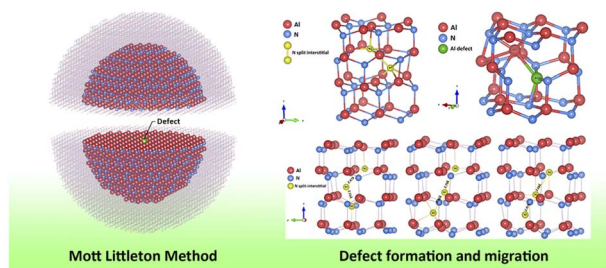
15475



Exploring the degradation pathways of a nickel-rich cathode during high-temperature storage in high-energy lithium-ion batteries

Hyunyeon Cha, Jaeseong Hwang, Taeyong Lee, Jihyeon Kang, Minjoon Park* and Jaephil Cho*

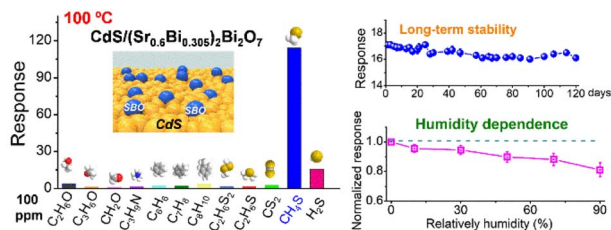
15482



Computational study of native defects and defect migration in wurtzite AlN: an atomistic approach

Lei Zhu, C. Richard A. Catlow,* Qing Hou, Xingfan Zhang, John Buckeridge and Alexey A. Sokol*

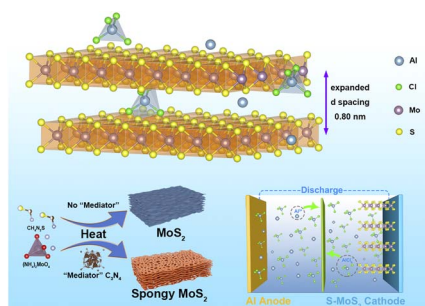
15499



Highly selective and sensitive detection of methyl mercaptan by heterostructural CdS/(Sr_{0.6}Bi_{0.305})₂Bi₂O₇ chemiresistor

Junqing Chang, Chaohao Hu, Zanhong Deng, Meng Li, Chengyin Shen, Shimao Wang, Longqing Mi, Ruofan Zhang, Qingli Zhang and Gang Meng*

15509



Modification of 2D materials using MoS₂ as a model for investigating the Al-storage properties of diverse crystal facets

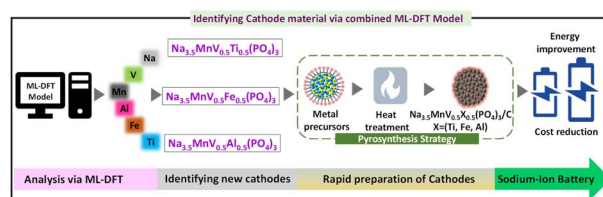
Rongkai Kang, Yiqun Du, Dongmei Zhang, Chenyi Sun, Wei Zhou, Han Wang, Guowen Chen* and Jianxin Zhang*



15518

Exploring low-cost high energy NASICON cathodes for sodium-ion batteries via a combined machine-learning, *ab initio*, and experimental approach

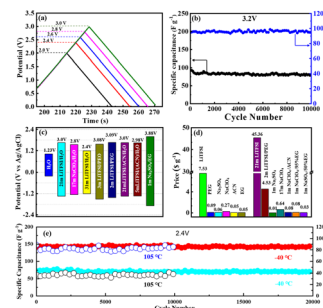
Vaiyapuri Soundharrajan, Muhammad Hilmy Alfaruqi, Ghalib Alfaza, Jun Lee, Seulgi Lee, Sohyun Park, Subramanian Nithiananth, Duong Tung Pham, Jang-Yeon Hwang* and Jaekook Kim*



15532

Ultrahigh-voltage aqueous electrolyte for wide-temperature supercapacitors

Shan Huang, Zhuo Li, Peng Li, Xianfeng Du,* Mingbo Ma, Zhongshuai Liang, Yaqiong Su and Lilong Xiong*



15540

Electrolyte ions-matching hierarchically porous biochar electrodes with an extended potential window for next-generation supercapacitors

Ganji Seeta Rama Raju, Svyatoslav Kondrat, Nilesh R. Chodankar, Seung-Kyu Hwang, Jeong Han Lee, Teng Long, Eluri Pavitra, Swati J. Patil, Kugalur Shanmugam Ranjith, M. V. Basaveswara Rao, Peng Wu,* Kwang Chul Roh,* Yun Suk Huh* and Young-Kyu Han*



15553

Enhancing intermolecular packing and light harvesting through asymmetric non-fullerene acceptors for achieving 18.7% efficiency ternary organic solar cells

Zhiliang Zhang, Jingnan Wu, Ji Lin, Rui Zhang, Junfang Lv, Linfeng Yu, Xia Guo* and Maojie Zhang*

