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IN THIS ISSUE

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Cover
See Wei Zhang, Chunyang Miao, Weibing Lu, ZhengMing Sun *et al.*, pp. 6507–6520.
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Inside cover
See Rodney S. Ruoff, Dong-Hwa Seo, Sunghwan Jin, Hyun-Wook Lee *et al.*, pp. 6521–6532.
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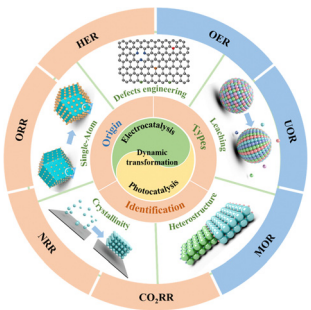
REVIEWS

6435

Dynamic transformation of active sites in energy and environmental catalysis

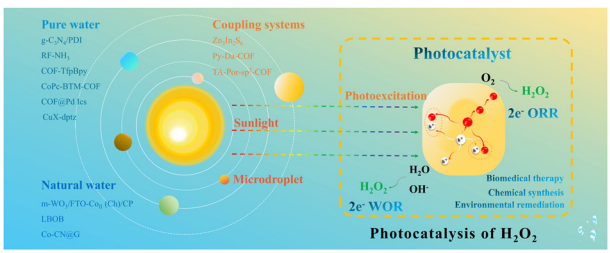
Hao Zhang,* Lei Chen,* Feng Dong, Zhiwen Lu, Enmin Lv, Xinglong Dong, Huanxin Li,* Zhongyong Yuan,* Xinwen Peng,* Shihe Yang,* Jieshan Qiu, Zhengxiao Guo* and Zhenhai Wen*



6482

The evolution of photocatalytic H_2O_2 generation: from pure water to natural systems and beyond

Yuyang Tang, Wuming Wang, Jiaqi Ran, Cheng Peng,* Zuxin Xu and Wenhai Chu*



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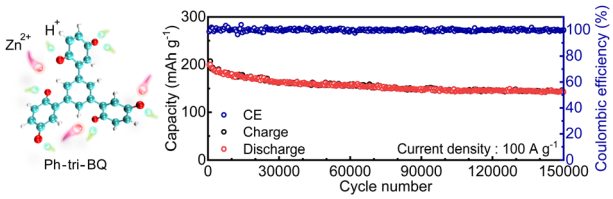
COMMUNICATION

6499

Non-conjugated linkage enabling a quinone-based cathode material with long cycle life and high energy density for aqueous zinc batteries

Lu Lin, Zhiqing Xue, Tong Qiu, Jiaqi Zhu, Guoli Zhang, Hongtu Zhan, Kuo Wang and Xiaoqi Sun*

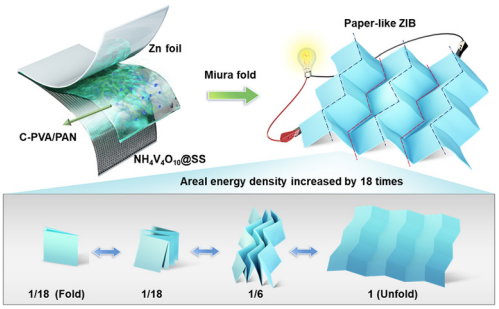


PAPERS

6507

Ultra-thin amphiphilic hydrogel electrolyte for flexible zinc-ion paper batteries

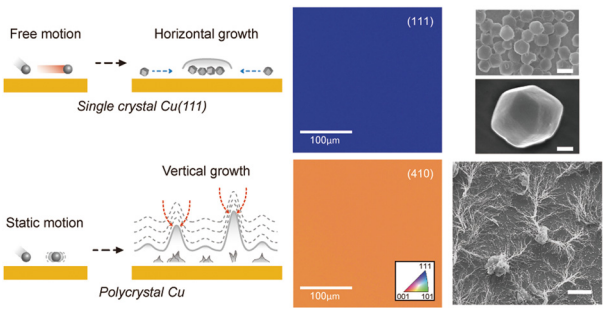
Huan Xia, Wei Zhang,* Chunyang Miao,* Hao Chen, Chengjie Yi, Yihan Shang, Tao Shui, Xin Cao, Jiacheng Liu, Song-Zhu Kure-Chu, Feifei Liang, Nosipho Moloto, Yipeng Xiong, Takehiko Hihara, Weibing Lu* and ZhengMing Sun*



6521

Horizontal lithium growth driven by surface dynamics on single crystal Cu(111) foil

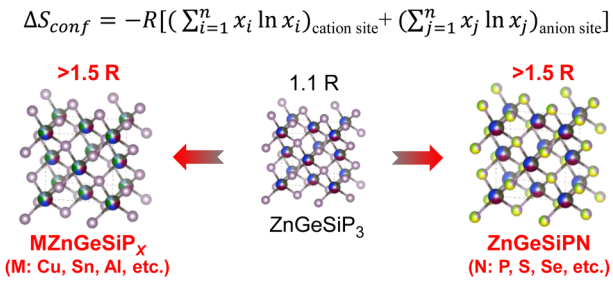
Min-Ho Kim, Dong Yeon Kim, Yunqing Li, Juyoung Kim, Min Hyeok Kim, Jeongwoo Seo, Benjamin V. Cunning, Taewon Kim, Sang-Wook Park, Rodney S. Ruoff,* Dong-Hwa Seo,* Sunghwan Jin* and Hyun-Wook Lee*



6533

Enhancing lithium storage rate and durability in sphalerite GeP by engineering configurational entropy

Yanhong Li, Jeng-Han Wang, Tzu-Yu Liu, Xinwei Li, Zaiping Guo, Meilin Liu and Wenwu Li*



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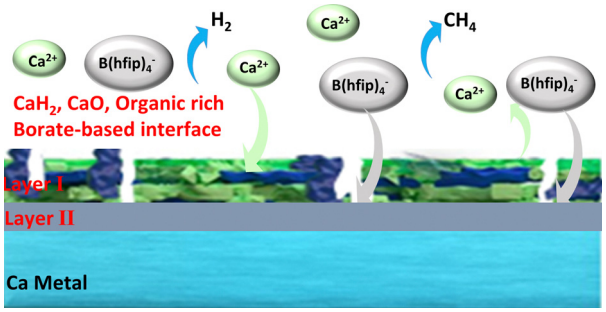
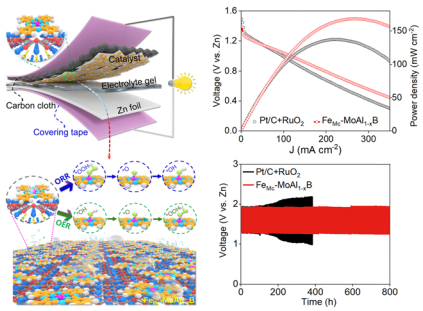


Deciphering the dynamic interfacial chemistry of calcium metal anodes

Huijun Lin, Jiayi Meng, Weihua Guo, Renjie Li, Yuyang Yi, Yiyuan Ma, Chi Fai Cheung, Doron Aurbach* and Zheng-Long Xu*

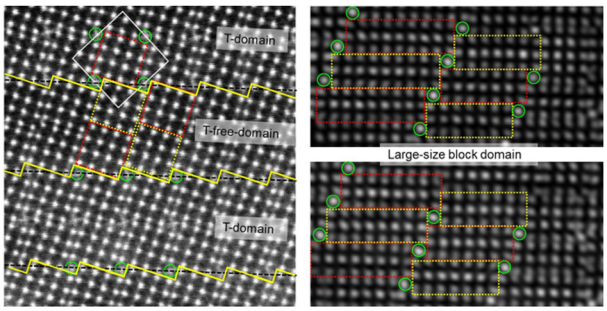
6559



Molecularly engineered potential of d-orbital modulated iron-bridged delaminated MBene for rechargeable Zn–air batteries

Seung Woong Nam, Thanh Hai Nguyen, Duy Thanh Tran,* Van An Dinh, Thi Thuy Nga Ta, Chung-Li Dong, Nam Hoon Kim* and Joong Hee Lee*

6571



Tailoring the Wadsley–Roth crystallographic shear structures for high-power lithium-ion batteries

Panpan Jing, Mengting Liu, Hsin-Pei Ho, Yifan Ma, Weibo Hua, Haohui Li, Nan Guo, Yong Ding, Weilin Zhang, Hailong Chen, Bote Zhao,* Jenghan Wang* and Meilin Liu*

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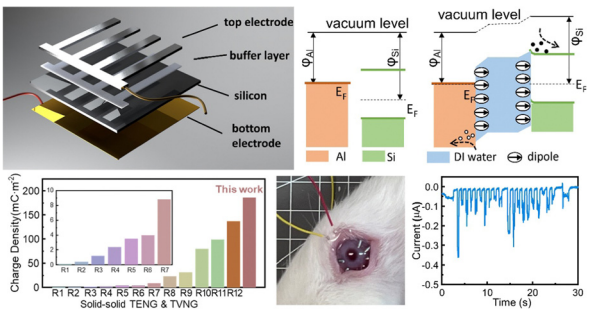

A wiping-type semiconductor–liquid generator utilizing water-bearing solid materials and hydrated biological tissues

Zhaoqi Liu, Shiquan Lin, Peng Yang, Siyao Qin, Jun Hu and Xiangyu Chen*

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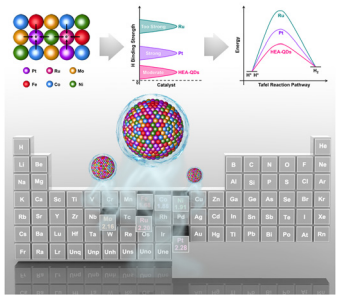
PAPERS

6594

Strong transboundary electron transfer of high-entropy quantum-dots driving rapid hydrogen evolution kinetics

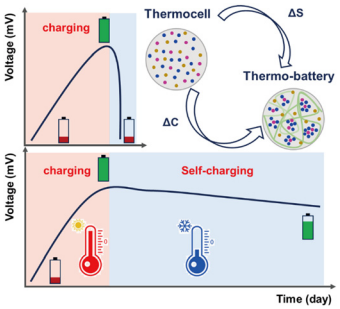
Hao Zhao, Mengyuan Liu, Qiansen Wang, YuZe Li, Yubin Chen, Yanping Zhu, Zhouying Yue, Jun Li, Guoliang Wang, Zhiqing Zou, Qingqing Cheng* and Hui Yang*



6606

Confined phase transition triggering a high-performance energy storage thermo-battery

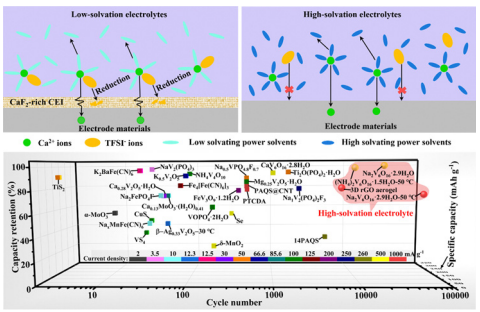
Jing Li, Shiyan Chen,* Xiangyang Qu, Zhiliang Han, Zhou Zhou, Lili Deng, Yuhang Jia, Shengming Zhang, Ruimin Xie and Huaping Wang*



6616

High-solvation electrolytes for ultra-stable calcium-ion storage

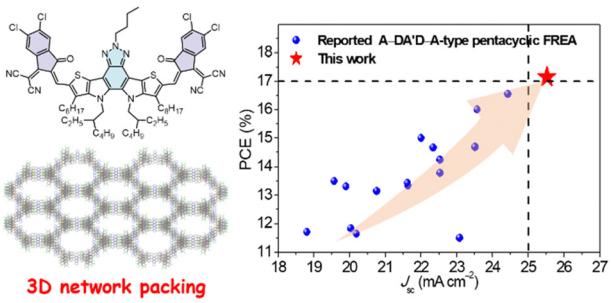
Junjun Wang, Ruohan Yu, Yalong Jiang, Fan Qiao, Xiaobin Liao, Jianxiang Wang, Meng Huang, Fangyu Xiong, Lianmeng Cui, Yuhang Dai, Lei Zhang, Qinyou An,* Guanjie He* and Liqiang Mai*



6627

High-efficiency organic solar cells from low-cost pentacyclic fused-ring electron acceptors *via* crystal engineering

Wenkui Wei, Xiyue Yuan, Jianbin Zhong, Zhiqiang Wang, Xia Zhou, Feixiang Zhao, Dinglong Feng, Yue Zhang,* Weidi Chen, Mingqun Yang, Wei Zhang,* Zaifei Ma, Zheng Tang, Xinhui Lu, Fei Huang, Yong Cao and Chunhui Duan*



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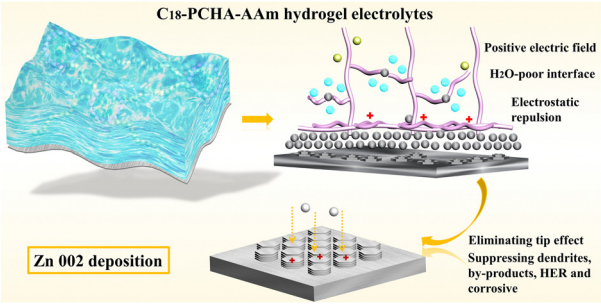
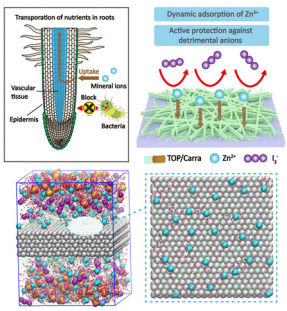


Polycation-regulated hydrogel electrolytes with nanoscale hydrophobic confinement inducing Zn(002) deposition for highly reversible zinc anodes

Xilin Wang, Bin Wang,* Pengyang Lei, Xiaorui Wang, Lei Zhou, Junxiang Zhang, Jinyang Zhang and Jianli Cheng*

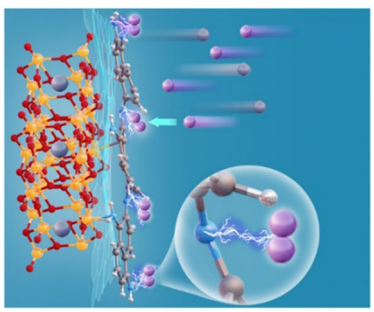
6656



A plant root cell-inspired interphase layer for practical aqueous zinc–iodine batteries with super-high areal capacity and long lifespan

Yuting Xu, Minghao Zhang, Rong Tang, Siyang Li, Chenxi Sun, Zeheng Lv, Wenhao Yang, Zhipeng Wen, Cheng Chao Li,* Xue Li* and Yang Yang*

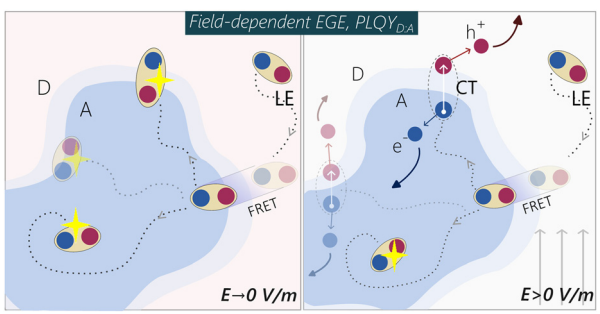
6666



Dual mechanism with graded energy storage in long-term aqueous zinc-ion batteries achieved using a polymer/vanadium dioxide cathode

Zhihang Song, Yi Zhao, Huirong Wang, Anbin Zhou, Xiaoyu Jin, Yongxin Huang,* Li Li, Feng Wu and Renjie Chen*

6676



On the critical competition between singlet exciton decay and free charge generation in non-fullerene based organic solar cells with low energetic offsets

Manasi Pranav, Atul Shukla, David Moser, Julia Rumeney, Wenlan Liu, Rong Wang, Bowen Sun, Sander Smeets, Nurlan Tokmoldin, Yonglin Cao, Guorui He, Thorben Beitz, Frank Jaiser, Thomas Hultzsch, Safa Shoaee, Wouter Maes, Larry Lüer, Christoph Brabec, Koen Vandewal, Denis Andrienko, Sabine Ludwigs and Dieter Neher*

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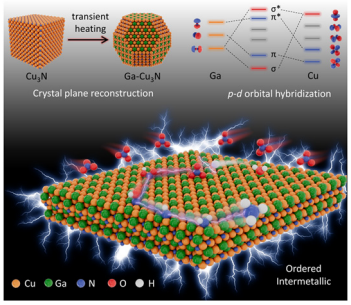
6698

Transient heating synthesis of a highly ordered Ga–Cu intermetallic antiperovskite for efficient ammonia electrosynthesis and ultrastable zinc–nitrate fuel cells

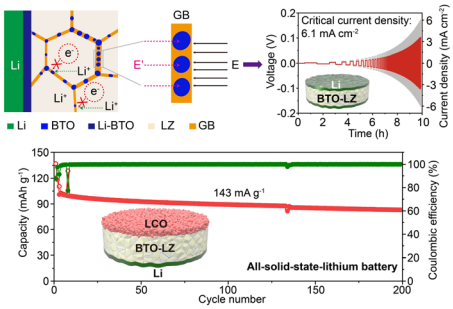
Peifang Wang,* Chongchong Liu, Lei Rao, Weixiang Tao, Rong Huang, Peilin Huang and Gang Zhou*



6707

Field-responsive grain boundary against dendrite penetration for all-solid-state batteries

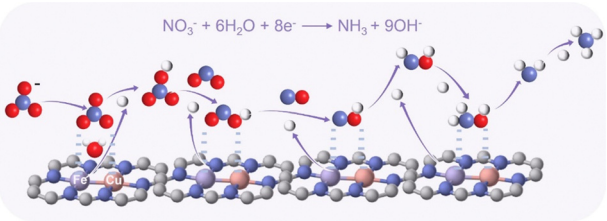
Bing-Qing Xiong, Xiaoye Liu, Qingshun Nian, Zihong Wang, Yuhong Zhu, Xuan Luo, Jinyu Jiang, Digen Ruan, Jun Ma, Junhao Jiang, Yi-Feng Cheng, Changhao Li and Xiaodi Ren*



6717

Regulating intermediate adsorption and H_2O dissociation on a diatomic catalyst to promote electrocatalytic nitrate reduction to ammonia

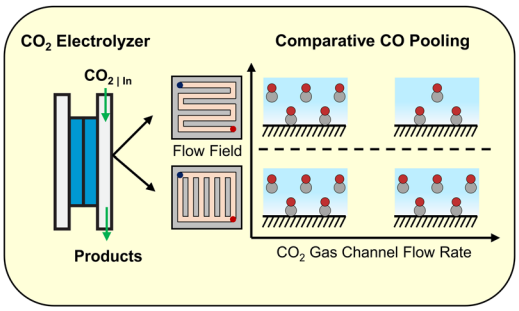
Xiaoxue Zhang, Xiaokang Liu, Zhen-Feng Huang,* Li Gan, Shishi Zhang, Ru Jia, Muhammad Ajmal, Lun Pan, Chengxiang Shi, Xiangwen Zhang, Guidong Yang and Ji-Jun Zou*



6728

CO residence time modulates multi-carbon formation rates in a zero-gap Cu based CO_2 electrolyzer

Siddhartha Subramanian,* Jesse Kok, Pratik Gholkar, Asvin Sajeev Kumar, Hugo-Pieter Iglesias van Montfort, Ruud Kortlever, Atsushi Urakawa, Bernard Dam and Thomas Burdyny*



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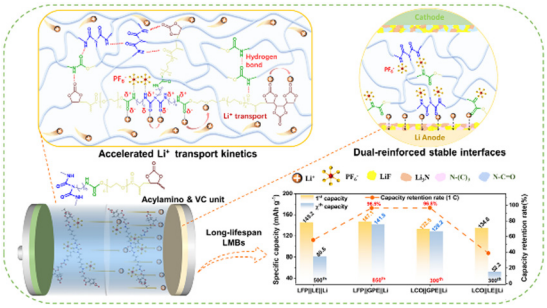
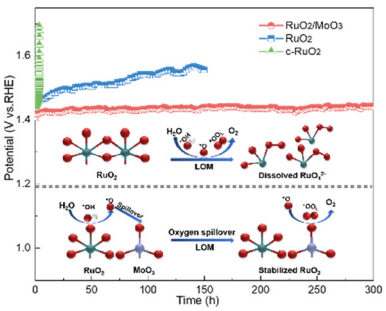


Leveraging polymer architecture design with acylamino functionalization for electrolytes to enable highly durable lithium metal batteries

Jiayu Zheng, Lingyan Duan,* Hang Ma, Qi An, Qing Liu, Yongjiang Sun, Genfu Zhao, Hanlin Tang, Yang Li, Shimin Wang, Qijun Xu, Lilian Wang and Hong Guo*

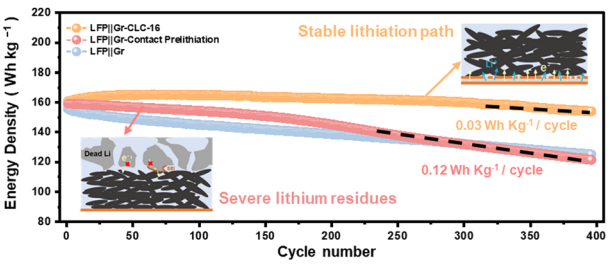
6755



Oxygen spillover from RuO_2 to MoO_3 enhances the activity and durability of RuO_2 for acidic oxygen evolution

Wangyan Gou, Shishi Zhang, Yichen Wang, Xiaohe Tan, Linqing Liao, Zening Qi, Min Xie, Yuanyuan Ma,* Yaqiong Su* and Yongquan Qu*

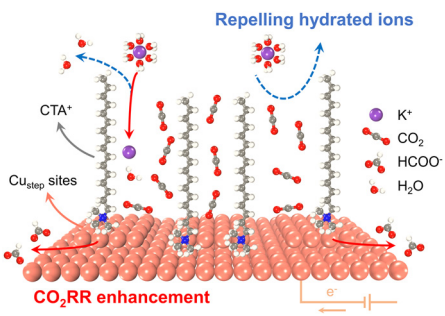
6766



Air-stable lithium-sandwiched current collector for non-destructive, thermally safe, and sustained supplementary lithiation

Can Zhang, Xinlong Chen, Wang Wan, Ganxiong Liu, Quan Nie, Fangzhou Yang, Xueyang Li, Sa Li, Yunhui Huang and Chao Wang*

6779



Stepped copper sites coupling voltage-induced surfactant assembly to achieve efficient CO_2 electroreduction to formate

Sicong Qiao, Guikai Zhang, Dong Tian,* Wenjie Xu, Wei Jiang, Yuyang Cao, Jun Qian, Jing Zhang, Qun He* and Li Song*

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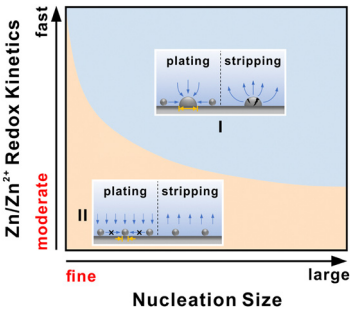
6787

A homogeneous plating/stripping mode with fine grains for highly reversible Zn anodes

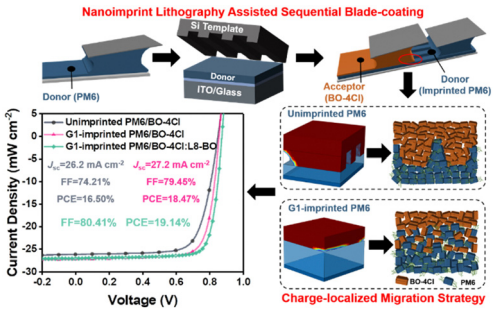
Zhen Luo, Yufan Xia, Shuang Chen, Xingxing Wu, Esther Akinlabi, Ben Bin Xu,* Hongge Pan, Mi Yan and Yinzhu Jiang*



6799

Modulation of charge migration and ink flow dynamics exceeding 19% efficiency for blade-coating pseudo-planar heterojunction organic solar cells

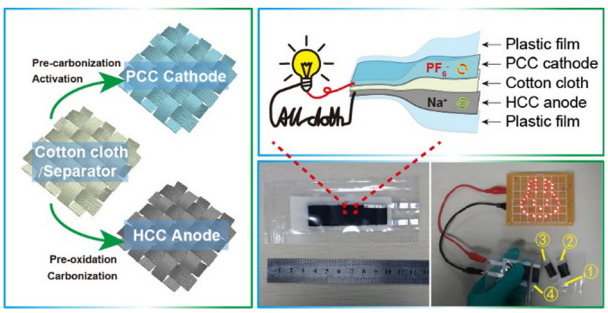
Houdong Mao, Jiahua Zhang, Xin Cen, Jiayou Zhang, Lin Wen, Jingwei Xue, Dou Luo, Lifu Zhang,* Zhao Qin, Wei Ma, Licheng Tan* and Yiwang Chen*



6811

Targeted design strategies for a highly activated carbon cloth cathode/anode to construct flexible and cuttable sodium Ion capacitors with an all-woven-structure

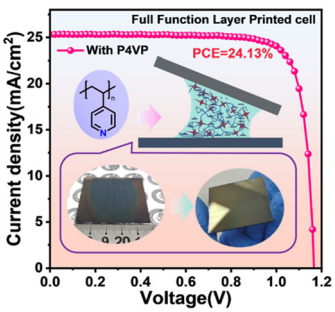
Ying-Ying Wang, Zhong-Yuan Wang, Yu-Juan Xu, Wei-Hua Chen,* Guo-Sheng Shao* and Bao-Hua Hou*



6821

Polymer modulated ink rheology and compatibility enables homogenized printing of a Spiro-OMeTAD transport layer for scalable and stable perovskite solar modules

Jin Li, Baojing Fan, Xukai Liu, Yuxin Liu, Zhi Xing, Chenxiang Gong, Zhaoyang Chu, Linfeng Li, Xiangchuan Meng, Rui Guo,* Fuyi Wang, Xiaotian Hu* and Yiwang Chen*



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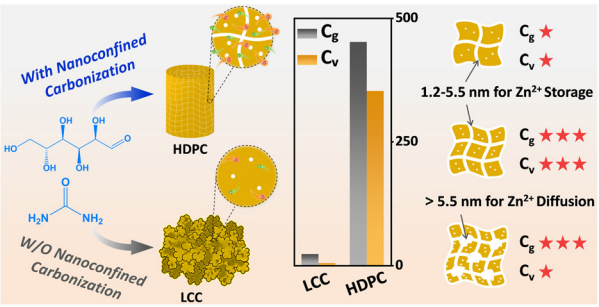
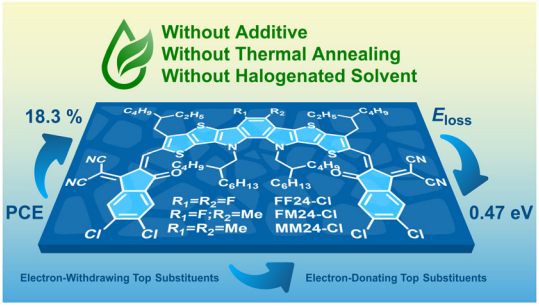


Nanoconfined carbonization enabling high-density porous carbon for jointly superior gravimetric and volumetric zinc-ion storage

Jiacong Lu, Xinyue Zhong, Xiaomin Lin, Jiuqing Gui, Mingtao Zheng, Yingliang Liu and Yeru Liang*

6844



C-shaped *ortho*-benzodipyrrole-based acceptors with different electronic effects of top substituents for as-cast green-solvent processed high-performance organic solar cells

Yufei Gong, Tianwei Zou, Xiaojun Li,* Shucheng Qin, Guangpei Sun, TongLing Liang, Ruimin Zhou, Jianqi Zhang, Jinyuan Zhang, Lei Meng, Zhixiang Wei and Yongfang Li*

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